

# Gamification and Persuasion of HP IT Service Management to Improve Performance and Engagement

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**Abstract.** Currently, IT service management groups in many different companies are facing a common challenge: how to motivate IT service desks to perform more effectively and productively in order to reach desired customer service objectives/goals and promote customer satisfactions. Undoubtedly, IT service desks' performance and engagement will directly influence the delivered service, and the quality of the service will either enhance or degrade customer loyalty to a company's brand and business. Accordingly, we present an effective and feasible way to incorporate gamification and persuasion as the incentive mechanism into the current product, to socially reward IT service desks for their performances, and thereby to increase their motivation to contribute and to improve their performance.

**Keywords:** Business · Design · Enterprise software · IT service management · Gamification · Persuasion · Socal · Employee knowledge contribution · Employee engagement · Performance improvement · User interface · User experience

## 1 Introduction

Currently, IT services in companies handle issues from customers or users within certain response times and provide services to them. In daily work, they refer to knowledge stored in knowledge bases to solve different kinds of problems originating from customers or users. After they have solved problems, they write final solutions in ticket records, which become the primary assets used for future reference to solve similar problems.

However, most IT service desks prefer *consuming* knowledge content over *producing* it. Converting information into knowledge for the purpose of knowledge transfer is rather limited, because that conversion requires IT service desks to contribute extra effort and to invest their own precious time in creating content; they are *not* motivated sufficiently to overcome the impediments to knowledge transfer by themselves. As a result, IT service desks often cannot get the desired search results of

solutions from knowledge bases. Consequently, IT service desks should spend more time to seek out and think out suitable solutions, which WOULD influence their service delivery's speed and quality.

Likewise, IT service desks are required to record solutions in tickets, which will BECOME assets to a company or institution for future reference. IT service desks that are responsible for cases already have the knowledge about the issues with which they WORKED, so the case recorded is of less value and is time consuming for them. Thus, the case-study records often lack enough details and are unsuitable as good references for peers when peers are encountering similar problems.

Another point to be considered: Most IT service desks are concerned about service-response time, which is directly related to key performance indicators. As a result, the IT service desks try to deliver rapid service. However, not all services are of high quality and match the customers' expectations. Thus, customers or users sometimes are not satisfied with service quality. Many companies have realized that customer satisfaction is vital. Instead of looking at how quickly IT service desks close the ticket, they are moving from case closure to customer satisfaction.

## 2 Market Research

According to Gartner [1, 2], 70 % of business-transformation efforts fail due to lack of engagement. However, applying the right elements of gamification can address engagement, persuade employees to change behavior, and reach desired business outcomes. Therefore, companies *can* achieve transformation of business operations.

## 3 Our Solution

In order to improve IT service desks' performance and motivate them to deliver continually desirable services, we use the following objectives as guiding principles to encourage IT service desks to take positive changes when using enterprise software.

- Enable positively exchanging knowledge to improve the quantity of articles in the knowledge base.
- Enable actively reviewing and commenting on shared knowledge to help improve the articles' quality before publishing.
- Enhance case-record quality to benefit peers and the organization.
- Improve customer satisfaction through both the quality of service and the time of response, that is, balance the competing objectives of good service *versus* quick service.

According to the lessons learned from our user research, we propose to integrate gamification and persuasion mechanisms as incentives into the current HP Service Manager product. The incentive mechanism should fit into users' natural interactions, with minimal interruption during performing normal tasks.

In order to improve knowledge exchange quantity (article count) and quality (being easy to understand) in the groups, increase case record quality (cited count and

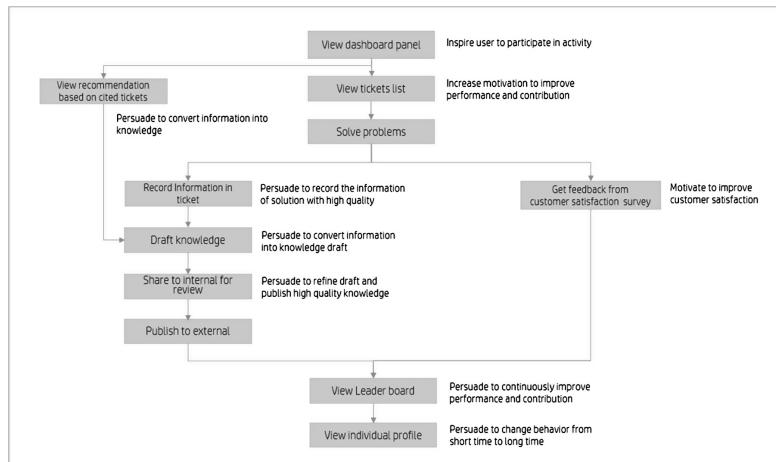
helpfulness), and enhance customer satisfaction (good feedback from customer satisfaction surveys), we incorporate some gaming elements that are internal drivers for making progress, developing skills, and eventually overcoming challenges. Gaming elements include: dashboards, leaderboards, “high-fives,” points, levels, badges, rewards, competitions, etc. Besides gamification, we also integrate persuasion and social influence, which are external drivers to increases employees’ motivations to contribute personal knowledge and to improve service quality continuously through enterprise software application. Examples include: sharing, reinforcement, peer pressure, reciprocal liking, “power of because,” etc.

**Incentive System.** In our concept, employees can earn reputation points by serving their work group with valuable contributions and gain positive customer feedback through the HP Service Manager. There are three ways for employees to collect reputation points.

- To contribute knowledge by submitting articles with high quality to the knowledge base.
  - To provide high-quality ticket records, which can be cited by their peers.
  - To gain good ratings or positive feedback from customer-satisfaction assessment.

**Design Process.** In order to explore the possibilities of the application, we created a process flow, user journey, and use scenario that explore how users might approach the application. The process-flow diagrams show the relationships among different parts of the application, with wire-frames showing basic content of key screens (see Fig. 1).

**Users' Journey: Analogous to Maslow's Hierarchy of Needs.** The user's journey contains elements that relate closely to Maslow's study of basic human needs.



**Fig. 1.** Process flow diagram shows relationships among different parts and modules in the application

1. **Onboarding:** Once new members register, they can understand how to participate in activities and gain points.
2. **Contribution:** After they have engaged in activities, they can acquire and accumulate points.
3. **Recognition:** As they become known, they gain recognition and followers, earning higher levels of badges.
4. **Healthy competition:** They can see on leaderboards where they stand and how to surpass others' levels.
5. **Self express:** They gain a good reputation by sharing their knowledge and supplying high-quality service.
6. **Desire to do better:** Once they've achieved all of the preceding, they often have strong desires to do better and are encouraged to "pay it forward," giving to others beginning their journeys in the HP Service Manager.

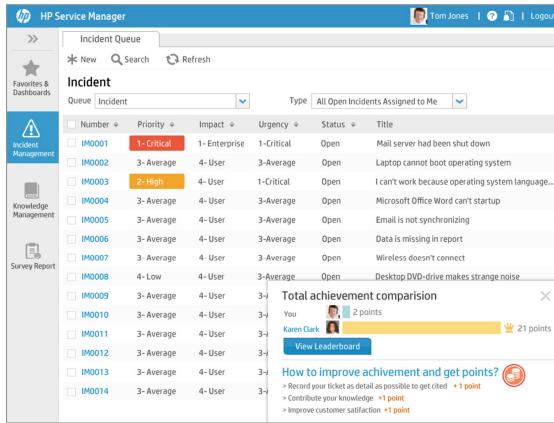
**Persona.** We created a persona after considering demographic groups and behavioral segmentation: Tom Jones, 25, IT Service Desk, responsible for providing service to different customers in a medium-scale software company.

**Use Scenario.** We constructed a general use scenario based on the persona: As the IT service desk representative, Tom first registers in HP Service Manager without any reputation points. He notices a message about a performance comparison between himself and his peer through points. Playful competition incites him especially, due to the fact that his colleague is much better in the ranking. Tom is eager to know how he can quickly earn points. HP Service Manager gives him some advice to get points easily.

Tom effectively solves a customer problem the first time; the customer is very happy and gives Tom a "Good" rating as thanks. Within five minutes, Tom writes his solution about how to deal with the customer's problem in a case record as detailed as possible. Although he writes a high-quality case record primarily to get points, undoubtedly, his case record contains valuable information for other peers to reference. Based in part on this experience, he also starts to write articles regularly, which are shared in the knowledge base by the HP Service Manager. Within two weeks, Tom makes it from zero points to fifteen points, which helps him achieve rank number four, and his name appears in the leader board! The visibility of his good performance makes him have a sense of achievement. Therefore, he announces that he will continue contributing.

Tom quickly gains a considerable amount of points and becomes a "Hero of the Week"; dozens of "Congrats" and recognition from his peers are sent within seconds. Tom's boss is very happy with his outstanding performance, and gives him restaurant coupons as a reward, which reinforces his commitment to engage. One day, Tom meets Sonny at the end of the hallway when he leaves his office. Sonny takes the initiative to say hello: "Hey Tom, your sharing is very good. Today I encountered the same problem as well. You helped me to solve my problem!" Tom feels high appreciation and honest thanks from Sonny, which motivates him to behave even better in the long term.

**User Interface Design.** The user interface design is a mash-up of the original HP Service Manager user interface and additional gamification and persuasion mechanisms designed to enhance the original (see Fig. 2).



**Fig. 2.** Guideline for new user and occasional users

**Guideline for new users and occasional users.** In order to encourage IT service desks to participate actively, we designed a pop-up Guideline. Once the IT service desks access HP SM Incident Management, the Guideline appears in the corner of the screen and gives clear advice about what actions to take to gain points. We add comparison in here also. IT service desks can compare themselves with any other peer who achieves the highest score within the last week. Visualizing the gap helps motivate IT Service Desks to actively contribute.

**Game mechanics used:** step-by-step guideline, competition (See Fig. 2).

**Record the information of the solution in a ticket.** We use persuasion and gamification mechanics to motive IT service desks to contribute case records, and to convert that information into knowledge. In this step, the user interface displays the number of people who are drafting knowledge, which persuades the IT service desk person to take action for knowledge contribution (see Fig. 3).

### Persuasion mechanics used.

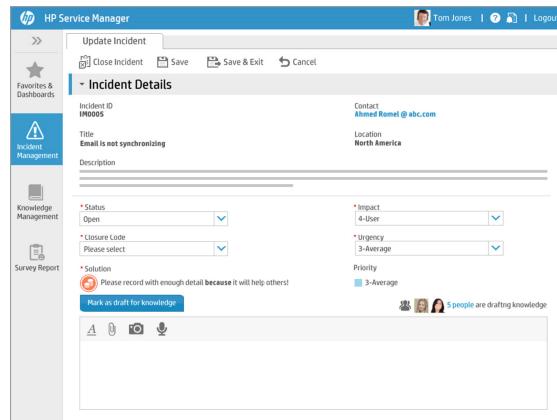
**Power of because [3]:** According to a psychology study that appeared in the Journal of Personality and Social Psychology, giving a reason for a request can increase people's compliance from 60 % to 90 %.

**Collective behavior:** Collective behavior can often result in peer pressure, which compels people to conform to group behavior.

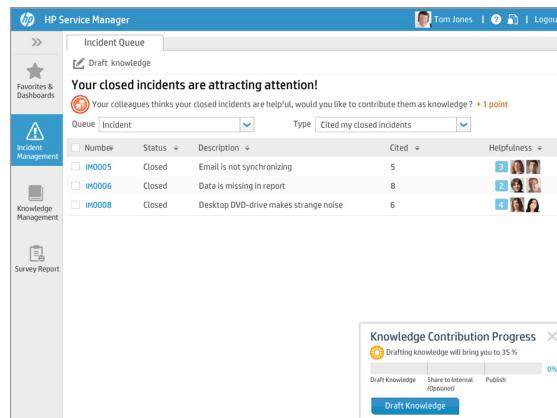
**Peer pressure:** Peer pressure is being used to urge people to do what peers are doing.

**Social learning:** People learn from watching others.

**Automatically recommend IT service desks to draft knowledge once closed tickets are cited or recognized by peers.** Another way to persuade IT service desk personnel to draft knowledge is to use feedback from peers. If previous closed tickets have been viewed or recognized by others, that means the problem resolved is similar to what others are facing. Hence, IT service desk personnel will be encouraged to draft knowledge and encouraged for doing so. We use progress bars to break down a task



**Fig. 3.** Record the information of the solution in ticket.



**Fig. 4.** Recommend IT help desks to draft knowledge

into workable segments. Consequently, a time-consuming task is more manageable, because it is split into smaller sub-tasks (see Fig. 4).

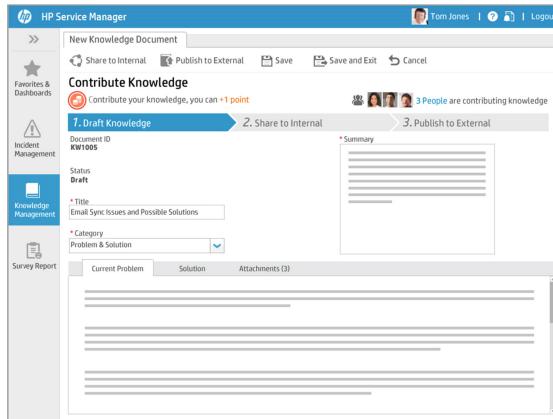
#### Persuasion Mechanics Used:

**Reciprocal liking:** People feel better about themselves knowing that they are liked and enjoy the company of those who give them positive feelings, which motivates them to do better.

#### Game mechanics used:

**Progress bar:** break goal into trackable activities.

**Contribute Knowledge.** We designed multiple small tasks to assist users to finish knowledge contributions. For example, there is a phase named "Share to Internal," which is reviewed by close colleagues. Because people will feel less pressure when facing close colleagues and more likely to refine knowledge according to their



**Fig. 5.** Contribute knowledge.

colleagues' feedback, IT service desks will feel more comfortable to move forward (see Fig. 5).

**Game and persuasion mechanics used:** Collective behavior, Social influence, Step-by-step

**Share to Internal for Reviewing and Refining.** The Default for sharing is that users' team members are selected to be reviewers. IT Help desk personnel, also, can select trust-worthy peers to review their contributions. (See Fig. 6)

#### Persuasion mechanics used:

**“I need your help.”** This flips the roles of dominant and subordinate, engaging the other person and providing a transfer of power.

#### Social Influence.

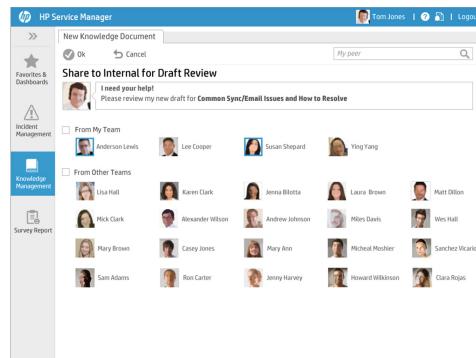
**Notification.** As a close peer, users' colleagues will receive a request from the IT service desk personnel to review a draft. Under “close peer pressure,” the reviewer is more likely to complete a review and give useful comments, which will help improve knowledge quality (see Fig. 7).

#### Persuasion mechanics used:

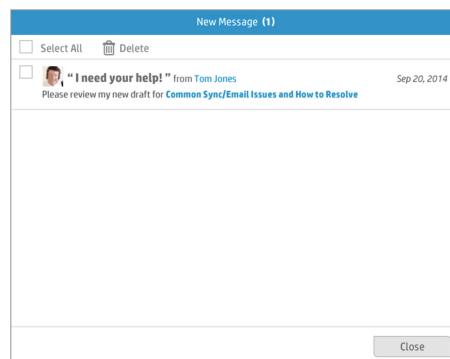
**Power of people we like:** people are most Influenced by people around us and take action under peer pressure.

**Leaderboard (see Fig. 8).** The incentive mechanism is visualized in three ways: level, ranking, and achievements, to make IT service desks and others aware of how much they have done for their group. IT service desks can review high-scoring individuals or teams, compare themselves to any other peers, or their teams to any other teams via the Leaderboard.

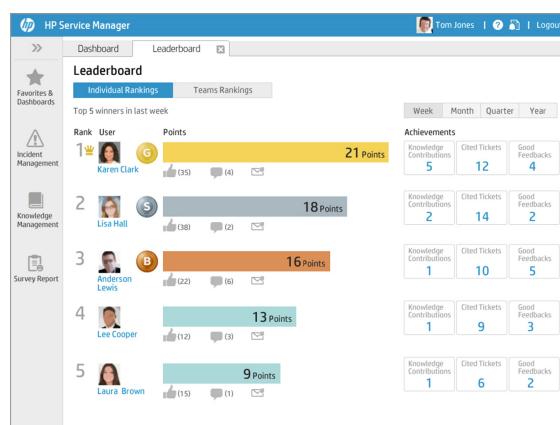
**Points:** The points will be rewarded when IT service desks perform valuable actions, such as contributing knowledge, closing tickets cited by peers, or getting positive feedback from customers. Our design seeks to motivate other IT service desks by highlighting individuals who contribute the most.



**Fig. 6.** Share to internal for reviewing and refining



**Fig. 7.** Notification



**Fig. 8.** Individual rankings in the Leaderboard

**Ranking:** The total number of points of the top five IT service desks through social comparison and competition is displayed in the Leaderboard. The visibility of good performance motivates all IT service desks to actively improve their behaviors.

**Achievements:** The achievement for the top five winners are public and visible to all IT service desks. Any IT service desk can drill down for more details. This mechanism rewards both short-term and long-term contributions.

We also highlight competition among teams by enabling IT service desks to switch to team rankings. Teams and their managers can compare themselves and other teams easily according to total scores.

**User Profile.** User profiles allow others to review an individual's performance and contribution, find where a user shines, highlighting recent contribution points, levels and badges earned, accessing hyperlinks of achievement, and drilling down for more details. People are concerned about their colleagues' and managers' opinions and attitudes, which will influence their behaviors. Thus, we use social influence to reinforce recognition and trigger IT service desks to perform improved behavior in both the short term and long term.

#### Game mechanics used:

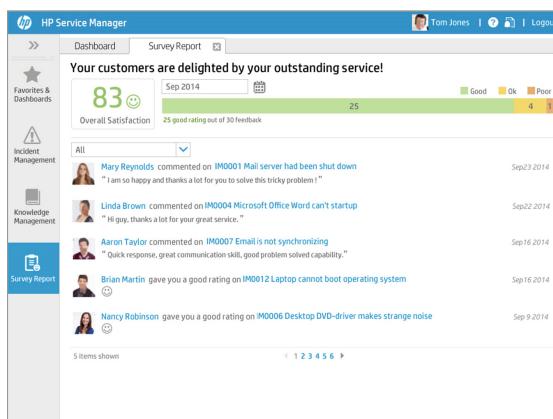
**Level:** The default is to assign every IT service desk to a level in a hierarchy. IT service desks have to collect a certain amount of points before being promoted to a new level. This mechanism addresses the users' drive for achievement.

#### Points, Badges, Win Prize, Reward, Reinforcement, Sharing.

**Survey Report about Customer Satisfaction.** We designed a place to accumulate all customer feedback to which IT service desk personnel can refer. Feedback includes positive, neutral, and negative comments, so that the IT service desk personnel can know how to improve unsatisfied service and make things better (see Fig. 9).

#### Persuasion mechanics used:

**Customer comments on Services:** Using customer feedback to measure customer experience and improve customer satisfaction. It helps to motivate IT service desk to increase service quality and deliver more rapid service.



**Fig. 9.** Survey report about customer satisfaction.

## 4 Evaluation

We evaluated whether our concept was useful to improve the employee's contribution, performance, and engagement, as well as the employee's attitude and acceptance of gamification and persuasion used in a workplace. The evaluation served the purpose of finding out if the new concept design met our objectives. Therefore, the focus of our evaluation was explorative and concerns qualitative data.

We did A/B design evaluations, using two different designs to see which design performed better. Design A was the current product without any gamification and persuasion mechanics; Design B was a new design using gamification and persuasion mechanics. We allocated two user groups to the different designs, half of all users reviewed Design A; they did not see any information about incentive mechanics. A second half of the users reviewed Design B; they could see points, the Leaderboard, and all social influence information. We respectively interviewed 16 employees in each group. Interviewees' age range were from 26 to 45 years old, and half of them were female.

During the process of reviewing designs, we interviewed employees, then asked the interviewees to fill out an attitudinal survey with a 10-point scale, which helped us to analyze the interviewee's opinions and feelings about the two different designs.

In evaluating the effect of the incentive mechanism on the employees' opinions, we set the research objective to answer the following questions:

- Does our incentive design encourage employees to invest time for recording information with enough details in ticket record?
- Do employees feel inspired to contribute knowledge?
- Do employees feel motivated to comment on articles and to improve knowledge quality from peers?
- What do employees think about the direct feedback of customer service?
- What do employees think about points, badges and leader board?
- Do employees consider gamification and persuasion in the enterprise software environment as a positive or negative factor?

### 4.1 Results of User Interviews and Future Design Recommendations

- **Does our incentive design encourage the employees to invest time for recording information with enough details in ticket record?**

After interviewees saw the "Because" reminder when they were recording information in tickets, most interviewees seemed willing to record in detail to help their peers. However, some of them were not clear about how much detail should be written down; therefore, they suggested that a sample should be provided for reference next to the input field of the solution.

- **Do the employees feel inspired to contribute knowledge?**

Because the system would automatically notify the interviewees about how many of their closed tickets have been cited by their peers, or any feedback from their peers about the recorded tickets, most interviewees stated that they would be encouraged

to contribute knowledge when they knew their recorded information was valuable and was helpful to others. As a result, they were more willing to convert information into knowledge. However, whether the status of how many employees were contributing knowledge should appear in the screen of the written solution in the ticket record seemed debatable. Some of the interviewees would be influenced by the number. If the system displayed that there were many employees contributing knowledge, the interviewee also would be inspired to consider contributing his/her knowledge; but, if the system told him/her that *few* peers were drafting articles, he/she might feel discouraged. The interviewees believed that the number of employees contributing knowledge should be shown in the screen of knowledge contribution, which was encouraging, because they felt their colleagues were accompanying them, and doing the same activity at the same time. In summary, which screen should display collective behavior needs to be researched further.

- **Do the employees feel motivated to comment on articles and to improve knowledge quality from peers?**

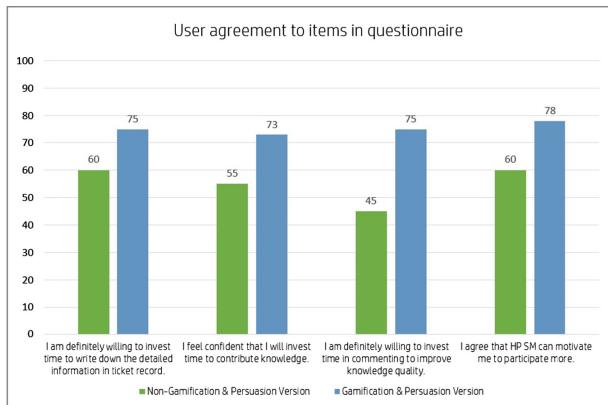
Most interviewees believed that they definitely would review peer articles because a peer asked them to help reviewing articles, they would invest time to help improve the article's quality based on the request from *familiar* peers. Another factor was that the topic of an article was the interviewees' specialized field. Therefore, the interviewees felt confident and were willing to actively comment. Conversely, when the interviewees were asked who would be chosen to review their articles, over half of interviewees said they preferred to choose subject-matter experts to review their articles, because the experts' comments were trustworthy. Consequently, they suggested that the system should allow them to choose subject matter experts, in addition to choosing close colleagues who are familiar with the topic.

- **What do the employees think of the direct feedback of customer service?**

Almost all interviewees stated they were concerned about customer feedback regarding their service, and they focused more on the neutral or bad comments from customers than positive feedback, because these comments would help them to understand where were problems and how to improve their future service.

- **What do the employees think about points, badges and Leaderboards?**

Most interviewees claimed that they were concerned about the winners in Leaderboards in comparison to their own performances. They would like to learn more about the contribution from these winners, because the winners' performances were the invisible or informal benchmarks to motivate the interviewees to improve themselves. Similarly, once interviewees were the winners, they were more willing to continuously maintain great performance, so that they wouldn't become losers, because they cared about their self-image in front of others, wanting to make active, rather than passive, impressions. When talking about points and badges, the interviewees said that they paid attention to their points and status. Some of them suggested that the system could always indicate the current level and the next reachable level, which would be a clear goal to continuously stimulate them to move forward.



**Fig. 10.** Comparison of designs on users' attitudes.

- **Do the employees think of gamification and persuasion in the enterprise software environment as a positive or negative factor?**

The interviewees thought the incentive system was encouraging positive, and could motivate them to perform better and to improve engagement.

## 4.2 Questionnaire Result About Users' Attitudes

Through user interviews and use of a user-attitudes questionnaire, we found that interviewees stated that the new design could motivate them to perform better and to exert a positive influence on them (see Fig. 10).

## 5 Next Steps

We have received valuable feedback from our user interviews, which gave us insights about how to improve our design. Therefore, in the next stage of our project, we shall continue to enhance, test, and validate our designs to further improve the user experience of enterprise software enhanced through gamification and persuasion techniques.

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