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A project-based learning and Trello application (SUPERTRAP) as an innovative model of academic supervision to improve teachers' teaching skills

Yari Dwikurnaningsih[1+]
Gamaliel Septian Airlanda[2]
Agustina Tyas Asri Hardini[3]
Chan Hum[4]

[1,2,3]*Satya Wacana Christian University, Indonesia.*
[1]*Email: yari.dwikurnaningsih@uksw.edu*
[2]*Email: gamaliel.septian@uksw.edu*
[3]*Email: agustina.hardini@uksw.edu*
[4]*University of Battambang, Cambodia.*
[4]*Email: hum.chan@nubb.edu.kh*


(+ Corresponding author)

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ABSTRACT

The academic supervision conducted by principals is perceived as not effective enough that it has not fully been impactful to the improvement of a teacher's teaching skill. This research aimed to get the overview of academic supervision with its weaknesses and challenges and to develop an innovative model of academic supervision as guidelines for the academic supervisor. This research employed Borg and Gall' research and development model that included the following steps: research and information collecting, planning, developing the preliminary product (prototype development), preliminary field testing, and main product revision. Data was collected using observation, questionnaire, and focus group discussion (FGD). That is developing the preliminary product of academic supervision that was based on Trello application with PjBL and Gallery Walk. The data was analysed using Miles & Huberman qualitative descriptive model and quantitative descriptive analysis. The result of this research is a new model of the academic supervision named SUPERTRAP, which was developed as a project-based learning, gallery walk, and Trello. SUPERTRAP model consists of supervision design using Trello, SUPERTRAP model picture, a model description containing the supervision syntax based on Glickman's academic supervision steps with Trello's features, and a user guide. The SUPERTRAP Model, which has shown excellent results, has been validated by experts and tested on principals and teachers, and, thus, it is ready to implement. The contribution of this research shows a combination of contextual concepts of academic supervision by integrating information technology and the gallery walk method as a participatory approach.

Contribution/Originality: This study contributes in the existing literature of an integration for digital academic supervision, Project-Based Learning, Gallery Walk, and supervision base technology through Trello. This study uses new estimation R&D methodology to create digital base supervision in school. This study originates SUPERTRAP formula of flexible supervision using technology.

1. INTRODUCTION

Education is a means for developing human potential holistically. It requires quality learning to obtain quality education. A teacher plays an important role in the learning processes. Therefore, a teacher has to possess adequate competence to conduct quality learning (Antera, 2021; Luo & Chittranun, 2024; Özdoğru, Çevik, & Çevik, 2024). The quality of learning is measured by how the teachers plan, execute, evaluate, and follow up on the learning

process as well as students' learning achievement. A teacher who is knowledgeable pedagogically and skilful with classroom management influences the students' academic achievements (Ljungblad, 2021; Salari & Farahian, 2023; Stavermann, 2025) and determines the education quality (Catalán Molina et al., 2022; Wolde, 2021).

Educational institutions need to be serious in improving teachers' competence. Several efforts such as pursuing graduate studies, participating in educational training, engaging in independent learning, and receiving academic supervision can be applied to improve teachers' competence. Academic supervision is a series of activities to help teachers improve their skills in managing the learning process to achieve the learning objectives (Glickman, Gordon, & Ross-Gordon, 2014; Jen, Mathijssen, & Hoogeveen, 2022; Mogea, 2019). Therefore, it is expected that through Academic supervision teachers would be more capable of running the classes, so learning processes contribute best to the students' optimum improvement.

However, there are some challenges in the implementation of academic supervision. They include the principal's workload, principal psychological challenges, and less contribution from the deputy principal of curriculum division (Cansoy, Gümüş, & Walker, 2024; Hickey, Flaherty, & Mannix McNamara, 2024; Lindström, Löfström, & Londén, 2024). The other issue is the untimely academic supervision that may be caused the principal's sudden agenda and the alteration of learning pattern during supervision (Abdurrahman, Marwan, & Siraj, 2024; Chaula, 2023; Puroila, Kupila, & Pekkarinen, 2021). Data from the observation showed that the condition in the class becomes unnatural during the onsite visit of the academic supervision. The teacher would try to prepare for the ideal condition following the assessment criteria. It made the data of direct supervision not valid. The unnatural classroom condition also affected the students' performance during the onsite academic supervision. Generally, the students would tend to be passive because they felt supervised by a stranger other than their teacher.

The academic supervision conducted by the principal had not met the objectives of supervision. It impacted negatively to the teachers as they may feel stressed and depressed whenever they were supervised (Cavallari et al., 2024; Chen, Cheng, Zhao, Zhou, & Chen, 2022) feel intimidated (Hartanto, Wibowo, & Miftah, 2022) feel unsupported or underestimated, and feel frustrated due to the absence of feedback (Deniz & Erdener, 2020). A lot of teachers perceived supervision as disturbing their jobs, exposing their weakness(es), and merely scoring them (Dewodo, Dzakpasu, & Agbetorwoka, 2020). However, some teachers considered that supervision was positively impactful for the improvement of their teaching capabilities and it was an efficient way to increase their professional development to their career as a whole (Dewodo et al., 2020; Hall-Kenyon et al., 2022). The teachers would feel that they received the principal's support and assistance if the supervision was carried out systematically and well planned (Rothwell, Kehoe, Farook, & Illing, 2021; Victorynie & Othman, 2023).

On the other hand, teachers may view that their supervisors did not adequately and effectively function, and it contributed to their dissatisfaction. Some factors such as unsuitable supervision approach, the supervisor's lack of important skill and knowledge, the descended trust, and inadequate feedback influenced the teachers' frustration (Omer & Abbas, 2024). One of the reasons for the principal to be less capable of conducting supervision was the limited opportunity of training to improve their supervision skills (Balci & Özkan, 2023; Bush, 2022; Julianda, Ismail, Khairuddin, & Lala, 2024). Research by Alam, Haque, and Banu (2021) found that there were some problems of supervision in Bangladesh. They included the limited understanding of the concept of academic supervision among the educators, insufficient training for academic supervisors and teachers, and lack of support from the school management as well as the government in the academic supervision implementation.

The principals could engage the peer or experienced teachers or those who were prepared to do the academic supervision to help the principal supervise the teachers (Ridge & Lavigne, 2020). Nevertheless, many teachers were not ready to do such supervision. Research by Puroila et al. (2021) about Finland cooperative teachers who were trained to supervise faced challenges related to the teachers' abundant tasks, students' various behaviour, diverse class situations, and the unclear content and objectives of supervision practice, as well as in confidence of implementing supervision.

There are many supervision methods that can be employed for observation and discussion about the learning process, including instructional rounds, expert coaches, expert videos, teacher-led professional development, virtual communities, and student exhibitions in Gallery Walk (Marzano, Frontier, & Livingston, 2011). In Gallery Walk, teachers can visit the gallery's stands to observe students' products and discuss with the other teachers about the learning process. Students' displayed works are the products of project-based learning methods which can improve their problem-solving skill, social responsibility, and self-confidence which can generate innovative results (Cornet, Barpanda, Guidi, & Viswanathan, 2024; Spires, Himes, Lee, & Gambino, 2021). PjBL can represent students' works as the artifacts resulted from the learning process (Fitzgerald & Evans, 2024).

Considering the fact that the implementation of academic supervision has not fully given positive impacts to teachers due to the various problems and obstacles, the education system is in need of an effective supervision model. Supervision is not only given by the principal, but it can also be conducted through teachers' sharing and discussion forums. Gallery Walks of students' products which were the results of project-based learning can be used as the topics to discuss between teachers and principal as well as among teachers. Trello application can be utilized to support the implementation of Gallery Walk as an innovative and enjoyable supervision method. This research aimed to (1) trace the implementation of academic supervision that had been conducted; (2) develop a new model of academic supervision using project-based learning (PjBL) and Gallery Walk using Trello apps to make supervision easier to conduct.

2. REVIEW OF RELATED LITERATURE

2.1. Project-Based Learning

Project-Based Learning (PjBL) is a learning approach that centers on project work as the core of the learning process. These projects are typically challenging and require students to use design skills, problem-solving, decision-making, and investigative thinking. Thomas (2000) explains that such projects are built around complex questions or problems. Markham, Larmer, and Ravitz (2003) add that PjBL involves six main steps: it begins with an open-ended essential question that relates to real-life situations, followed by joint project planning by teachers and students, activity scheduling, project monitoring by teachers as facilitators, assessment of both product and process using specific indicators or rubrics, and finally, a concluding evaluation that reflects on learning and teamwork. Research by Wurdinger and Qureshi (2015) shows that implementing PjBL in secondary school environments increases student motivation and active participation. Furthermore, they found that students engaged in project-based learning demonstrate deeper conceptual understanding compared to those who learn through traditional methods. The learning activities are combined with a gallery walk to be a part for evaluation and discussion between teachers and students, as well as among students themselves. The gallery walk products can also be used to share experiences with other teachers.

2.2. Digital Supervision

Digital supervision is a form of academic oversight that integrates technology to enhance teaching quality. Glickman et al. (2014) defines supervision as a collaborative process between principals and teachers aimed at continuous professional development. The use of digital technology in supervision seeks to address the limitations of traditional supervision, such as time constraints and unnatural classroom environments. Astuti, Sutiah, Hidayatulloh, and Nisak (2024) highlight that digital-based supervision increases flexibility and effectiveness, positively impacting teacher performance and educational quality. Research by Lu, Vivekananda, and Shanthini (2023) shows that supervision through LMS platforms like MOODLE improves accuracy and efficiency in learning management. Similarly, Lahade, Dwikurnaningsih, and Waruwu (2023) found that a clinical supervision model based on Microsoft Teams can enhance teacher performance. However, Zaheer and Munir (2020) point out that limited interaction in online supervision can lead to misinterpretations. Glickman et al. (2014) outlines five stages of

academic supervision: pre-conference to build initial communication, classroom observation to collect objective data, data analysis and interpretation, post-observation conference as a platform for discussion and improvement planning, and follow-up to ensure the implementation of agreed strategies. According to Glickman's theory, academic supervision is carried out face-to-face. Several researchers have developed digital technology in supervision; however, it has remained limited scope and has primarily impacted only the teachers being supervised. In contrast, the method developed the combination of PjBL and Gallery Walk which enables supervision results to be made openly accessible to all teachers, allowing them to benefit from more comprehensive learning evaluations

2.3. Trello Application

Trello, a Kanban-based management tool, provides a visual solution for collaboration on projects, including in educational contexts. Teachers and students can organize and monitor projects in real time, break tasks down into manageable steps, and maintain transparency and accountability. In educational practice, Trello serves as an easy-to-use LMS alternative, featuring flexible boards, lists, and cards. Additional features include advanced checklists, start and due dates, calendar view, label and custom column systems, file storage, collaborative comments, integration with platforms like Slack and Google Drive, and workflow automation via Butler. Trello also supports cross-device access and provides notifications to keep all participants informed about tasks and project updates. *The previous* research has developed digital applications for supervision using learning management system platforms Edmodo, MOODLE, and Microsoft Teams. The advantage of Trello in supervision, such as: can combine PjBL through the gallery walk, have a feature available on the board that enables discussion through the discussion forum and provides feedback via the comment feature.

2.4. Teaching Skills

Teaching skills are professional competencies educators need to design, deliver, manage, and evaluate learning effectively to achieve student learning outcomes. The National Research Council (2013) emphasizes the importance of content knowledge, pedagogy, and the integration of both through an understanding of pedagogical content knowledge. Danielson (2024) identify four main dimensions of teacher competencies. The first is planning and preparation, which includes setting learning objectives, selecting methods and media, and integrating assessment into teaching plans. The second is classroom environment management, emphasizing the ability to create a safe and conducive learning atmosphere and manage interactions fairly. The third is instruction delivery, which involves engaging content presentation, the use of varied instructional strategies, and adaptability to students' needs. Lastly, professional responsibility includes self-reflection, participation in ongoing professional development, and collaboration with stakeholders in the school community. The indicators of teaching skills based on Danielson's theory align with the current competency requirements of teachers.

3. METHODOLOGY

This research employed a mix method derived from Research and Development (R&D). The steps of the research and development follow the five stages of Borg & Gall's ten-stage model (Aka, Borg, Gall, Lee, & Owen, 2022). The subjects of this study are Salatiga 06 Public Elementary School, Eben Haezer 4 Christian Elementary School Salatiga, Banyubiru 04 Public Elementary School, Tlompakan 1 Public Elementary School, Lentera Christian Elementary School Ambarawa, and Kanisius Gendongan Christian Elementary School Salatiga, the research included the principals and teachers as the subjects. The data was collected through interview, observation, and open-ended questionnaire along with focus group discussion. The data were qualitatively analysed using Miles and Huberman's stages of collection, reduction, display and verification. The quantitative data were analysed with quantitative descriptive techniques of percentage and averaging. The research stages includes: 1) Researching and collecting the information about the implementation and the weaknesses of academic supervision at the schools as

well as the teachers' skills in using PjBL in their learning processes; 2) Planning, which included the reviewing the literature and planning the product based on the design that was developed based on the preliminary study in order to follow the determined order; 3) Developing Preliminary Product, that is developing the preliminary product of academic supervision that was based on Trello application with PjBL and Gallery Walk. In this step, an expert evaluator would verify the product's feasibility. The validator consisted of supervision experts, IT experts, and education practitioners; 4) Preliminary Field Testing was conducted to test the product's quality at a small scope, that was in six school; 5) Main product revision was the step to revise the product based on the small-scope trial to enhance its effectiveness.

4. RESULTS AND DISCUSSION

Considering the problems of academic supervision found in the fields, education institutions need to modify the supervision model that is more relevant to the present context. The findings from the research and information collection stage showed that 75% of academic supervision was conducted through classroom observation as shown in Figure 1.

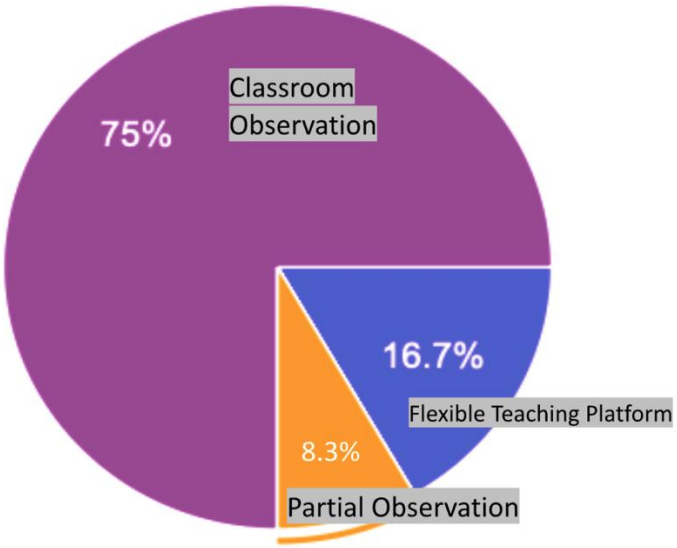

Figure 1. Data of academic supervision methods that had been used by the school.

The results of observations and interviews with principals and teachers indicate that the stages of classroom observation in supervision vary across schools. The variations were not well controlled. Every school made their activities, following their own understanding. The Table 1 shows the variations of supervision types.

Table 1. Data about various steps of academic supervision at school.

Academic supervision activities	Details of academic supervision activities
Type 1	supervision schedule decision, teaching module preparation, discussion, observation, and reflection.
Type 2	schedule arrangement with teachers, planning, execution of the plan, and evaluation.
Type 3	supervision schedule decision, discussion of the material, class observation.
Type 4	Plan, action, follow up
Type 5	Pre-observation, observation, and post-observation.
Type 6	Planning, observation, evaluation, reflection.

The variations of class observation actions created new problems. From the questionnaire, most of the participants stated that it was hard to schedule class observation activities. Teachers and principals' busy schedules

became the biggest challenge for conducting direct classroom visit methods of academic supervision. In addition to that, some teachers mentioned that the quality of academic supervision using direct observation methods was quite low. The reasons included that the teachers felt supervised, the observation was not holistic, and there was no follow-up after the class observation.

Regarding the potential use of technology for supervision, interviews with principals and teachers revealed their readiness to adopt it. Furthermore, the observations indicated that all schools involved in the study already possess adequate information technology facilities and infrastructure. Project-based learning (PjBL) was one of the learning models that was adaptable to the technology. However, data from the questionnaire showed that not every teacher already understood and applied this model. The data can be seen in Figure 2.

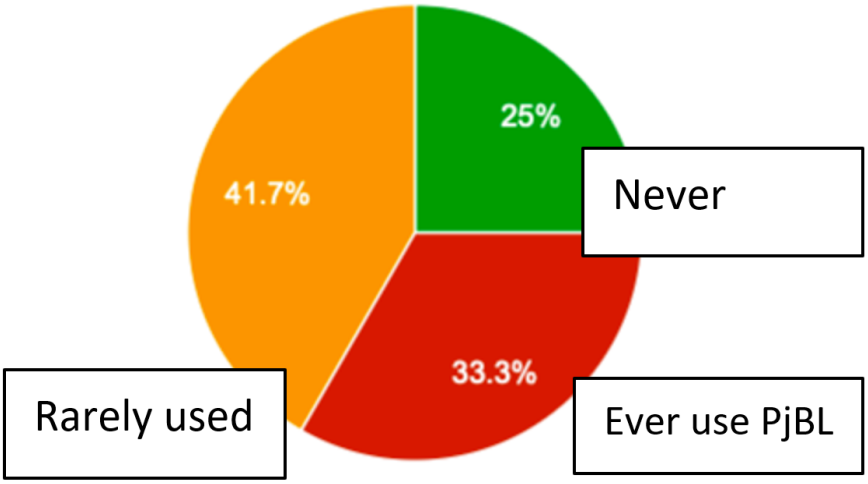

Figure 2. Teachers using of project-based learning.

Based on the questionnaire and observation of the use of PjBL in learning activities, most of the teachers had not made any plan and conducted learning processes according to the syntax of PjBL. They still misunderstood PjBL. Teachers still conducted learning activities that ended with projects which were the opposite of PjBL. One of the examples was that the project topic was given by the teacher for the whole class.

The second step of this research, planning, was to review the literature to refer to for the development of the innovative supervision model. The literatures referred to stage of supervision proposed by Glickman et al. (2014) while the concept and steps of learning were referred to the PjBL model proposed by Anderson and Krathwohl (2001) and the concept of Gallery Walk as a discussion technique was following (Harton, 2019) that was applied by using Trello application. At this stage, the model development was also planned by determining objectives for each research phase, following the research problem.

The result of the third stage of the research, developing the preliminary form of the product, was the preliminary draft of the modified supervision model. The product being developed was the academic supervision using PjBL model and Gallery Walk that was supported with Trello application, which then was named as SUPERTRAP.

The developed product consisted of the image of the model and the description of academic supervision syntax according to Glickman et al. (2014) as well as the use of Trello apps as supervision facility. Trello apps' features cover communication media, discussion, feedback and evaluation score from the supervisor, and document storage.

The next research phase was product validation from three experts, including material expert, media expert, and practitioner. The validation result is displayed in the Table 2.

Table 2. Data percentage of SUPERTRAP model validation results.

Trial aspects	Percentage (In %)	Category
SUPERTRAP image model	82.22	Very good
SUPERTRAP description model	78.33	Very good
Trello manual book	90.83	Very good
SUPERTRAP supervision model	82	Very good
Average (in %)	83.35	Very good

Based on the validation results, the product was rated as 'very good' by the validators, as evidenced by an average score of 83.35%. These results demonstrate that the illustrations and descriptions of the SUPERTRAP model are clear, systematic, and aligned with proper supervision principles. The guidelines and use of the Trello application are comprehensive and capable of meeting supervision needs in accordance with Glickman's supervision theory. Furthermore, the focus group discussion with the validators provided written feedback for the refinement of the model.

Table 3. Validators' feedback for SUPERTRAP model.

Notes of technical design of SUPERTRAP Model Development	Notes of Technical Implementation of SUPERTRAP Model Implementation
The font used in the model image needs to be changed to make it easier to read.	The product manual needs to be pinned in Trello apps.
The order of the SUPERTRAP Model stages needs to change clockwise.	It is expected that there is a clear schedule of the execution of every stage of the SUPERTRAP model.
There is ambiguous language in the SUPERTRAP image model.	
It is important to provide more detailed syntax for the SUPERTRAP manual that is embedded at the Trello application.	
It is necessary to add the definition of SUPERTRAP model to Trello visualization.	

The fourth stage of this research, the preliminary field testing, was the trial of the SUPERTRAP model with six principals and 24 elementary teachers. The result of the trial was in accordance with the SUPERTRAP model stages. The principals and teachers gave their evaluation and input about the model. Some of the criteria used in this trial included the relevant representation of SUPERTRAP model image to its stages, SUPERTRAP model description clarity, clarity of Trello application manual in SUPERTRAP model, and SUPERTRAP supervision model clarity. The result can be seen Table 3.

Table 4. Data about principals and teachers trial percentage.

Trial aspect	Percentage	Category
SUPERTRAP image model	90	Very good
SUPERTRAP model description	89.04	Very good
Trello manual book	92.85	Very good
SUPERTRAP supervision model	92.95	Very good
Average (in %)	**90**	Very good

Table 4 presents the trial results of the SUPERTRAP graphic model design. It is important to user understand the pattern of SUPERTRAP including the image, description, Trello procedure, and steps of supervision model. The result is indicating that the graphic model is highly efficient, easy to understand, have a clear steps and ready for implementation.

The category of 'very good' refers to several more specific sub-criteria, such as the use of clear model illustrations, easily understandable descriptions in the figures, and highly detailed as well as structured steps for

using the Trello application. The guidelines for using Trello application greatly assist teachers and principals in implementing supervision. The features of Trello have been effectively utilized to develop a supervision model through a gallery walk that is both comprehensive and systematic. Overall, the SUPERTRAP model is ready for implementation.

The inputs include the necessity for shortening the length of the steps of SUPERTRAP model, the need to upload unedited video to Trello to reduce the teachers' time consumption, the importance of detailed instruction to fill in every item of Trello application, and the significance of simple language use in the application. The model was revised based on the inputs, so that it can be used widely. Here is the final, ready-to-use version of the SUPERTRAP model after being revised based on the inputs.

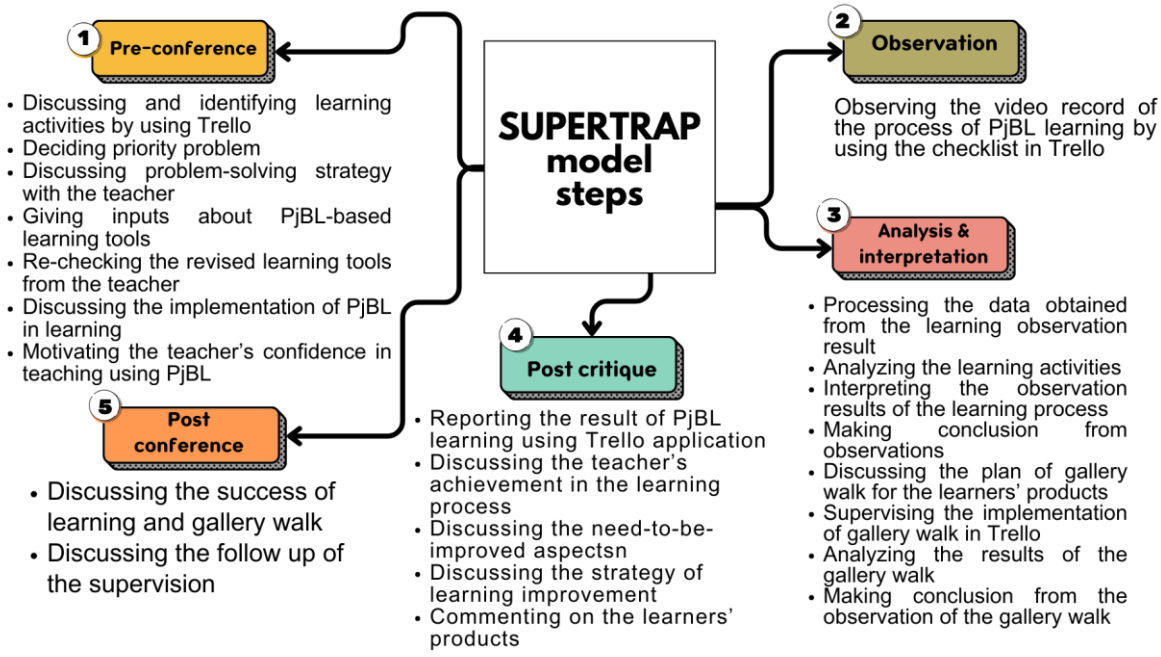

Figure 3. SUPERTRAP model.

Figure 3 presents the final version of the SUPERTRAP graphic model. The sinchronise visualization as a result of experts judgment. This graphic shows the systematic supervision syntax that collaborated by Trello. It helps user to implementing SUPERTRAP easily.

The SUPERTRAP model syntax can be explained as follows:

1. *Pre-conference.* This stage comprises: (a) Discussion between Supervisor and Supervisee to identify the problems through Comment feature in Trello; (b) Decision of the problems priority; (c) Discussion about problem solving strategies; (d) Lesson plan upload using PjBL based in the Card feature by the Supervisee; (e) Input from Supervisor for the lesson plan through Deep-list and Comment feature in Trello; (f) Revised lesson plan check by Supervisor as well as the learning equipment products labelling; (g) Learning process video upload through PjBL and in the Activity feature done by Supervisee.
2. *Observation Stage.* Supervisor observes the learning process video and scores it by providing a checklist in Deep-list feature.
3. *Analysis and interpretation stage.* Supervisor conducts data processing, analysing, interpreting, and making conclusions for all the learning observations. Supervisor and supervisor discuss the idea about students' product Gallery Walk. The available Gallery Walks can be commented by all of the supervisors and the supervisor or the invited visitors on the board. Comment features in Trello enable the supervisor and the Gallery Walk visitors to have discussions. Supervisor is supervising, analysing, and concluding the

observation result in Trello's Gallery Walk. Supervisor gives a checklist using the Deep-list feature in Trello to indicate that they did their supervision tasks.

4. *Post-conference stage.* is the after-supervision follow up action that includes: (a) Reporting the learning result using PjBL in Trello's comment feature; (b) discussing the supervised learning achievement; (c) discussing the aspects that need improvement; (d) discussing learning improvement strategies. The last stage of supervision is post-critique, where the supervisor announces the follow-up action.

Based on the research findings, the implementation of academic supervision had not been properly in line with the requirements, so the teachers got limited benefits. As the research conducted by Wright (2020) and Indramawan and Suhartono (2023) research revealed that academic supervision conducted by the principal had not effectively improved teachers' capabilities yet. Principals did not do all of the stages of supervision such as planning, which was not well prepared, and discussion or follow-up action which were not held. Supervision model that this research made includes the supervision procedure according to the supervision stages proposed by Glickman et al. (2014) which were made to guide the supervisor in conducting their supervisions. It is necessary to do the right supervision steps in order to give constructive feedback to teachers and to facilitate professional development opportunities (U-Sayee & Adomako, 2021).

SUPERTRAP model that was obtained from this research contains the syntax of the supervision implementation that was modified with the use of Trello and project-based learning. Project-based learning is a familiar approach that has been applied by teachers. However, teachers did not really understand the concept and steps of PjBL as well as its implementation. Teachers' professional capabilities should be shown from their mastery of the learning model in class. PjBL is a model that does not only direct their user to develop technology products, but also utilizes technology as a part of learning steps designing (Kiong, Rusly, Hamid, Singh, & Hanapi, 2022; Wahyudi, Setiawan, Suhandi, & Samsudin, 2024). The result of this research is collaborating technology and PjBL in two forms. First, academic supervision using Trello application becomes the evidence of the utilization of technology in designing learning evaluations. Second, PjBL stages that the teacher-supervisees made are exhibited at the provided gallery walk at Trello application. Gallery Walk is used as the media to display the final product of learning. The innovative learning with gallery walk even gives such benefit as providing open-ended feedback opportunities, accommodating differentiation, and providing opportunities to enhance students' creativity (Hogan & Cernusca, 2011; Ramsaroop & Petersen, 2020). PjBL being collaborated with Gallery Walk becomes a way to evaluate teachers' academic performance in practice. Proper understanding of every detail of PjBL stages is an indicator that can be used to evaluate teachers' performance. In addition to that, teachers' understanding of the possible opportunities for collaborative contextual problem-solving projects with students can be an indicator for assessing the quality of student-teacher interactions in the classroom (Baysura, Altun, & Toy, 2016; Juuti et al., 2021).

The result of the research also shows that most academic supervision was conducted by the principal by using a conventional method, that is classroom observation. The weakness of direct classroom observation was that the teacher felt awkward and became less active during the supervision (Doğan, Yildiz, & Katitaş, 2024; Dube, Mncube, & Uleanya, 2023; Sezer & Engin, 2024; Wade, 2024). The challenges of classroom observation included the requirement of open communication skills, respect one to the other, and time consuming (Tarusha & Bushi, 2024). The development of the information-technology-based supervision that would give effective results was to solve the problems during the supervision (Kuo, Lin, Lin, Wang, & Chuang, 2023; Lahade et al., 2023; Sherbersky, Ziminski, & Pote, 2021). This research generates simpler academic supervision syntax. The Syntax consists of five supervision stages, which have been rated as excellent by the validators and test users. Simple and systematic supervision stages become the strength of this product. Systematic and structured academic supervision can help evaluate work performances, overcoming the challenges faced by the teachers, so that it ultimately improves their teaching effectiveness as well as their overall performance (Victorynie & Othman, 2023).

In addition to its simple stages, this product was developed based on the Trello application that enables the users to do online supervision. Trello application that is used for SUPERTRAP model is simple and responsive user interface, so that it is easy to use. Some features can be utilized during the academic supervision implementation. Trello application is an effective and user-friendly platform that can facilitate its users to have dynamic discussion and it makes it an effective one to foster collaboration in educational context (Reftyawati, 2024). The respondent appreciates the innovative supervision that applied technology. The teachers and the principals said that it is very good, so it can motivate them to prepare for conducting the supervision. The positive responses were derived from the fact that SUPERTRAP model that was developed using Trello application has the feature to upload their learning process video to be observed by the principle. Therefore, it could overcome the problem of direct observation in the classroom. Observation of the teachers and future teachers could be conducted and could be realized and constructive with the use of the video records of their teaching. The video also helped the teachers reflect on their processes by observing themselves and their students' behaviour in class (Ekornes, Innselset, Hasle, & Sæterås, 2023). The reflection they made by analysing the video could make the teachers or the teacher candidates improve their competency and also motivates them to improve their teaching quality (Hamel & Viau-Guay, 2019). Video provides the teacher chances to replay it several times, so they can understand the complexity of the situation and how the interaction happened as well as see the verbal or non-verbal expressions. By self-review of their teaching practice video, teachers could identify the area they needed to improve, reflect on their teaching method, and receive feedback accordingly (Krumm, Miles, Clay, Carlos II, & Adamson, 2022).

Trello also provides the facilities for the principals and teachers as well as among teachers to have discussions about teaching and learning problems. In SUPERTRAP, teachers' discussion could be held online, so the inputs they received were not merely from the principal. It is proved with the gallery walk of students' products. At the stage, teachers could discuss the plan and learning processes that they would do, and it made the activities a learning-together process. Gallery walk could facilitate discussion among teachers to improve their competency (Makmun, Yin, & Zakariya, 2020). Peer supervision took place at the occasion. Peer discussion becomes a supervision method that facilitates peer interaction to improve the environment that fosters reflection and professional development (Lorensius, Anggal, & Lugan, 2022).

5. CONCLUSION

The research results can be summarized as follows. (1) Data about academic supervision showed that supervision was not effectively conducted. The reason for it to happen was because the supervisors had not understood properly the supervision concept and stages. Besides that, teachers had negative perception about the academic supervision process. (2) SUPERTRAP Model was developed as a new model of academic supervision that was based on project-based learning and Gallery Walk by using Trello application that made the implementation of supervision easier. The expert's validation of the model showed that SUPERTRAP model's product validity was 83.35%, which means that it was categorized as very good category. In limited group trial SUPERTRAP gets 90% of product validity, which means very good. With that said, SUPERTRAP model is ready to be applied for handling academic supervision.

The theoretical contribution of this study lies in the development of a more contextual concept of academic supervision by integrating information technology with the gallery walk method as a participatory approach. This finding offers a new perspective in the discourse on academic supervision by emphasizing collaborative, reflective, and peer-based learning aspects. The practical contribution of this study provides an engaging and interactive academic supervision model through the integration of digital applications with the gallery walk approach, enabling teachers to learn from one another, provide feedback, and document effective teaching practices. The implications for teachers include the enhancement of professional and pedagogical competencies through collective reflection, the documentation of best practices within digital applications, and openness to technology-based evaluation. For

future researchers, this study may serve as a foundation and reference for developing e-supervision models using alternative platforms and supervisory approaches, which can provide viable alternatives for principals and teachers in implementing academic supervision.

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Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.
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