

Gamification in Volunteer Feedback: Do Digital Rewards Really Work?

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Abstract: This study examines the impact of achievement badges on volunteer engagement and response quality in online surveys conducted by non-profit organizations. While gamification is often proposed to increase participation, its effectiveness in intrinsically motivated populations remains unclear. Using a custom-built survey platform, 57 Swedish volunteers were randomly assigned to either a gamified survey featuring badges or a non-gamified control version. Behavioral data, including time spent, word counts, badge interactions, and completion rates were recorded, alongside open-ended reflections. Results showed no statistically significant difference between conditions. Participants in the gamified group completed surveys faster but provided shorter written responses and showed minimal interaction with the badge system. PCA analysis and qualitative feedback reinforced the finding that badges did not meaningfully alter behavior or improve user experience. These outcomes suggest that in settings where intrinsic motivation is already high, such as non-profit volunteering, superficial gamification elements like badges may offer limited benefit. Instead, aligning survey design with volunteers' intrinsic values, such as purpose, autonomy, and impact, may be more effective. This research contributes to gamification literature by emphasizing the limitations of single-element strategies and calling for more nuanced, context-sensitive approaches in digital feedback systems.

Keywords: Gamification; Online surveys; Digital badges; Motivation; Non-Profit volunteers; Game-Based learning

1. Introduction

Gamification, the use of game design elements in non-game contexts, has gained popularity in education, business, and research for enhancing motivation and engagement (Deterding et al., 2011; Landers et al., 2015). Among these elements, digital badges stand out for their simplicity and visibility in signaling progress or achievement (Fanfarelli & McDaniel, 2015). However, while badges have been shown to improve enjoyment and participation in extrinsically motivated settings such as brand engagement (Hamari & Eranti, 2011; Hsu & Chen, 2018), their effects are less predictable in intrinsically motivated contexts. In environments where individuals are already internally driven, such as volunteerism, badges may appear unnecessary or even counterproductive, potentially undermining autonomy or perceived task value (Ryan & Deci, 2020; Harms et al., 2015). Though some studies note that badges add “fun,” this does not always lead to deeper engagement or improved response quality (Guin et al., 2012).

Online surveys, while widely used for their efficiency and scalability (Ball, 2019), often suffer from low completion rates and superficial responses (Galesic, 2006). Gamification has been proposed to mitigate these challenges (Bailey et al., 2015; Warnock & Gantz, 2017), yet the isolated effects of badges in surveys, particularly among intrinsically motivated groups, remain underexplored. Sweden's non-profit sector offers a compelling test case. Volunteers here contribute significantly to society, driven by altruism rather than external incentives (Statistics Sweden, 2020; Volontärbyrån, 2022). In such settings, introducing badges into surveys may not align with participants' motivations and could even diminish engagement. This study investigates whether digital achievement badges improve engagement and response quality in online surveys completed by non-profit volunteers. Specifically, it asks how does the introduction of digital achievement badges impact non-profit volunteers' response behavior and survey experience? By examining a gamified survey in a high-intrinsic-motivation context, the study contributes to the literature on game-based learning and survey design, offering insights into the boundaries of badge effectiveness and design recommendations for volunteer-driven settings.

2. Literature Review

Gamification, defined as the application of game elements in non-game contexts, has been widely examined for its potential to enhance motivation, engagement, and user satisfaction across diverse domains such as education, employee training, and digital feedback collection (Deterding et al., 2011). Among its many components, digital achievement badges have emerged as a popular and accessible tool due to their visual simplicity, low implementation cost, and ability to signify behavioral milestones (Fanfarelli & McDaniel, 2015).

However, the motivational impact of badges varies substantially by context. In domains where extrinsic motivation dominates such as corporate training or brand loyalty programs badges can serve as effective stimuli by increasing perceived task value and offering symbolic rewards for effort (Hamari & Eranti, 2011; Hsu & Chen, 2018). In these settings, badges are often integrated with broader reward systems or competitive frameworks, reinforcing user engagement through mechanisms like social comparison or progress visualization.

Conversely, in intrinsically motivated environments such as volunteer work or civic participation, badges often yield more ambiguous results. Participants motivated by internal drivers such as altruism, identity, or personal fulfillment may find external incentives less compelling or even off-putting. Harms et al. (2015) demonstrated that while badges increased perceived enjoyment in surveys, they did not significantly affect completion rates or data quality. These findings suggest that badges, when introduced without sensitivity to participant motivation, may function more as decorative than transformative elements.

To understand this phenomenon, motivational psychology offers valuable frameworks. Self-Determination Theory (SDT) posits that intrinsic motivation flourishes when individuals experience autonomy, competence, and relatedness (Ryan & Deci, 2020). External rewards such as badges can undermine intrinsic motivation if they are perceived as controlling or misaligned with personal values. For non-profit volunteers, who often act out of civic responsibility or belief in a cause, badges may feel inauthentic or irrelevant, especially when not clearly tied to meaningful outcomes. Flow Theory (Csikszentmihalyi, 1975) adds another perspective by emphasizing that deep engagement arises when a task strikes a balance between challenge and skill. However, online surveys are typically brief and structured, offering little room for creativity or challenge. In such settings, the addition of static badges is unlikely to foster immersion or sustained attention. Expectancy-Value Theory (Eccles & Wigfield, 2002) further enriches this understanding by suggesting that individuals assess tasks based on the value they assign to outcomes and the effort required. In the case of open-ended survey questions, badges may not offer sufficient perceived reward to justify cognitive effort, especially when the task already feels purposeful. Participants may thus opt for shorter or more superficial answers, seeing no added benefit from expending additional effort.

Despite these challenges, online surveys remain indispensable tools for organizations due to their scalability and cost-effectiveness (Ball, 2019). However, they are often plagued by low completion rates, partial engagement, and shallow responses (Galesic, 2006). Gamification has been proposed to mitigate these shortcomings, with various elements such as progress bars, avatars, or storytelling prompts demonstrating potential to improve user experience (Bailey et al., 2015; Warnock & Gantz, 2017). Yet, as (Guin et al., 2012) found, the inclusion of gamified elements does not consistently translate into improved outcomes, especially when not holistically integrated.

One limitation may be the overreliance on single-element gamification. Studies increasingly emphasize that layered or narrative-driven gamification combining badges with social sharing, dynamic feedback, or collaborative challenges tends to be more impactful than isolated elements (Oliveira & Paula, 2021). This approach not only diversifies the motivational triggers but also fosters a more immersive and adaptive experience.

The case of Swedish non-profit volunteers provides a unique lens through which to analyze these dynamics. These individuals typically exhibit strong intrinsic motivation, engaging in activities not for external rewards but out of a sense of identity, social responsibility, or community affiliation (Volontärbyrån, 2022). In such contexts, gamification strategies must be carefully tailored. Instead of emphasizing individual performance or arbitrary milestones, more effective designs might focus on celebrating collective contributions, highlighting real-world impact, or providing reflective prompts that resonate with volunteers' values and experiences. In sum, while badges can contribute to survey engagement in some settings, their standalone use in intrinsically motivated populations is unlikely to produce substantial effects. A more effective approach may lie in integrating badges into richer, context-sensitive frameworks that support and affirm participants' core motivations.

3. Methodology

This study employed a controlled experiment to assess the effect of digital achievement badges on volunteer engagement and response quality in online surveys. A custom-built survey platform was developed to allow fine-tuned control over interface design and badge logic, while also capturing detailed behavioral data in real time.

Two survey versions were created: a gamified version featuring achievement badges and a non-gamified control version. Both versions contained identical content and layout, with the only difference being the presence or absence of badges. In the gamified version, badges were displayed prominently at the top of the screen and

were triggered when participants met specific behavioral milestones. Each badge activation was accompanied by a brief confetti animation, providing light celebratory feedback. Participants were randomly assigned to each version using a dynamic URL parameter system, minimizing selection bias and avoiding predictable assignment patterns (Keusch & Zhang, 2017).

The survey was distributed through four Swedish non-profit organizations. Of the 363 volunteers who received the link, 57 began the survey and 41 completed it. The sample reflected common demographic characteristics of Sweden's volunteer population (Volontärbyrå, 2022), with 81% identifying as women, and the remainder as men or other/prefer not to say. Over half of the participants (56%) accessed the survey using a mobile device, and respondents varied in age and length of volunteering experience, from under one year to over five years.

To meet the specific design requirements of the experiment, we developed a fully responsive survey platform using NextJS for the frontend and Firestore for backend data management. This allowed for precise logging of user interactions such as button clicks, text entries, page transitions, and badge unlock events, all timestamped in real time. The survey layout automatically adjusted to the user's device, with badge icons aligned horizontally across the top on mobile and across the header on desktop screens. Apart from the gamification elements, the visual and functional structure remained identical across conditions.

The badge system was inspired by gamification principles that emphasize simplicity and recognizability (Fanfarelli & McDaniel, 2015). Five core badges and three optional "bonus" badges were integrated. Badges were not overtly explained unless clicked, encouraging participants to explore them organically. Table 1 summarizes the criteria for badge activation:

Table 1: Badge Names and Activation Criteria.

Badge Name	Criterion
<i>Wordspitter</i>	Write at least 20 words in any open-ended question.
<i>Shakespeare</i>	Write at least 50 words in any open-ended question.
<i>Advisor</i>	Fill in a custom "3-answers" input for organizational suggestions.
<i>Hero of the Day</i>	Complete all mandatory questions in the survey.
<i>Completionist</i>	Submit the entire survey (all pages).

In addition to the five core badges, three optional "bonus" badges were included to encourage further exploration and reflection.

- **Voice of an Angel** : awarded for giving especially detailed feedback in any open-ended question;
- **Above and Beyond** : earned by completing additional optional questions; and
- **Explorer** : unlocked by clicking and reading all badge descriptions. While these badges were rarely unlocked, their inclusion aimed to capture deeper or more exploratory engagement behaviors.

The badge system was visually integrated into the survey platform, where participants could view locked and unlocked badges during their progress and receive real-time feedback when achievements were earned. An example of the badge display and the corresponding feedback notification is shown in figure 1.

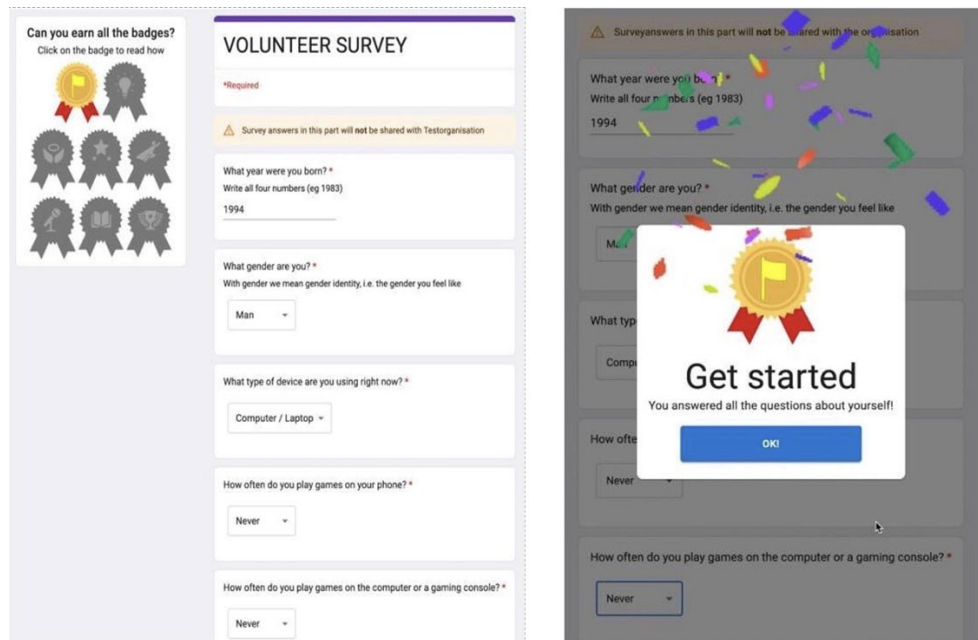


Figure 1: Digital badges in the gamified survey condition. (a) Survey interface displaying eight badge slots, including five core badges and three optional “bonus” badges. (b) Example of a badge achievement notification (“Get Started”) with confetti feedback

To ensure ecological validity and data integrity, participants’ interactions were recorded without collecting any personally identifiable information. Each respondent was assigned a unique anonymous ID. Those who dropped out before completing the survey were excluded from the final dataset. A mixed-methods approach was used for data collection and analysis. Quantitative metrics included time spent in the survey, number of questions answered, dropout status, word count across open-ended responses, and the number and type of badges earned. Qualitative feedback was collected through open-ended reflections on survey clarity, length, and overall experience. Analysis began with descriptive statistics to compare the average time spent, question completion, and word counts across the gamified and non-gamified groups. To account for non-normal distributions, Spearman’s rank correlation was used to explore associations between experimental conditions (e.g., gamified vs. control, mobile vs. desktop) and behavioral outcomes such as response length. Additionally, Principal Component Analysis (PCA) was applied to interaction logs, including variables like total time, word count, page transitions, badge activity, and completion status, to identify clustering patterns in participant behavior. This helped illuminate whether badge exposure corresponded with distinct interaction styles. Together, these methods provided a comprehensive view of how achievement badges influenced volunteers’ engagement with the survey and the quality of their responses, particularly in a context where intrinsic motivation was already expected to be high.

4. Results

4.1 Completion Rates and Time

Of the 57 volunteers who started the survey, 29 were randomly assigned to the gamified condition and 28 to the control group. The completion rate was 76% in the gamified group (22/29) and 68% in the control group (19/28). To assess whether this difference was statistically significant, we conducted a Fisher’s Exact Test. Results showed no significant difference between groups (odds ratio = 1.49, $p = 0.565$), indicating that the presence of badges did not meaningfully affect survey completion. Interestingly, participants in the gamified group tended to finish the survey more quickly. As shown in Figure 1, the median time spent in the gamified condition was approximately 7 minutes, compared to 9.5 minutes in the control group. This may suggest that achievement badges encouraged more efficient task completion. However, as discussed below, this apparent efficiency did not necessarily translate into deeper engagement or higher-quality responses.

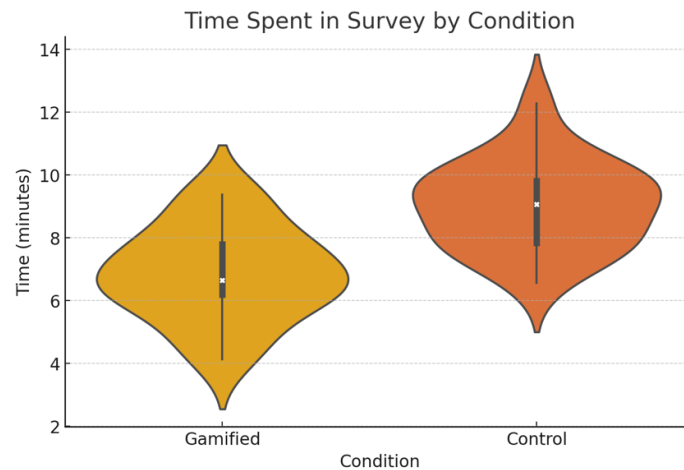


Figure 2: Shows the distribution of total time spent (in minutes) by participants in the gamified and non-gamified (control) survey conditions. Although the gamified group completed the survey more quickly on average (median ≈ 7 minutes) than the control group (median ≈ 9.5 minutes), the range and variability of time spent were similar across groups

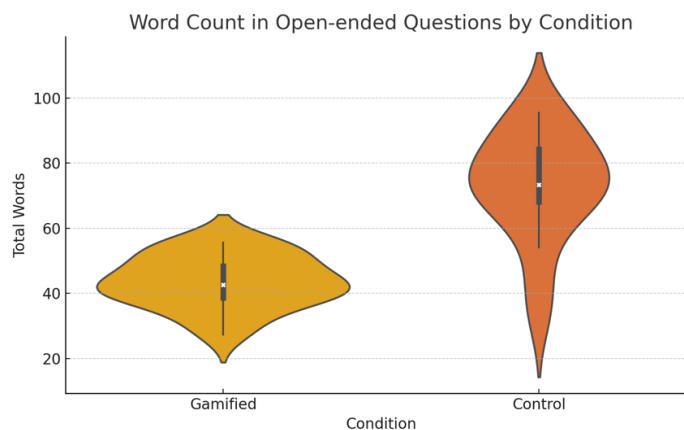


Figure 3: Illustrates the total word count in open-ended responses for each condition. Participants in the control group contributed longer written responses (median ≈ 72 words) compared to those in the gamified group (median ≈ 45 words), suggesting deeper cognitive engagement in the absence of gamification. These findings support the interpretation that while badges may expedite task completion, they may not enhance and could potentially reduce response depth in intrinsically motivated populations

4.2 Response Quality

Participants in both groups answered a similar number of questions (median of 22–23), but control participants provided substantially longer open-ended responses. As illustrated in Figure 2, the control group had a median word count of 72 words per respondent, while the gamified group produced a median of 45 words. This difference, although not statistically significant, supports the hypothesis that gamification may not enhance and could potentially reduce cognitive investment when applied in settings where intrinsic motivation is already high (Ryan & Deci, 2020; Harms et al., 2015).

4.3 Badge Acquisition and Interaction

All participants in the gamified condition received at least three badges for completing mandatory sections. Despite this, only three individuals actively clicked to read badge descriptions during the survey. This behavior is visualized in Figure 3, which maps individual interaction traces across badge icons. Notably, post-hoc analysis showed that control group participants, who had no visual exposure to the badges, would have earned more badges on average (3.95) than those in the gamified group (3.76), based purely on their behavior. This unexpected reversal, captured in Figure 4, illustrates the limited motivational value of badges in this volunteer context.

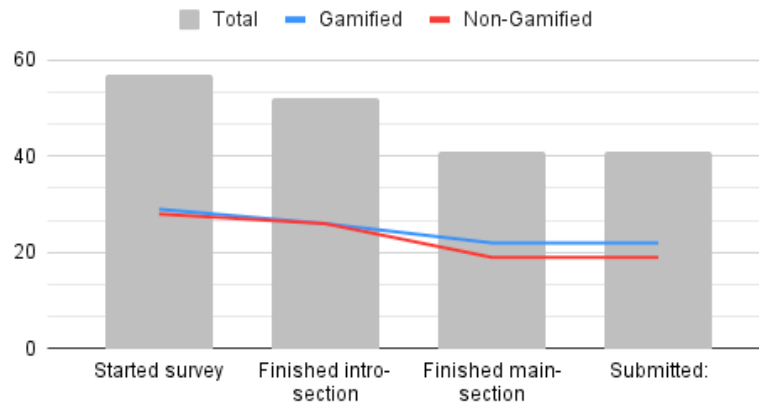


Figure 4: Shows participant retention through the four main stages of the survey: started, completed introduction, completed main section, and final submission. Gray bars indicate total participants, while the blue and red lines represent gamified (N = 29) and non-gamified (N = 28) groups respectively. Both groups followed a similar dropout pattern, with slightly better retention in the gamified group between the introduction and main sections. However, overall completion rates converged by the final submission, suggesting gamification had limited impact on survey completion

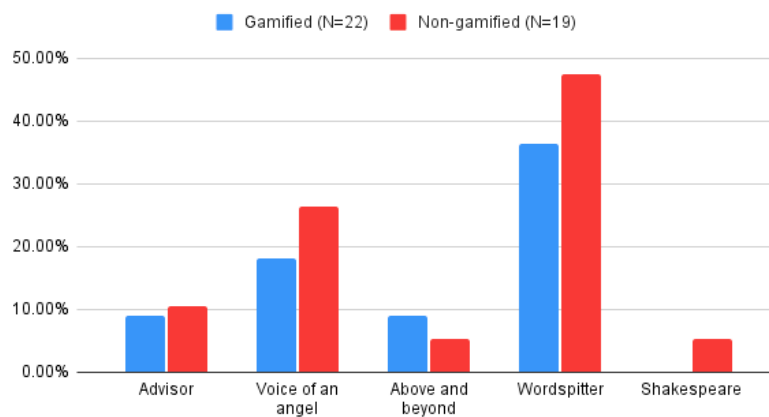


Figure 5: Illustrates the percentage of participants in each group who fulfilled criteria for five non-mandatory achievement badges: Advisor, Voice of an Angel, Above and Beyond, Wordspitter, and Shakespeare. While all participants who completed the survey received the three mandatory progression badges (not shown), this figure focuses on behavioral engagement beyond minimum requirements. The non-gamified group met more badge conditions in several categories, especially Wordspitter and Voice of an Angel, suggesting that badge visibility alone did not strongly influence deeper engagement. Only one non-gamified respondent met the criteria for the most demanding badge (Shakespeare)

4.4 Dimensionality Reduction: Behavioral Patterns

To gain deeper insight into participant engagement, Principal Component Analysis (PCA) was conducted on a multidimensional dataset comprising total time spent in the survey, word count across open-text responses, number of page transitions, badge unlock count, badge click events, and binary completion status. The resulting visualization, shown in Figure 5, reveals a modest clustering pattern based on whether participants completed the survey. Those who dropped out clustered more tightly and were generally associated with shorter durations and lower interaction levels, while participants who completed the survey displayed a wider behavioral spread, indicating more varied and engaged survey activity.

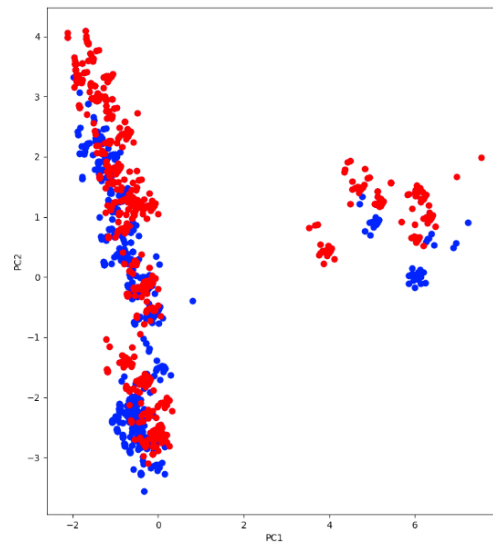


Figure 6: Presents the PCA space of the mentioned features colored by survey condition: blue for gamified participants and red for non-gamified. No distinct clusters emerge, suggesting that the introduction of achievement badges did not substantially differentiate behavioral patterns between the two groups

4.5 User Experience

Qualitative feedback revealed meaningful differences in how participants experienced the survey. Respondents in the control group frequently described their experience using terms such as “thoughtful,” “reflective,” or “meaningful,” indicating a higher level of cognitive engagement. In contrast, participants in the gamified condition occasionally referred to the badges as “fun,” but also characterized the survey as “long” or “repetitive,” suggesting that the gamification elements may not have enhanced and may have even detracted from the overall experience. When asked to compare this survey to others they had taken, 36.4% of gamified respondents rated it as “better,” and 63.6% as “similar,” while in the control group, 38.9% rated it as “better” or “much better,” and 61.1% as “similar.” These nearly identical distributions indicate that the presence of badges had no notable impact on perceived survey quality.

4.6 Summary of Observations

Despite their visual presence, badges had limited impact on both behavior and perception. While the gamified group spent less time completing the survey, they provided shorter responses and interacted minimally with the gamification features. PCA confirmed that engagement patterns were more closely tied to completion status than to condition or device type. Qualitative feedback further revealed that control participants reported deeper reflection and meaning. Together, these findings suggest that intrinsic motivation was the primary driver of engagement, and that badges, at least in isolation, did not provide sufficient external incentive to improve outcomes.

5. Discussion

This study examined whether digital achievement badges could enhance volunteer engagement and response quality in online surveys distributed by Swedish non-profits. The findings offer valuable insight into the limitations of gamification in intrinsically motivated populations, particularly where participants are driven by purpose rather than external incentives. The results support Self-Determination Theory (Ryan & Deci, 2020), which suggests that when intrinsic motivation is strong, as in the case of non-profit volunteers, extrinsic rewards like badges may not only be ineffective but potentially counterproductive. Although badges aimed to provide visual feedback and recognize participation, their presence did not result in higher completion rates, longer responses, or greater satisfaction. Behavioral data revealed that gamified respondents spent less time on the survey and provided shorter open-text answers. While the completion rates between groups were similar, badge interaction was minimal. Only three participants clicked to explore badge descriptions, indicating limited engagement with the gamification feature. Future research should investigate ways to increase participant interaction with badges, such as integrating narrative framing, peer comparison, or explicit prompts encouraging

exploration. This may help determine whether badges can function more effectively when combined with richer or socially embedded gamification strategies. PCA results further showed that engagement patterns were shaped more by completion status than by the presence of badges or device type. Together, these findings suggest that simple visual rewards may fail to engage users whose motivation is already rooted in internal values.

5.1 Practical Implications for Non-profit Survey Design

The findings of this study offer practical guidance for non-profits seeking to design effective feedback mechanisms. First, while gamification may seem appealing, its implementation must align with participants' underlying motivations. In contexts where volunteers are intrinsically driven by purpose, digital badges may not enhance engagement, and may even detract from the sense of autonomy. Instead, designers should consider non-reward-based motivators such as communicating how feedback will be used, providing personalized acknowledgments, or creating opportunities for reflection. Additionally, keeping surveys concise and meaningful appears more critical than adding superficial incentives. These results encourage a shift from gamified survey tools to mission-aligned, empathetic design, where respect for the respondent's values takes precedence over engagement gimmicks. Practitioners should also test any digital feedback intervention for unintended effects, especially when working with intrinsically motivated populations.

6. Conclusions and Future Work

This study has several limitations that should be acknowledged. First, the sample size ($n = 57$, with 41 completions) was relatively small, which reduces the statistical power of the findings. Second, the study was conducted within a population of highly intrinsically motivated non-profit volunteers. As a result, the conclusions may not generalize to less intrinsically motivated groups, where gamification effects could be stronger. Third, only a minority of participants interacted with the badge system, which may have limited the ability to detect meaningful engagement effects. Future studies should address these limitations by recruiting larger and more diverse samples, testing in low-motivation contexts, and combining badges with additional gamification elements.

The experiment found no significant benefits from using achievement badges in online surveys for non-profit volunteers. Rather than enhancing engagement, badges had little effect on behavior and were largely ignored. These findings reaffirm previous research suggesting that extrinsic motivators may not add value where intrinsic motivation dominates. Drawing on both Self-Determination Theory and Expectancy-Value Theory, we conclude that badges, at least in isolation, do not effectively enhance cognitive engagement or response quality in highly motivated groups. For digital feedback tools in the non-profit sector, fostering autonomy, relevance, and impact awareness is likely more effective than superficial game elements.

This study also highlights the potential of a lightweight, customizable survey platform capable of tracking user behavior in real time. Such tools enable the creation of controlled experimental conditions and offer rich behavioral data for analysis. To advance this line of research, future studies should explore multi-element gamification strategies that combine badges with narratives, peer collaboration, and adaptive feedback systems. Social dynamics, such as shared progress or public recognition, may play a stronger role in engagement. Additionally, the integration of qualitative methods, such as interviews or reflective prompts, would help capture how participants interpret and respond to gamified experiences. Longitudinal studies are especially important for evaluating sustained engagement over time. As digital feedback becomes increasingly essential for non-profits, gamification must be reimaged to align with the values and motivations of volunteer communities.

Acknowledgements

We thank the four Swedish non-profit organizations and their volunteers for their participation. We also appreciate the valuable guidance provided by our academic supervisors and colleagues.

Funding: This study received no external funding. Development and data collection were supported in-kind by the authors' institution and partner organizations.

Ethics: declaration This study did not require ethical clearance, as it did not involve personal or sensitive data and all responses were fully anonymized.

AI declaration: This paper was written and analysed by the authors. Generative AI tools were used only in a very limited capacity for language refinement and editing suggestions. All core ideas, data interpretation, and writing decisions were made by the authors.

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