Social Studies Learning Innovation Using Deep Learning And Gamification ZEP Quiz

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ABSTRACT

Background: The digital era demands adaptive and innovative social studies education to move beyond conventional teacher-centered approaches that rely on memorization

Objectives: This activity aims to strengthen the capacity of social studies teachers in developing learning evaluation models based on deep learning and gamification using the ZEP Quiz platform.

Method: The activity utilized a hands-on, participatory workshop method combined with a reflective mentoring approach, involving 134 social studies teachers from the MGMP IPS Bandung City. The procedure followed four systematic stages: preparation, implementation, evaluation, and follow-up.

Result: Statistical analysis using the Wilcoxon Signed Rank Test showed a significant increase in teachers' understanding of deep learning concepts and digital pedagogical skills ($p < 0.05$). Teacher confidence in utilizing digital media rose significantly from 38% to 87% post-training. Furthermore, the workshop successfully produced 80 interactive quiz products ready for classroom implementation.

Conclusion: This activity successfully achieved its targets by improving teacher professionalism, fostering a collaborative digital culture through the MGMP network, and encouraging sustainable innovation in technology-based social studies learning. Despite minor technical and time constraints, the program proves effective as a model for teacher professional development in the 21st century.

INTRODUCTION

Knowledge Social Studies (IPS) is one of the eye lessons that have function strategic in the Indonesian education because integrate various discipline knowledge like geography, history, economics, and sociology. Social studies plays a role important in form awareness social, responsibility answer citizenship, as well as ability think critical and reflective participant educate to phenomenon social environment around it. However, in practice, social studies learning in schools medium First Still face a number of fundamental constraints. Approach conventional teacher-centered still dominate the learning process, where activities learning often memorization oriented draft than exploration meaning and application in life real. As a result, students experience difficulty in linking material with context social media that is currently happened, so that learning lost mark functional and its relevance with life participant educate.

Challenge the the more complex in the era of digital disruption that demands education adaptive, innovative, and based skills 21st century. Teachers are required No only transfer knowledge, but also foster ability think level higher order thinking skills, collaboration, creativity, and digital literacy in students. One of them the approach considered capable answer need This is deep learning approach learning that focuses on understanding meaningful, reflective, and engaged emotional participant educate in the learning process. Deep learning emphasize three aspect main: joyful learning (learning that is fun), meaningful learning (learning that is meaningful and contextual), as well as mindful learning (learning reflective that invites student aware to values and learning processes undertaken). With thus, the approach this expected can give birth to participant students who do not only knowing, but also understanding and capable internalize values social in his life.

However, conditions in the field show that lots social studies educators still face challenge in apply draft learning deep in a way maximum. This is triggered by limitations in competence digital-based pedagogical, lack of training real practical, as well as lack of support infrastructure learning that utilizes technology. Although thus, technology education own significant potential for enrich experience learning, especially through method gamification (Nurmawati & Harahap, 2025). Gamification involving use elements games, such as challenges, points, badges, leaderboards rankings, and prizes in context education to strengthen motivation as well as involvement students. Various study latest show that gamification can change view student to learning become more positive, improving participation, as well as repair results Study in a way real (Febriansyah et al., 2024).

One of breakthrough in technology education based on appropriate gamification with need the social studies teacher is the ZEP Quiz platform. This tool combine element games, intelligence artificial, and interaction in manufacturing question evaluation learning. ZEP Quiz provides chance for teachers to create various type evaluation like quizzes, studies cases and questions reflective that can accessible in a way directly by the students through digital tools. The presence of this platform in Indonesia in 2025 will be point come back important for sector education for adopt technology interactive support participation and motivation for learning (Scitech & Digital News, 2025). With utilise integration deep learning and gamification through ZEP Quiz, teachers can designing an evaluation process that is not only evaluate results learning, but also encouraging thinking critical, reflection social, and awareness value inside self student.

Various academic support meaning important from approach this. Mystakidis et al. (2021) in analysis systematically confirm that use learning deep and meaningful learning through digital platforms have potential for repair Power remember draft as well as form meaning personal in students ' selves . Research by Chen & Singh (2023) also found that success learning deep influenced by integration factor individual, social, and environmental supportive learning reflection as well as exploration of new ideas. On the other hand, Febriansah et al. (2024) emphasized that implementation gamification in education capable push enthusiasm Study at a time increase interaction between educators and participants educate in digital context . In addition, research by Nurmawati et al. (2025) shows that use gamification based application interactive like Bamboozle can increase results evaluation summative student junior high school level up to 25%, while push interest learning based on healthy competition. Facts This show that integration between learning immersive and gamified No only relevant in theory, but also proven effective in a way empirical in increase quality learning.

With background behind said, the activities Devotion Community Service (intervention) organized by the Social Sciences Education Study Program, Faculty of Social Sciences Education Knowledge Social Sciences (FPIPS) of the Indonesian University of Education, aims to For strengthen capacity of social studies teachers in develop evaluation learning based deep learning and gamification through the ZEP Quiz platform. This intervention session was followed by 134 social studies teachers who joined in the MGMP IPS Bandung City. Through this, participants No only get understanding conceptual about deep learning, but also skills practical in designing creativ, contextual, and interactive digital assessment. It is hoped that this activity will become step concrete in create a community of creative teachers

who are capable answer challenge transformation education in the digital era at the same time strengthen ecosystem meaningful, reflective, and sustainable social studies learning.

METHODS

This educational intervention utilizes a hands-on, participatory intervention session method combined with a reflective mentoring approach to improve social studies teachers' competency in understanding deep learning concepts and implementing gamification through the ZEP Quiz platform. The research procedure is divided into four systematic stages: preparation, implementation, evaluation of results, and follow-up of field implementation. During the preparation stage, the team conducted a needs assessment of social studies teachers under the Bandung City MGMP, which revealed a lack of familiarity with digital media for learning evaluation. Consequently, a practice-based training design focusing on conceptual understanding and technical skills was developed. The instruments used in this study include pretest and posttest sheets, observation sheets for participant activity, and reflective questionnaires to measure changes in teacher perceptions and motivations, all of which were tested for validity and reliability through limited trials.

The implementation phase took place on September 10, 2025, at the Faculty of Psychology and Social Sciences (FPIPS) Auditorium at UPI, involving 134 social studies teachers as the primary subjects. This stage consisted of a conceptual session on the deep learning curriculum emphasizing joyful, meaningful, and mindful dimensions and a practical session where participants engaged in technical training using ZEP Learning. Data collection techniques involved objective testing, direct observation of collaboration and technology adaptability, and the analysis of the 80 interactive quiz products created by the participants. To analyze the data, quantitative analysis was conducted using Shapiro-Wilk and Wilcoxon Signed Rank Tests via statistical software, while qualitative analysis employed a descriptive-reflective approach to evaluate participant narratives and discussions.

The level of success is measured through three main dimensions: changes in professional attitudes, collaborative social and cultural changes within the MGMP digital community, and changes in academic competence. Quantitative results indicated a significant increase in understanding, with a p-value < 0.05, and teacher confidence in using digital media rose from 38% to 87%. Finally, the follow-up stage ensures sustainability through online mentoring and monitoring every two weeks for two months within the MGMP IPS forum. The team also

collects testimonials and classroom documentation as evidence of the program's long-term impact on the teachers' work culture and pedagogical implementation.

RESULTS AND DISCUSSION

Activity Devotion to the Community (PkM) entitled "Innovation Workshop Social Studies Learning Using Deep learning and Gamification ZEP Quiz for Creative Teachers" has succeed reach part large target set. The workshop was attended by 134 social studies teachers who joined the MGMP IPS Bandung City and was held on September 10, 2025, at the FPIPS Auditorium, Indonesian Education University.

In a general way, activities produce four main, namely :

1) Improvement in the Competence of Social Studies Teachers in understanding deep learning and gamification, proven with statistical test results showing a significant difference between the mark pretest and posttest.
2) Product Digital Evaluation in the form of 80 interactive activities based on ZEP Learning, which is designed directly by participants during the intervention session.
3) Change Teacher Attitudes and Motivation, where the majority participant show improvement, trust in self, and enthusiasm for learning based on technology.
4) Strengthening the Network Collaborative between academics from FPIPS UPI, Bandung City Education Office, and MGMP IPS as a professional community.

To measure the effectiveness of activities, testing statistics are used to pretest and posttest results. Based on the normality test using Shapiro-Wilk, the pretest data has significance $0.286 \geq 0.05$ (normally distributed), while the posttest has significance $0.001 \leq 0.05$ (not normal). Because there is non- normal data, the analysis will be continued using the nonparametric Mann-Whitney test and the Wilcoxon Signed Rank Test.

Table 1. Test Normality

	Kolmogorov-Smirnov [a]			Shapiro-Wilk		
	Statistics	Df	Sig.	Statistics	df	Sig.
Pretest	.130	37	.115	.965	37	.286
Posttest	.165	37	.012	.876	37	.001
a. Lilliefors Significance Correction						

The results of the Mann-Whitney test show marked Asymp. Sig (2-tailed) = $0.000 \leq 0.05$, which means there is a significant difference between pretest and posttest scores. This is strengthened by the Paired Samples Test, which produces t-value = -5.555 and sig. (2- tailed) = $0.000 < 0.05$, so hypothesis H_0 rejected and H_1 accepted, signifies existence improvement significant after training.

Table 1. Test Normality

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std.	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pretest Zep Quiz - Posttest Zep Quiz	-7.24324	7.93167	1.3039	-9.8877	-4.59869	-5.555	36	.000

The results of the Wilcoxon Signed Rank Test showed that 29 respondents (78%) experienced improvement value, 5 respondents experience decline, and 3 respondents remains. Asymp value. Sig (2-tailed) = $0.000 \leq 0.05$, so concluded that training based gamification using ZEP Quiz effectively increase social studies teachers' understanding of draft deep learning and its applications in digital evaluation.

Table 3. Wilcoxon Signed Rank

Ranks		N	Mean Rank	Sum of Ranks
Posttest – Pretest	Negative Ranks	5 [a]	10.70	53.50
	Positive Ranks	29 [b]	18.67	541.50
	Ties	3 [c]		
	Total	37		

With thus, it can concluded that method applied training own impact real in a way statistics to improvement teacher competency. On average, the increase score participant reached 7.24 points after attending the intervention session, signifying change significant from aspect understanding and skills digital pedagogical.
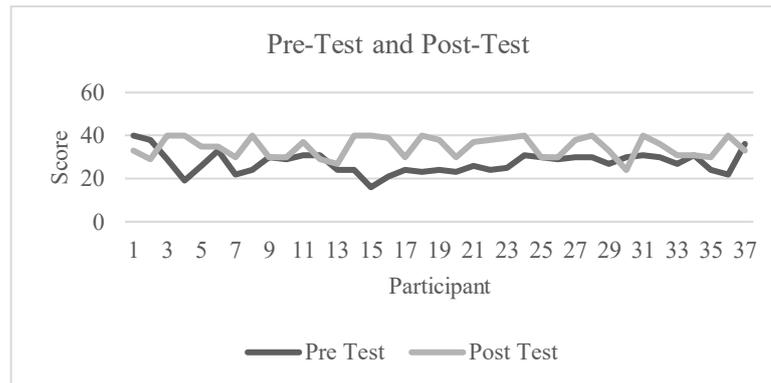

Figure.1 Pre-Test and Post-Test

In addition to the increase quantitative, results qualitative show change positive in attitude professional, social, and cultural collaborative teacher. Based on results reflection and interview short:

1) As many as 87% of participants state more believe self use technology learning after attend the intervention session.

2) As many as 92% of participants feel that the deep learning model help they understand importance learning meaningful and reflective.

3) Previous teacher passive now active share practice both in the online MGMP forum, forming network digital learning community For collaboration continued.

Figure 2. Documentation

In terms of social culture, activities This strengthen ethos collaborative among social studies teachers. During the implementation, participants each other help in understand ZEP Learning features and work in group small for compile question based studies IPS cases, such as urbanization in Bandung, trade international, and changes climate. Phenomenon This show growth mutual cooperation culture in learning based technology. Impact cultural other is shift paradigm to evaluation learning. Before activities, teachers tend to consider evaluation as stage end learning. After activities, the teacher looks at evaluation as a fun, reflective and interactive learning process in accordance with principle joyful and mindful learning.

Activity results devotion to public show that implementation deep learning and gamification through the ZEP Quiz platform significant increase the ability of social studies teachers in designing evaluation creative and meaningful learning. This matter in line with results Chen and Singh's (2023) research which confirms that deep learning demand integration between reflection, application knowledge and involvement emotional participant educate for create deep understanding to something concept. Approach this allows teachers to see evaluation no just tool measure, but as means study reflective. Deep learning integration in context social studies education represents shift paradigm from teacher -centered learning towards learning that focuses on understanding meaningful. According to Biggs and Tang (2022), deep learning happen when participant educate capable connecting ideas, applying concept, as well as do reflection to experience learning. In training this, the teacher does not only understand theory, but also apply it in design assessment that encourages student linking social studies material with problem social in life real.

Implementation gamification become an important strategy in increase teacher motivation and participation during training. Caponetto, Earp, and Ott (2014) explain that elements like points, badges, and boards leaderboards contribute significantly to improving motivation and intrinsic participant education. In the context of social studies teacher training, mechanisms this is also effective For create atmosphere of study, collaborative, fun, and competitive in a healthy. Results research conducted by Dichev and Dicheva (2017) shows that gamifying kasi not only increases motivation learn, but also change perception of participants towards the learning process. That alone becomes more active and participatory. This is in harmony with results training that demonstrates improvement in teacher enthusiasm and involvement during practice, manufacturing a quiz interactive quiz. The teacher becomes more confident in using digital technology for assessment and learning.

According to Zainuddin, Chu, Shujahat, and Perera (2020), the successful integration of gamification in learning is largely determined by a design that prioritizes social interaction and feedback. In the activity This is the ZEP Quiz feature that allows teachers to work in pairs for designing evaluation based case social proven strengthen collaboration and skills think critical thinking skills. This shows that gamification can become an instrument of constructive learning, values of mutual cooperation, and social development. In addition to the social aspects, motivational, deep learning, and gamification also contribute to the formation of a professional culture among social studies teachers. In line with research by Stoll, Bolam, McMahon, Wallace, and Thomas (2020), a community study professional (professional learning community) is becoming increasingly important in developing teacher competence through collaboration and reflection. Formation MGMP IPS online group post-training show existence of a transformation in social going to the ecosystem, mutual digital learning support.

Strengthening teachers' digital culture also supports the achievement profile of Pancasila students who are carried by the Ministry of Education, Culture, Research, and Technology (2022). Values independent, creative, reasoning critical, and grow together through experience-designed learning with principles of joyful, meaningful, and mindful learning. Through gamification, social studies teachers learn to utilise technology not only as a tool help, but as a means For implant values and social and national to participant educate.

From the side, pedagogy, application learning by doing in training, is also proven effective. Widodo (2023) emphasized that training-based practice can directly form competence, reflectiveness, and enhancing teacher's ability to innovate. In training, the teacher practices direct manufacturing digital assessment and conducting trials among fellow participants, so that the learning process is participatory and contextual. A meta- analysis study by Hamari, Koivisto, and Sarsa (2014) strengthens results This with show that designed gamification with principle good pedagogical give impact on engagement and learning. Integration between deep learning and gamification create experience learning that is not only pleasant but also reflective and development - oriented character.

Thus, the activities of the Community Service Program not only succeed increase teacher competence in designing evaluation-based technology, but also contribute to strengthening cultural professionalism and transformational learning in the digital era. In line with Rahman, Santosa, and Wibowo's (2023) view, mastery of technology by teachers must be accompanied by awareness of pedagogy so that the innovations carried out are still meaningful and sustainable. Therefore, the

training model can be made into references for the development of professional social studies teachers nationally.

CONCLUSION

The educational intervention with the theme "Social Studies Learning Innovation Workshop Using Deep Learning and Gamification ZEP Quiz for Creative Teachers" successfully improved the competency of social studies teachers in Bandung City in understanding the concept of deep learning and implementing gamification through the ZEP Learning platform. The results of statistical analysis showed a significant increase between pretest and posttest scores, indicating the effectiveness of the training in improving teachers' digital pedagogical knowledge and skills. In addition, this activity also had a positive impact on changing professional attitudes, strengthening a collaborative culture, and fostering a productive learning community network within the MGMP IPS environment. The main advantage of this activity lies in its participatory and hands-on practice-based training approach (learning by doing), which allows participants to produce tangible products in the form of interactive quizzes based on social cases. However, this activity still faces limitations in terms of the short training duration and technical constraints in some schools related to digital facilities. In the future, this program has the potential to be developed into a sustainable mentoring program based on a digital teacher community, with a focus on the development of an interactive question bank and the integration of learning analytics to strengthen the technology-based evaluation system. Thus, this activity not only contributes to improving the professionalism of social studies teachers but also supports the transformation of learning towards a more meaningful, reflective, and adaptive model to the challenges of 21st-century education.

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