"Like! Points Application" Enables Exchange of Positive Messages in the Workplace

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Abstract. In this paper, we present a study on the usage patterns and social functions of a mobile app that allows users to exchange and accumulate "Like! Points" with their colleagues in the workplace. User interviews were conducted, and log data were analyzed to identify common uses of the app, such as expressing gratitude, sharing information, and building social connections. The findings of this study can inform the development of similar apps and contribute to the growing body of research on communication and collaboration in the workplace.

Keywords: Workplace depression · Mental health · Simulation · Organization assesment · Social isolation · "Like! Points app."

1 Introduction

Mental disorders such as depression, anxiety, and burnout are prevalent among employees, and if left untreated, they can lead to long-term economic, mental, and physical burdens for the employees themselves, as well as result in socioeconomic losses for the organization. In 2021, Japan recorded 2,346 workers' compensation claims for mental disorders, emphasizing the necessity of a predictive approach to protect employees and reduce losses caused by workplace depression.

Social isolation within an organization can lead to symptoms resembling depression and anxiety disorders, making it a potent stressor [1]. Stress can negatively impact brain function, including cognitive and emotional processing, and the interpretation of messages from others can determine an individual's emotional and physical response, ultimately affecting their actions [2,3].

As such, it's crucial to acknowledge how the quality of communication in an organization can impact employees' mental health. An approach that may prove effective in preventing workplace depression is to utilize an organization simulator to monitor isolated individuals and take proactive measures.

In this paper, we introduce the "Like! Points app.," which allows employees to express gratitude towards one another by sending points within the company. We

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provide details on the app's usage, the information available to administrators, and also introduce an app that visualizes the exchanges through log data. We also conducted an interview survey targeting app users to investigate the app's usability and its impact on communication within the company.

2 Related Works

Digital health interventions are a promising alternative to face-to-face treatment, especially in the context of the COVID–19 pandemic [5]. However, as noted by Philippe et al., there is still a need for further research to fully understand the efficacy and appropriateness of these interventions for patients with understudied mental health conditions and those who are marginalized and may lack access to digital health tools [5].

Firth et al. demonstrated that psychological interventions delivered through smartphone devices can lead to a reduction in anxiety [6]. They recommended that future research focus on developing practical approaches to implement smartphone-based support for individuals with anxiety, and also compare the effectiveness of these interventions to traditional face-to-face psychological care.

Mohr et al. presented the outcomes of a technical expert panel assembled by the Agency for Healthcare Research and Quality and the National Institute of Mental Health. The panel was tasked with reviewing current research on behavioral intervention technologies (BITs) in mental health and identifying the top research priorities [7]. The study also suggests that with the large amounts of data generated by BITs, improvements in the collection, storage, analysis, and visualization of big data will be necessary.

Wu et al. presented a comprehensive survey to characterize the visual analytics area and summarize the state-of-the-art techniques for analyzing social media data [8]. They showed that node-link diagrams are perhaps the most common way to visually represent a social network.

We conducted a study on using an organization simulator as a way to prevent workplace depression [4]. The simulator, which is based on "Message Theory" and incorporates a communication model, provides a display of human relationship behaviors. The simulation results revealed that the personal and organizational statuses, such as the position of individuals, mean distance, and mean mental health index, vary depending on the initial conditions.

Stachl et al. found that communication and social behavior are most predictable through the collection of smartphone data, highlighting the benefits and dangers of smartphone data collection [9].

Observing the exchange of messages and changes in human relationships in actual workplace environments is extremely challenging. However, in recent years, there is a company that have been utilizing a "Like! Point app." within the workplace to practice positive message exchanges. Analyzing the usage of this app can contribute to the revitalization of communication in the workplace and the development of apps for that purpose.

3 "Like! Points App." Point Exchange Application

3.1 Overview

The "Like! Points app."(TSK Wallet) is an internal app where employees can anonymously give points to each other as a sign of gratitude or recognition for good behavior. It has been in operation since 2021. Each user can send up to 100 points at a time, and once a certain number of points have been accumulated, they can be converted to cash at an internal ATM (Fig. 1).

Users can attach a mini-message (e.g. "Good job", "Thank you", "You were a great help", "Well done") when sending points, and the sender can check the history of who they sent points to. The recipient can only confirm the receipt of the points and message, and it is not possible to identify the sender within the app. Users can send up to 100 points once a day, and any unused points will expire at the end of the day. The cost of sending points is covered by the company.

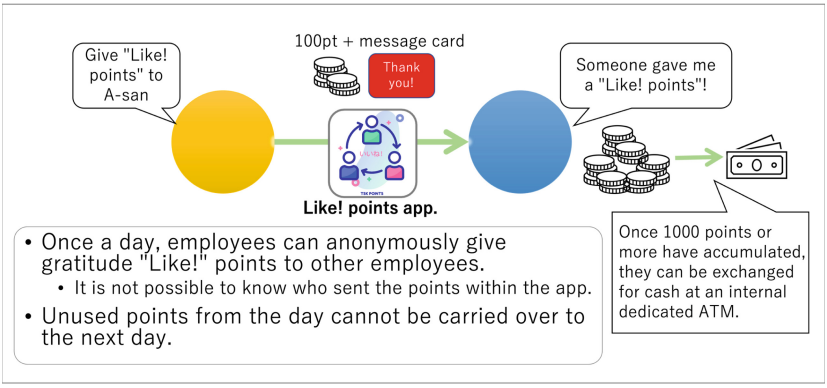


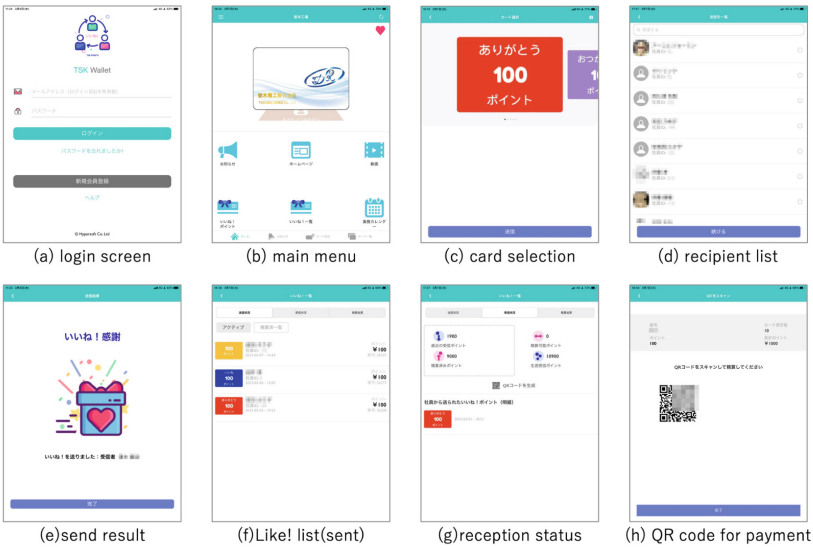
Fig. 1. Overview of "Like! Points App."

3.2 Usage

This section provides an overview of how to use the "Like! Points app.".

1. To log in to TSK Wallet, enter users' email address as the login ID and users' password on the login screen (Fig. 2(a)).
2. The main menu includes icons for News, Homepage, Videos, Like! Points, Like! Point List, and Work Calendar (Fig. 2(b)).
3. On the card selection screen, users can choose the amount of points to send and select from a variety of short messages such as "Thank you" or "Good job" before sending (Fig. 2(c)).
4. On the recipient list screen, users can select recipients from a list of employees. It is possible to search for a recipient by entering a part of their name in the search bar (Fig. 2(d)).

5. When user send an “Like! points”, the sending result and the name of the recipient are displayed (Fig. 2(e)).
6. In the “Like!” list screen, user can check the transmission status (recipient and message) and reception status (latest received point, cumulative received point, etc.) of the “Likes” (Fig. 2(f)(g)).
7. When converting points to cash, users can display a QR code on the app and scan it at a designated ATM (Fig. 2(h)).



(a) login screen (b) main menu (c) card selection (d) recipient list

(e)send result (f)Like! list(sent) (g)reception status (h) QR code for payment

Fig. 2. Screenshots of “Like! Points app.”(TSK Wallet)

3.3 Benefits

For users, this app allows them to easily express gratitude towards their colleagues. They can check their sending history and review who they sent points to, while recipients can receive points anonymously without knowing who the sender is, making it a safe and comfortable experience.

For management, this app provides a multi-dimensional evaluation of employees as they exchange points with each other. As shown in Fig. 3, the administrator dashboard provides information not only about individual point balances, but also about the connections between individuals and departments. This can lead to better support for employee development and provide more appropriate support to enhance employee performance.

Administrators have access to dedicated screens that allow them to view and confirm the network of each employee and department (Fig. 3). Administrators can also view and confirm the activity status of “Like! points” for each employee within and across departments. In addition, administrators can view and confirm the activity status of “Like! points” across departments.

3.4 Log Data and Visualization

The data on the exchange of "Like! Points app." includes the following information: date and time, sender's department and name, receiver's department and name, and the number of points (fixed at 100).

In FY2021, we collected data on approximately 250 individuals and recorded around 14,000 point exchanges. Regarding the use of the data, we have signed a non-disclosure agreement with both the company and the university.

We used the collected data to create a visualization that highlights the frequency of point exchanges between the employees, as shown in Fig. 4. Through this visualization, we were able to identify several interesting patterns and trends related to the volume of point exchanges. These findings can be used to pinpoint areas for improvement or opportunities for further development of the point exchange system. With this information, we can continue to refine and optimize the system to better meet the needs of the users and promote positive interactions within the organization.

From the log data, it can be concluded that there is a cyclic message exchange between employees, especially within their own department. This suggests the presence of strong intra-department communication and personal relationships between employees. Additionally, the log data shows that there are some departments with only two employees, indicating a close working relationship between those individuals. These insights can help to inform future policies and initiatives aimed at fostering positive workplace relationships and improving communication within and between departments.

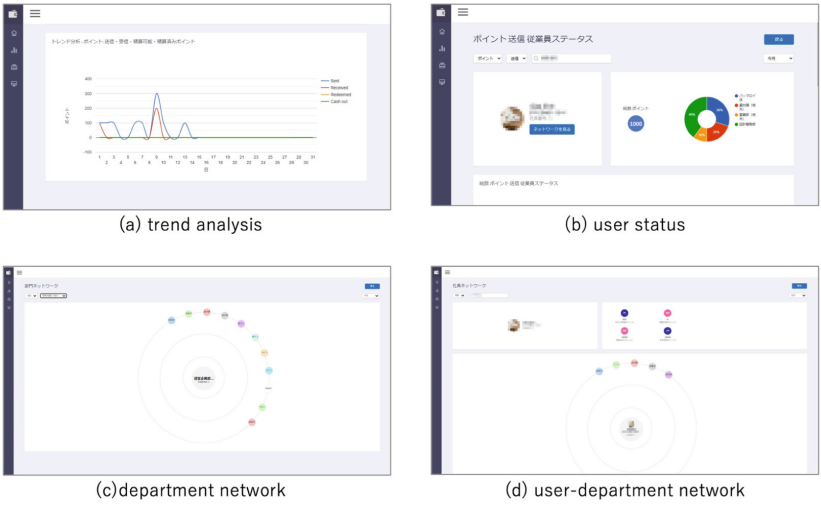


Fig. 3. Screenshots of administrator dashboard.

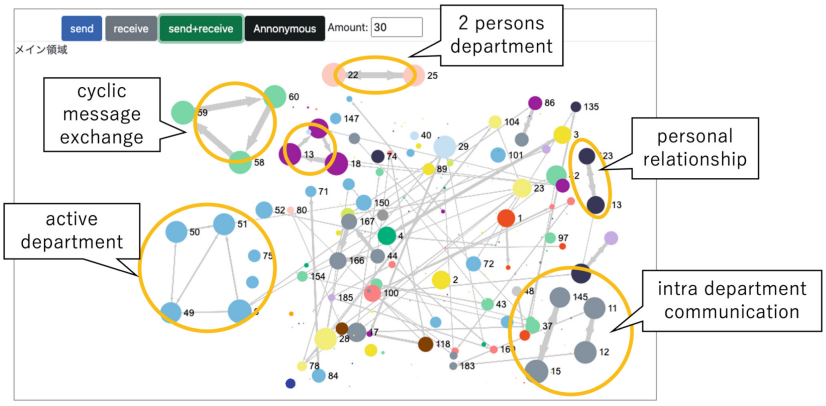


Fig. 4. Log data visualization. (a) Monthly trend of sent, received, and settled points; (b) Status of user points; (c) Display of user's department and its connections with other departments; (d) Display of user's connections with other departments.

4 User Interview

4.1 Overview

The purpose of this interview is to gather feedback from users and obtain basic data for improving the "Like! Points app." to promote more active usage. We conducted the interviews with a group of three people for approximately 45 min each, and held four sessions in total, interviewing a total of 12 participants.

To clarify our interview procedures, we explained to the participants that we would be using an IC recorder to record the conversation for the purpose of analyzing the survey results. The audio recordings would be transcribed and used for analysis only, and would not be shared with any external parties without obtaining prior permission.

Moreover, we ensured that the interview content and analysis results would not be presented to the Management Planning Department in a manner that would reveal the identity of any individual participant.

The main inquiries are delineated as follows.

- Have you noticed any personal or company-wide changes since starting to use the app?
- How do you feel when you receive or give points, and what motivates you to do so?
- Do you have any preferences for the number of points or messages you can send per day, or any other features you'd like to see in the app?

4.2 Data Analysis

The interviews conducted were recorded and transcribed into text format. The transcribed data was analyzed using KH Coder [10]. The analysis results

presented in this study were originally written in Japanese and translated into English by the authors

Figure 5 shows the co-occurrence network of frequently used terms during user interviews. For example, "Send", "People", "point", "message", etc. are ranked high. These words are related to the main functions of messaging apps, such as sending and receiving messages and exchanging points. The co-occurrence network generated six subgraphs, which can be classified into (1) app usage and changes, (2) sending points and work-related connections, (3) messages and emotions that can be sent through the app, (4) point settlement, and (5)–(6) interview-related topics.

Furthermore, some of the highlighted words in the graph may have positive connotations depending on how they are used. For instance, words such as "thank you", "well done", "be helpful", and "happy" can express gratitude and empathy towards the recipient and may have the potential to facilitate smoother communication.

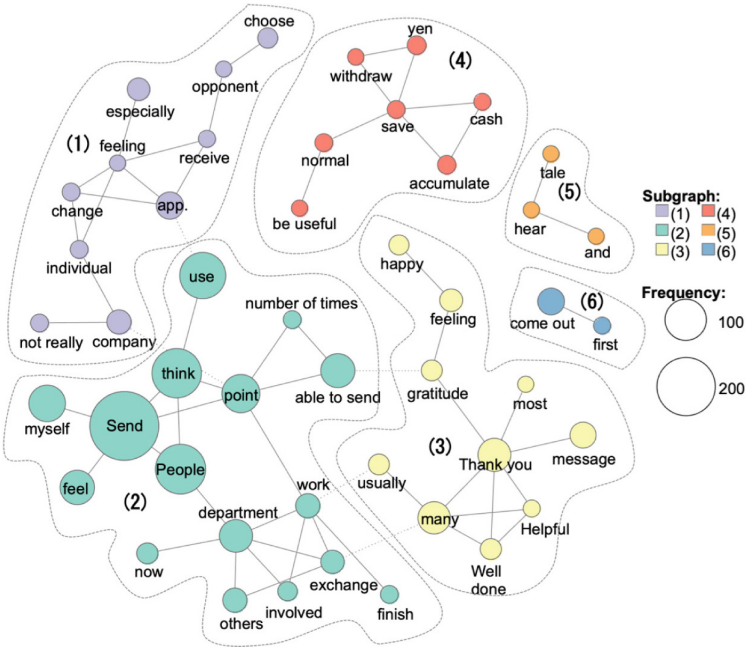


Fig. 5. Co-occurrence network of interview utterances.

5 Discussion

Our analysis of the visualization of "Like! points" revealed various patterns, including personal connections between individuals, frequent exchanges within specific departments, as well as cyclic exchanges among three individuals (Fig. 4).

These findings suggest that "Like! points" are used for both personal and professional purposes within the company.

In the interview survey conducted, the results showed a clear correlation between the level of work-related interactions and the frequency of point exchanges. This suggests that the more an individual engages in work-related activities, the more likely they are to actively participate in point exchanges through the application.

Overall, our analysis suggests that visualizing "Like! points" can provide valuable insights into the dynamics of communication and collaboration within a company. By identifying which departments and individuals are most engaged, companies can take steps to promote a more collaborative and supportive workplace culture.

References

1. Beck, A.T.: Thinking and depression: II. Theory and therapy. Arch. Gen. Psychiatry **10**, 561–571 (1964)
2. Matsumoto, K., Pinna, G., Puia, G., Guidotti, A., Costa, E.: Social isolation stress-induced aggression in mice: a model to study the pharmacology of neurosteroidogenesis. Stress **8**(2), 85–93 (2005)
3. Lazarus, R.S.: Psychological Stress and the Coping Process. McGraw-Hill, NewYork (1966)
4. Shionome, T.: A study on organization simulator as a means to prevent workplace depression. In: Stephanidis, C. (ed.) HCI 2018. CCIS, vol. 851, pp. 444–450. Springer, Cham (2018). https://doi.org/10.1007/978-3-319-92279-9_59
5. Philippe, T.J., et al.: Digital health interventions for delivery of mental health care: systematic and comprehensive meta-review. JMIR Ment. Health **9**(5), e35159 (2022). PMID: 35551058. PMCID: PMC9109782. https://doi.org/10.2196/35159
6. Firth, J., Torous, J., Nicholas, J., Carney, R., Rosenbaum, S., Sarris, J.: Can smartphone mental health interventions reduce symptoms of anxiety? A meta-analysis of randomized controlled trials. J. Affect. Disord. **218**, 15–22 (2017)
7. Mohr, D.C., Burns, M.N., Schueller, S.M., Clarke, G., Klinkman, M.: Behavioral intervention technologies: evidence review and recommendations for future research in mental health. Gen. Hosp. Psychiatry **35**(4), 332–338 (2013)
8. Wu, Y., Cao, N., Gotz, D., Tan, Y., Keim, D.A.: A survey on visual analytics of social media data. IEEE Trans. Multimedia **18**(11), 2135–2148 (2016). https://doi.org/10.1109/TMM.2016.2614220
9. Stachl, C., et al.: Predicting personality from patterns of behavior collected with smartphones. Proc. Natl. Acad. Sci. **117**, 17680–17687 (2020). https://doi.org/10.1073/pnas.1920484117
10. Higuchi, K.: A two-step approach to quantitative content analysis: KH coder tutorial using Anne of green gables (part II). Ritsumeikan Soc. Sci. Rev. **53**(1), 137–147 (2017)