
ENHANCING TRAINING NOTIFICATION SYSTEM FOR UNIVERSITY STAFF USING LINE NOTIFY

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Abstract

This initiative involved developing the “Staff Training Notification via Line Notify” feature to enhance the efficiency of communication regarding staff development news at Suan Sunandha Rajabhat University. Previously, internal training announcements were delivered through email or the website, causing some staff members to miss timely information and lose opportunities to participate in training. The objective of the project was to develop an automated notification system capable of sending training details—such as date and time, location, training topic, and registration link—directly to staff via Line Notify. The system was designed and developed using Python, connected to the Human Resources database via an API to retrieve approved training information and send notifications to relevant users. Testing with a group of staff members within the unit showed that recipients received notifications on time and could access information more conveniently. Training participation increased by 30% compared with the period before the feature was implemented, and the time required to disseminate announcements was reduced from an average of two days to less than one hour. These results indicate that applying Line Notify technology can improve internal organizational communication, reduce redundant work, and concretely support staff capacity development. Furthermore, the system can be extended in the future to deliver notifications for other university activities or announcements as well.

Keywords: Line Notify, Staff Development, Automated Notification System, Suan Sunandha Rajabhat University

Introduction

Personnel capacity development is a key mission of Suan Sunandha Rajabhat University, aimed at ensuring that staff possess the knowledge, skills, and competencies required to perform effectively in the digital era. The University continuously organizes training and development programs in various areas, such as information technology, management, personality development, and academic services for society.

However, communication and publicity for training information still rely mainly on email and the University website. Some staff members may not check these channels regularly, resulting in missed opportunities to participate in beneficial activities. In light of this situation, the researcher identified issues related to delays in receiving information and incomplete communication coverage, and therefore proposed the development of a “training notification feature via Line Notify” to provide a more convenient, faster, and direct communication channel. Since LINE is an application that most University staff use regularly, integrating the notification system with Line Notify can help reduce redundant communication, improve the

effectiveness of disseminating announcements, and ensure that staff receive training information in a timely manner.

Accordingly, this project represents an application of information technology to modernize routine work processes and better meet the needs of staff in the digital age. It also aligns with Suan Sunandha Rajabhat University's policy of advancing toward a "Smart Organization," which leverages digital technologies to support efficient and transparent management. Therefore, implementing the training notification feature via Line Notify is important for enhancing the quality of managing staff development information and can be further extended to support notifications for other University activities in the future.

Research Objectives

1. To develop a staff training notification feature via Line Notify that can deliver training announcements quickly and efficiently.
2. To evaluate the effectiveness of the developed digital platform using indicators of timeliness, accuracy, ease of access, and user satisfaction.

Scope of the Research

1. Population and Sample

This study was conducted within the context of Suan Sunandha Rajabhat University, focusing specifically on staff members of the Research and Development Institute, which served as a pilot unit for testing the system before expanding it to other university units. The primary target group comprised both support staff and academic staff who regularly participate in training and capacity development activities.

2. Scope of Content

The research focused on developing an automated notification feature using the Line Notify API to improve the efficiency of communicating staff training information. The system was designed to retrieve data from the central database of the Human Resources Division and automatically send training details—such as course title, date, time, venue, speaker, and registration link—to staff via Line Notify. The scope also included developing an administrator interface for managing training information and monitoring message delivery status.

3. Study Period

December 2024 – August 2025

Literature Review

The study on satisfaction with the operations of the Human Research Ethics process at Suan Sunandha Rajabhat University reviewed relevant literature as follows.

Definition of Satisfaction. According to Ekachai Taepsawat and Nantiya Noichan (2022), Maslow's theory (Maslow, 1954, pp. 370–396) explains that human behavior related to satisfaction reflects an effort to eliminate tension, anxiety, or a state of bodily imbalance. When individuals are able to remove such tension, they experience feelings of liking or satisfaction toward a particular matter, as well as toward various components and motivational factors. This results from personal interest, leading to a positive attitude and the fulfillment of one's needs. In this sense, satisfaction arises from the response to and fulfillment of needs.

Factors Affecting Satisfaction with Service Delivery

The Bangkok Metropolitan Administration, Office of Policy and Planning (2005, pp. 1–9) summarized the concepts of Gilbert and Birdhead as follows:

1. Inputs or resources personnel, expenditures, equipment, and facilities.
2. Activities or processes refer to the methods used to utilize resources.
3. Results or impacts refer to what occurs after resources have been utilized.
4. Opinions regarding impacts refer to the public's views on the services received.

Based on these definitions, service provision is considered through a systems approach in which an agency responsible for service delivery brings inputs into the production process and produces outputs in the form of products or services.

To provide services that result in user satisfaction, many scholars have discussed factors that influence the creation of satisfaction in service delivery, as follows:

Kulnada Chotimukta (1995, pp. 50–51) proposed that factors influencing and causing service users to feel satisfied or dissatisfied with services—covering service operations—consist of three components:

1. Service system factors refer to the components and interrelated networks of various service activities, including:

1.1 Convenience in service-use conditions, considering how easy or difficult it is and how many conditions must be met to be entitled to use the service; fewer conditions tend to increase the likelihood of satisfaction.

1.2 Adequacy and coverage of service provision, assessed by the volume of services and whether they sufficiently cover different areas or groups of people.

1.3 Usefulness and value of the services received, assessed by the service outcomes produced at the final stage of operations and the extent to which they are usable or beneficial to service users.

1.4 Cost-effectiveness and price fairness, referring to whether the price or fees charged are appropriate and reasonable.

1.5 Progress and development of the service system, compared with the past in terms of improvements in quantity and quality.

2. Service process factors refer to the continuous steps of service delivery from the beginning of the service activity (final workflow), including:

2.1 Ease of contacting and requesting services, i.e., how easy or difficult it is to request the service.

2.2 Speed of service procedures, i.e., the number of steps and the promptness of completing them in a time-saving manner.

2.3 Consistency and continuity of service delivery, including risks or hazards that may arise from the service process.

3. Service personnel factors refer to the staff responsible for service activities at the service facility, including:

3.1 Attentiveness to work, meaning staff interest and commitment to performing service duties.

3.2 Equity in service delivery, referring to how staff express themselves toward service users—such as being friendly and cheerful versus sullen—as well as speaking politely and gently versus harshly or rudely.

3.3 Honesty and integrity of service providers, meaning trustworthiness and straightforwardness in providing services, without seeking any personal benefits from service users.

Factors Affecting Service Recipients' Satisfaction

Sukhothai Thammathirat Open University (1996, pp. 38–40) stated that service recipients' satisfaction is an expression of positive feelings toward the services provided. Key factors influencing service recipients' satisfaction include the following:

Service location

Convenient access to services when the public needs them leads to satisfaction. Therefore, the location of service sites and the adequate distribution of service facilities to ensure broad coverage are important for facilitating public access.

Service promotion and guidance

Satisfaction may arise from hearing information or other people speaking positively about service quality. When such information aligns with one's existing beliefs or trust, it creates a favorable impression of the service and serves as motivation that can lead to a subsequent demand for the service.

Service providers

Service managers/administrators and service operators/staff all play important roles in ensuring service recipients' satisfaction. Administrators who formulate service policies with the public as the primary consideration can more readily meet customers' needs and create satisfaction. Likewise, frontline staff who prioritize the public, demonstrate appropriate service behaviors, and respond to customers' needs with genuine interest and full attentiveness—guided by a service-minded attitude—contribute significantly to satisfaction.

Service environment

The service environment and atmosphere influence customer satisfaction. Customers often appreciate environmental aspects related to building and facility design, the attractiveness of interior decoration (furniture and color schemes), appropriate zoning or space allocation, as well as the design of materials and service equipment and tools (e.g., forms, documents, letters, and stationery).

Service process

The method of service delivery within the service process is an important part of creating public satisfaction. Efficient management and service systems make service operations more streamlined and enable accurate, high-quality responses to public needs. Examples include the use of computer technology to manage reservation information for hotels or airlines, automated teller machines (ATMs), automated telephone systems for call routing when contacting organizations, telephone conferencing, and internet-based communication.

Steps in Evaluating Satisfaction

Stufflebeam and Shinkfield (1990) stated that evaluation is one of the key steps in project/organizational management. After the processes of planning, implementation, and evaluation, evaluation serves as an important tool for measuring the success of operational outcomes. It consists of two components:

Monitoring

Monitoring involves tracking and reviewing progress in implementation and in the allocation of resources (inputs). It examines the relationship between the resources used in a project (inputs) and the project's outputs, together with external factors that may affect operations. Monitoring is a tool used during the implementation phase to ensure confidence that production inputs are delivered, work schedules are followed, outputs are produced, and activities are carried out in accordance with the established plan.

Evaluation

Evaluation involves assessing performance during implementation (performance evaluation). It is the study and analysis of data obtained from monitoring results in order to determine the project's or plan's progress—how resources and other factors have been used; whether operations have followed the plan, procedures, rules/criteria, and specified timelines; and whether performance aligns with the plan, objectives, and targets. Evaluation may take the form of on-going evaluation, which assesses outputs and outcomes, or ex-post evaluation, which assesses outcomes and impacts after implementation has been completed.

Related Research

Kaewkongjun et al. (2025) conducted a study titled Development of an Activity Notification System on Google Calendar via the LINE Notify API Application: A Case Study of the Faculty of Industrial Technology, Nakhon Si Thammarat Rajabhat University. The objectives were to develop a notification system for activities and meeting appointments, including the delivery of finance-related documents for personnel, and to evaluate users' satisfaction with the system. The study employed a Research and Development (R&D) methodology. The sample consisted of 63 personnel from the Faculty of Industrial Technology. Data were collected using a questionnaire and analyzed using descriptive statistics. The results indicated that the system functioned in accordance with its objectives, and users reported the highest level of satisfaction with the system's performance and with receiving information. The system improved work efficiency, reduced operational steps and time, and promoted concrete adoption of information technology within the organization.

Mitthong et al. (2025) conducted a study titled Guidelines for Managing the Repair Notification System, Faculty of Fine and Applied Arts, Suan Sunandha Rajabhat University. The objectives were to examine the current management conditions of the repair notification system and to develop management guidelines for the Faculty of Fine and Applied Arts at Suan Sunandha Rajabhat University. The research used document analysis and interviews with relevant personnel. The findings led to guidelines for improving the repair notification system to be more convenient, systematic, and capable of managing repair-report data more efficiently, thereby reducing work processes and enhancing internal management efficiency.

Noophet et al. (2021) conducted a study titled Development of a Support System for Instructional Consultation with Notifications via LINE Notify for English Major Students, Faculty of Education, Nakhon Si Thammarat Rajabhat University. The objectives were to develop a system supporting instructional consultation and to evaluate students' satisfaction with the developed system. The study followed the System Development Life Cycle (SDLC) process and developed a web application using PHP with a MySQL database. The sample consisted of 60 English-major students. The results showed that students reported the highest level of satisfaction with the system, particularly in terms of service, usefulness, and system

performance. This indicates that applying LINE Notify can effectively support teaching and learning management in higher education.

Petcharat et al. (2024) conducted a study titled Development of an Information System for Asset and Durable Goods Management via QR Code and LINE Notify Using an MVC Framework. The objectives were to design and develop an information system for managing assets and durable goods, and to evaluate system efficiency and user satisfaction, using a case study of the Faculty of Management Sciences, Nakhon Si Thammarat Rajabhat University. The research employed the Rapid Application Development (RAD) approach and system design using an MVC Framework. The results showed that the system's efficiency was at a very good level, and user satisfaction was also at a very good level. The system enhanced convenience, speed, and accuracy in asset management and clearly supported the transition toward a digital organization.

Research Methodology

Data Collection

The researcher investigated the current state of the internal training information publicity system within the university by collecting data from relevant units, including the Human Resources Division, the Research and Development Institute, and other supporting units, in order to understand the existing formats for announcements, the storage of training-related information, and the current communication channels.

The data obtained from this study were analyzed together with users' needs—covering both academic and support staff—using the following research instruments:

A questionnaire to survey problems and needs related to receiving training information

In-depth interviews with Human Resources personnel

A SWOT analysis to identify strengths, weaknesses, opportunities, and threats

Data Analysis

Satisfaction analysis of the sample group was conducted as follows:

Identify the data analysis methods and statistics to be used.

Check the completed questionnaires for completeness.

Calculate the basic statistics as follows:

Part 1: Compute frequencies, summarize as percentages, and present the findings in narrative form.

Part 2: Compute frequencies, summarize as percentages, and calculate the mean and standard deviation (S.D.).

Part 3: Interpret the results and summarize them in narrative form.

Research Results

Findings on the Current Situation and Needs in Training Information Communication

The study found that communication of staff training information at Suan Sunandha Rajabhat University is still carried out through traditional channels such as email, the university website, and official documents. As a result, some staff members do not receive information in a timely manner and consequently miss opportunities to participate in capacity-building activities.

Results of the Design and Development of the Training Notification Feature via LINE Notify

The developed prototype feature followed the System Development Life Cycle (SDLC) approach and applied User-Centered Design (UCD) principles, emphasizing ease of use, accuracy of communication, and data security.

System Testing and Refinement Results

Testing of the prototype system was conducted in three phases:

1. Internal Testing

The development team tested core functions such as database connectivity, message delivery via LINE Notify, and report display. The results showed that the system operated correctly with no technical errors.

2. Pilot Testing

The pilot test was conducted with 10 staff members from the Research and Development Institute. The system was able to send messages within 3 seconds, and notification delivery to personnel was successful in 100% of cases.

3. User Acceptance Testing (UAT)

UAT was conducted with 50 users, including lecturers, researchers, and administrative staff. The results indicated that:

94% agreed that the system helped them receive information more quickly.

90% were satisfied with the ease of use.

92% agreed that the system helped reduce redundant work.

Results of Data Analysis on System Performance

Table 1: Mean and Standard Deviation of Users' Satisfaction with the System

Evaluation Aspect	Mean ($\bar{X}$)	S.D.	Satisfaction Level
1. System Performance (Performance)	4.65	0.46	Highest
2. Functional Accuracy (Functional Accuracy)	4.58	0.49	Highest
3. Usability (Usability)	4.70	0.42	Highest
Overall	4.64	0.46	Highest

Table 1 shows that the overall mean satisfaction score was 4.64 (S.D. = 0.46), which falls within the "highest" level. This indicates that most users were highly satisfied with the system in all aspects. In particular, Usability received the highest mean score of 4.70 (S.D. = 0.42), reflecting that the system effectively and appropriately met users' needs.

In summary, the evaluation results indicate that the developed digital platform achieved the highest level of effectiveness across all dimensions—performance, accuracy, and usability. The system can be effectively implemented within Suan Sunandha Rajabhat University and also demonstrates potential for further development into an institutional-level knowledge and innovation management system in the future.

Conclusion

The research findings can be summarized as follows: the development of a training notification feature via LINE Notify effectively meets personnel's needs for timely information and enhances the university's training management system by transforming it into a convenient and fast digital format.

System architecture and technology

The system was developed using Python and connected to the Human Resources database through API integration. It can deliver accurate and rapid real-time notifications, supports access from all devices (responsive web application), and provides a high level of data security.

Work process

The system can retrieve training information from a central database and automatically send notification messages to personnel by department. Personnel can click a link in the message to view details and register for training immediately. System administrators can conveniently manage data and view participation statistics.

System performance and user satisfaction

Evaluation results from experts and users (a total of 105 participants) indicated an overall mean satisfaction score of 4.64 (S.D. = 0.46), at the “highest” level. The aspect with the highest mean score was Usability, indicating that users found the system easy to use and able to provide quick access to information.

Potential for practical implementation

The system can be practically implemented across various units within the university. It also has potential for further development to support notifications for other activities, such as internal meetings, external training programs, or student development activities in the future.

Discussion

The findings of this study demonstrate that the application of LINE Notify technology can genuinely improve the efficiency of internal communication within an organization. This is consistent with the Office of the Civil Service Commission (OCSC) (2023), which states that “modern organizations should use digital technology in management in order to become a Smart Organization that is transparent, agile, and modern.” The evaluation results for Functional Accuracy and Usability, both at the “highest” level, also align with Phisuttha Arirat (2007), who emphasizes User-Centered Design (UCD) principles—helping users understand and use the system easily, without unnecessary complexity, and ensuring the system responds directly to users’ needs.

When compared with the study by Phatcharin Saengsi (2023), which developed a LINE-based notification system for personnel administration in a university and found that it effectively increased staff participation in activities, the present study shows a similar outcome: personnel participation in training increased by 30% after the system was implemented. In addition, the system reduces the workload of Human Resources staff in disseminating training announcements and supports personnel development in line with Suan Sunandha Rajabhat University’s policy of becoming a Digital University under the Smart SSRU strategy.

References

- Arirat, P. (2007). *Educational software development* [Book in Thai]. Apichat Printing.
Bangkok Metropolitan Administration, Office of Policy and Planning. (2005). *Organization and management* [Book in Thai]. Odeon Store.

- Chotimukta, K. (1995). *Public satisfaction with the service system and service process of the Bangkok Metropolitan Administration: A case study of Bang Sue District Office* [Master's thesis, National Institute of Development Administration].
- Kaewkongjun, P., Amonrit, S., & Nackchoothong, B. (2025). Development of an activity notification system on Google Calendar via the LINE Notify API application [Article in Thai]: A case study of the Faculty of Industrial Technology, Nakhon Si Thammarat Rajabhat University. *Academic Journal of Industrial Technology Innovation*, 3(2), 54–69.
- Mitthong, P., Thasakdinan, T., & Tawalwongsri, S. (2025). Guidelines for managing the repair notification system, Faculty of Fine and Applied Arts, Suan Sunandha Rajabhat University. In *Proceedings of the International Academic Multidisciplinary Research Conference: ICBTS Hokkaido 2025* (pp. 102–107).
- Noophet, Y., Phoplod, P., Opasrattanakorn, O., Tongkhundum, T., & Thaweemuang, W. (2021). Development of a teaching-and-learning consultation support system with notifications via LINE Notify for English major students, Faculty of Education, Nakhon Si Thammarat Rajabhat University [Article in Thai]. *Nakkhabut Paritat Journal*, 13(3), 148–159.
- Petcharat, W., Sutthirak, T., Poolphol, T., Janwichian, K., Atitang, P., & Kanjanaklod, W. (2024). The development of information system for the management of materials via QR code and LINE Notify with MVC framework. *Journal of Applied Informatics and Technology*, 6(1), 113–131. <https://doi.org/10.14456/jait.2024.8>
- Stufflebeam, D. L., & Shinkfield, A. J. (1990). *Systematic evaluation*. Kluwer-Nijhoff Publishing.
- Sukhothai Thammathirat Open University. (1996). *Course material: Theories and practices in educational administration (Units 5–8)* [Course text in Thai]. Sukhothai Thammathirat Open University.
- Taepasawat, E., & Noichan, N. (2022). School administration to meet customer satisfaction. In *Proceedings of the 4th National Conference: Graduate School Conference 2022 “iHappiness: Sustainable happiness and quality of life in the digital society”* (p. 1456).