Understanding Differentiation of User Roles and Gamification in a Professional Online Community: A Case Study

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Online communities can flourish only when users participate by contributing meaningful content. A clear understanding of the gamification concept and user roles are crucial in creating a successful online community. This case study examined user roles and gamification in Now Community®—a popular online community for ServiceNow professionals. Ten user roles and five gamifications components were identified. While simply gamifying an online community does not guarantee increased user participation and engagement, learning how user roles and gamification work in a successful and popular professional online community can be beneficial. Results of this study should provide valuable insights and help other professionals and practitioners who wish to gamify their online communities.

Keywords: user roles, gamification, online community, ServiceNow

INTRODUCTION

An online community can be defined as "a group of people with a shared interest or purpose who use the internet to communicate with each other" (Bond, 2020, para. What is an online community?). Examples of online communities are chat rooms, forums, message boards, virtual worlds, and professional learning communities (Imroz, 2019). The primary purpose of a professional online community is "to bring people together around a centralized, shared organization-based experience or purpose for expansive online collaboration and growth" (Bond, 2020, para. What is a branded online community?). Many IT companies have started to create professional online communities to support their employees and customers. A common problem in most online communities is that only a small number of users generate most of the content (Lampe, Wash, Velasquez, & Ozakya, 2010). In general, 90% of online community users simply read or observe but do not contribute; 9% of users contribute a little; and only 1% of users make the majority of the contributions (Nielsen, 2006). In recent years, gamification has been used to support user engagement and activity, environmental behavior, workers' motivation, work performance, and education (Groening & Binnewies, 2019). Gamification is the "use of game design elements in non-game contexts" (Deterding, Khaled, Nacke, & Dixon, 2011, p. 1). Higher user engagement can lead to better user interaction, which can eventually encourage more participation and cooperation among community members (Bista, Nepal, & Paris, 2014).

The concept of gamification started to gain popularity since 2010 when more than 350 companies (e.g., MLB, Adobe, NBC, Ford, Southwest, eBay, etc.) launched large-scale gamification projects (Bloom, 2015). Real-world benefits of gamification include organizations experiencing improvements in engagement and performance by as much as 150% and 205%, respectively (Bloom, 2015). Gamification of

an online community is not easy. According to a Gartner report, almost 80% of enterprise gamification application projects fail to meet their objectives (Bloom, 2015). Gamifying an online community requires development of effective, efficient, and complex software artifacts that present several technical challenges related to correctness, reliability, security, performance, and privacy (Dubois & Tamburrelli, 2013). Researchers have proposed "three different sets of complementary activities" to overcome these challenges—analysis, integration, and evaluation activities (Dubois & Tamburrelli, 2013, p. 659). The focus of this paper is in line with the analysis activities that include identification of gamification strategies, rules, and mechanisms for rewards and penalties. A clear understanding of user roles and permissions is essential in creating a successful online community having gamification. Roles and permissions are two fundamental aspects of identity and access management, and they must be analyzed and implemented with care in successful online communities.

PURPOSE OF THE STUDY

While plenty of empirical studies show the impacts and benefits of gamification, real-life practical examples of the differentiation of user roles and how gamification works in online communities are also needed. Now Community® is an online community for those practitioners who are interested in ServiceNow products and applications. The growing popularity of these practitioners' participation in Now Community and their continuous focus on user engagement justify the need of better understanding this professional online community. Therefore, the purpose of this paper is two-folded. First, to identify the different user roles in Now Community and explain how these roles are used. Second, to identify the different components of gamification in Now Community and explain how these gamification components are used.

SERVICENOW AND NOW COMMUNITY

Based in Santa Clara, CA, ServiceNow is one of the leading Software as a Service (SaaS) companies in the world (servicenow, 2018). Now Community includes thousands of members who are customers newly implementing ServiceNow applications, customers who have used ServiceNow applications for years, and prospective customers (servicenow, 2014). In addition, members of Now Community also include knowledgeable ServiceNow employees, partners, and other industry experts offering valuable comments and insights regarding ServiceNow applications, best practices, and problem solutions (servicenow, 2018). ServiceNow releases new and improved versions of its applications frequently and these versions are alphabetically named after popular cities and locations around the world. The most recent ServiceNow application version is called Quebec and it was released in January 2021 (ServiceNow Community, 2020). This case study is based on a previous version, Madrid, which was released in January 2019.

LITERATURE REVIEW

The literature review in this case study focused on two aspects—first, identifying previous research on gamification components; and second, summarizing empirical studies on various effects of gamification.

Gamification Components

Seaborn and Fels (2015) identified eight common elements of gamification systems: points, badges, leaderboards, progression, status, levels, rewards, and roles. Points are "numeric units indicating progress" (Seaborn & Fels, 2015, p. 20). Badges are visual decoratives, symbols, or icons to show a certain capability, milestone, or achievement by a user (Seaborn & Fels, 2015; Galessi, 2018). Leaderboards are used to create competition among players (Galessi, 2018). Leaderboards show points accumulated by players and where they rank in a gamified system (Seaborn & Fels, 2015). Progressions or progress bars are milestones (often displayed as a graphic bar) indicating players' progress (Seaborn & Fels, 2015). Status is similar to titles or

ranks indicating players' progress (Seaborn & Fels, 2015). Levels or ranks are based on points; users can "climb up" levels by accumulating more points (Quigley, 2018). Rewards can be tangible or intangible trophies, incentives, prizes, or gifts (Seaborn & Fels, 2015). According to Hallford and Hallford (2001), rewards can be classified into four categories: glory, sustenance, access, and facility. Roles can be described as classes or characters that facilitate role-playing elements in gamification (Seaborn & Fels, 2015). Among the above listed elements, three are most commonly used in the majority of gamification systems: points, badges, and leaderboard (Groening & Binnewies, 2019).

Empirical Studies on Gamification Effects

Denny (2013) experimented with the impact of gamification (a badge-based achievement system) within an online learning tool and discovered the positive effects of gamification on the quantity of students' contributions without compromising quality. His study also found that students stay engaged with the learning tool for longer periods of time as a result of gamification. Further, they indicate a "strong preference" for having the gamification feature available in the learning tool. Su and Cheng (2015) investigated the effects of a gamified learning approach on students' learning, achievement, and motivation in an elementary school science curriculum. Results showed that a better learning performance and a higher degree of motivation could be achieved by incorporating mobile and gamification technologies. Mollick and Rothbard (2013) introduced elements of games into a work environment to examine employees' affective experiences. They concluded that games increased employees' positive affect at work when they had consent; but decreased employees' positive affect when their consent was lacking. Witt, Scheiner, and Robra-Bissantz (2011) implemented game mechanics (e.g., points and leaderboards) to understand customers' motives for participating in an online idea competition. Results indicated that game mechanics, when applied adequately and with sophistication, can increase customers' motivations to participate. Landers and Landers (2015) investigated the impact of a game element (e.g., leaderboard) on students' learning outcomes. Results showed that students with a leaderboard interacted with their courses more than 29 times more often than those students without a leaderboard. Anderson, Huttenlocher, Kleinberg, and Leskovec (2013) found that badges could influence and steer user behavior on a social media site (www.stackoverflow.com) by increasing user activity and participation. Farzan et al. (2008) also found that a point-based incentive program encourages participant contributions to a social networking site with more than 4,000 users. Hamari (2017) reported significant positive effects of badges on trade listings, transactions, social interactions, and total activity in a sharing economy service. Results indicated that "users in the gamified condition were significantly more likely to post trade proposals, carry out transactions, comment on proposals and generally use the service in a more active way" (Hamari, 2017, p. 469). To investigate how gamification in loyalty programs affect consumer loyalty, Hwang and Choi (2020) collected data from U.S. consumers responding to loyalty programs offered in a mobile environment. Their results showed that gamified loyalty programs increased consumers' loyalty and increased their intentions to participate and download the mobile app.

Other researchers reported mixed results for the effects of gamification. For example, Attali and Arieli-Attali (2015) examined the effect of points on mathematics test performance among 1,218 adults (study 1) and 693 students in grades 6-8 (study 2). In both studies, the researchers found no effect of points on participants' performance or accuracy, but the speed of participants' response increased when points were used. De-Marcos, Dominguez, Navarrete, and Pages (2014) compared social networking, gamification, and traditional e-learning approaches in an undergraduate course to identify their effect on students' academic achievement, participation, and attitude. While the study found students' attitudes towards gamification to be positive, students' participation rates were found to be low compared to other findings shared in the literature. Guin, Baker, Mechling, and Ruyle (2012) examined the effect of presentation style on the survey experience of more than 1,000 adult respondents. A single questionnaire was presented to respondents according to four different styles: Text Only, Decoratively Visual, Functionally Visual, and Gamified. Functionally visual and gamified presentations produced higher satisfaction scores from respondents, but there were no real differences in respondents' engagement using gamification. Hamari (2013) gamified a peer-to-peer trading service system that had 3,234 users who could earn badges for completing different

tasks. Results showed that simply gamifying the system did not automatically lead to significant increases in user activity. However, users who actively monitored their own badges showed increased activity. In another longitudinal study, Hanus and Fox (2015) investigated effects of gamification in a classroom of 71 students. Results showed that: (a) students using gamified courses were less motivated, empowered, and satisfied; (b) gamified courses negatively affected students' final exam grades; and (c) gamified systems strongly emphasizing rewards may have negative effects. Koivisto and Hamari (2014) examined demographic differences in perceived benefits from gamification. Results showed that perceived enjoyment and usefulness of gamification declined with use, and ease of use of gamification tended to decline with users' age. In summary, while the literature review indicated that gamification generally provided positive effects, the effects largely depended on the subjects and contexts in which the gamification feature was being implemented.

METHOD

For this case study, the researcher utilized a document analysis qualitative research method. Organizational and institutional documents have been a useful source of information in qualitative research for many years. Document analysis is a systematic procedure for reviewing, analyzing, or evaluating printed or electronic materials in order to "elicit meaning, gain understanding, and develop empirical knowledge" (Bowen, 2009, p. 7). While most researchers use document analysis in combination with other forms of qualitative research methods (e.g., interviews, focus groups, etc.), studies also have relied on document analysis as a stand-alone method. For example, Wild, McMahon, Darlington, Liu, and Culley (2010) used document analysis to examine "engineers' information needs and document usage" (Bond, 2020, p. 29). Gagel (1997) also used document analysis to investigate publications on literacy and technology to elicit themes.

Bowen (2009) listed several types of documents that can be used in document analysis research—public records, the media, private papers, biographies, visual documents, meeting minutes, strategies, polices, action plans, etc. These documents can enrich a study in a contextual manner, provide historical and background information, and lead to new insights into the research (Bowen, 2009). In addition, document analysis can be a less costly and more efficient research method. Many documents are available online and contain exact names, references, and details of events (Yin, 2014). These documents also remain unaffected by the research process, which minimizes the obtrusiveness and reactivity of the participants (Bowen, 2009). Based on the above discussion, opting for document analysis as a stand-alone qualitative research method for this case study was reasonable.

DATA COLLECTION AND ANALYSIS

The primary sources of information for this case study were archival records and physical artifacts (Yin, 2014). Archival records included Now Community and ServiceNow Product Documentation websites. These websites contained all the documents (e.g., questions, answers, blogs, release notes, comments, etc.) created by ServiceNow employees and other community members. The physical artifacts included the Leaderboard information and documents for earning points and badges, becoming a top contributor, and software release and upgrade notes.

Before conducting data analysis for this study, the researcher followed the recommendations of Bowen (2009) and evaluated several aspects of the documents to be reviewed: relevance, authenticity, credibility, accuracy, and representativeness. The researcher determined that the documents were relevant and balanced—they contained details on all aspects of the research purposes. The documents were deemed authentic, credible, and accurate as they were "written as a result of firsthand experience" (Hodder, 2000, p. 704). O'Leary (2014) offered two major techniques for exploring and understanding the actual content of the documents—interview technique and content analysis. The researcher opted for the interview technique, treating each document like a respondent, informant, or interviewee who provides the researcher with the answer or relevant information (O'Leary, 2014). In this process, the researcher "asked" the

documents questions and then highlighted the answer and relevant information within the document text. The rest of the data analysis involved an iterative process of skimming (superficial examination), reading (thorough examination), and interpreting the documents. Other popular document analysis methods such as thematic analysis that identifies, analyzes, and interprets patterns of meaning (or "themes") within qualitative data were not deemed necessary for this study.

RESULTS AND DISCUSSION

User Roles in Now Community

Now Community has 10 major user roles: Community Administrator, Community Moderator, Forum Administrator, Forum Moderator, Moderation Administrator, Gamification Administrator, Gamification Moderator, Community User, Knowledge Harvester, and Proxy Case Creator (servicenow, 2019b). Table 1 offers a brief description of each of these user roles. It is important to mention that community users' access to forums depends on the permissions set up for each specific forum. These user roles are necessary to set up, configure, moderate, and use the Now Community. The following sections provide elaborate discussion on these actions.

TABLE 1
DIFFERENT USER ROLES IN NOW COMMUNITY

User Role Name	Description
Community Administrator	Manages all community sections.
Community Moderator	Moderates all community content.
Forum Administrator	Manages forum permissions, content types, and topics.
Forum Moderator	Moderates specified forum content.
Moderation Administrator	Manages all moderation settings and forum content.
Gamification Administrator	Manages and configures all gamification settings and rules.
Gamification Moderator	Reviews and edits gamification points earned by users.
Community User	Users who have registered and accepted the Terms & Conditions of Now Community.
Knowledge Harvester	A community user who can harvest knowledge articles from a community.
Proxy Case Creator	A community user who can create a customer service case from a community discussion.

Note. Adapted from servicenow (2019b)

Set Up a Community

The community first needs to be set up for the users to start creating content. A community administrator or forum administrator role is required to set up a community which involves several steps such as creating forums, forum users, permissions, access types, content types, and configuring content types for a forum. Community administrators or community moderators also may take other steps when needed. For example, they can invite users to become members of a forum and create a permission exception for users who require specific permissions for a forum. They can copy all permissions and content types from one forum to another and copy permissions from a parent forum as well. Lastly, they can debug user permissions to investigate and diagnose problems with user access to forums (servicenow, 2019c).

Configure a Community

After setting up a community, it must be configured to be usable by the users. A community may be configured by the community administrator or forum administrator. Many components need to be configured to ensure proper use of the community—content types, feedback types, access types, forums, and forum and user permissions. There are seven supported content types in Now Community: Answer,

Blog, Comment, Document, Event, Question, and Video. Users can add content to different content types and provide feedback on the content. There are two feedback types: *Helpful* and *Upvote*. If users find a blog, video, document, answer, or comment helpful, they can provide the helpful feedback on that content. The upvote feedback is associated with the question content type and is used when a user finds a question as helpful (servicenow, 2019d).

Access types are used to control access to a forum or a content type. Four access types are available by default—*Forum Admin, Forum Moderator, Content Read,* and *Content Write*. Forum admin and forum moderator access types are applicable to forums; content read and content write access types are applicable to all content types. A content read access type is automatically included in the content write access type (servicenow, 2019d).

A *forum* contains user-created content. Once forums are set up, they are visible on the Now Community homepage according to the users' permissions. A forum can be configured as *Public*, *Private*, or *Membership*. Public forums are visible to all users including those not logged in. Private forums are visible only to users who have been granted permissions in the forum. For membership forums, the forum title is visible to registered users. Users must request membership to have full access to the content in these forums. Community administrators or forum administrators can invite users to become members of a particular forum to encourage greater community involvement and can manage forum membership approvals when registered users request membership to a forum (servicenow, 2019d).

Community and forum administrators can give users and user groups different levels of access to forums and forum content. Three components comprise the security settings for forums: *Forum Users*, *Permissions*, and *Forums*. A forum user is a logical group of users, user groups, or both. There are four types of forum users—Public, Registered, Custom, and Membership. Public users can view the community without logging in. Registered users have signed up in Now Community and accepted the Terms & Conditions. Custom users are groups added as members to the current forum user. Membership users are a group of members who have joined a specific forum.

A *permission* involves a combination of access types for a forum or a given content type (servicenow, 2019c). Many default permissions can be used within the community. Table 2 lists few of the default permissions and their description.

Moderate a Community

Roles required to moderate a community are community moderator, forum moderator, or moderation administrator (servicenow, 2019f). Major tasks when moderating Now Community include configuring general moderation settings and filters; reviewing settings for a new user; reporting user abuse; banning user; revoking a user ban; and approving, rejecting, or removing content.

TABLE 2
DEFAULT PERMISSIONS IN NOW COMMUNITY

Default Permissions	Description
Blog Read/Write	Read/Write access to blogs.
Blog Read/Write and Comment Write	Read/Write access to blogs and write access to comments.
Default permissions for public user	Public access to forums.
Default permissions for registered user	Permissions for registered and logged in users.
Document Read/Write and Comment Write	Read/Write access to documents and write access to comments.
Event Read/Write and Comment Write	Read/Write access to events and write access to comments.
Forum Admin	Full access to a forum.
Forum Moderator	Moderation access to a forum.
Full Access	Write and read access to all content types.
Question and Answer Read/Write	Read/Write access to questions and answers.
Question Write	Write access to questions.

Note: Adapted from servicenow (2019d)

Use a Community

The community user role is required to participate in Now Community. Registered members can use this community primarily by: navigating the community homepage, activity feed, or forums; searching a community; using a community profile; posting and responding to the content; and reporting inappropriate content. The community homepage works as a "gateway "or "landing page" and displays a list of forums within Now Community. Based on the user's network, posts, and subscriptions, the activity feed lists the most recent community activities. Users can enter one or more keywords in the Now Community homepage to view all search results. Search results can be refined based on content type, forums, topics, or authors. (servicenow, 2019g).

Users can alert community moderators when the content is inappropriate or a spam. When inappropriate content is reported, a moderation task is created and assigned to a moderator for resolution. Depending on the moderation settings created for the user community, the content may be hidden until a moderator has reviewed it. A moderator can delete any content considered inappropriate or in violation of community or forum guidelines (servicenow, 2019g).

Gamification and User Interface Components in Now Community

Now Community has five major gamification components: rules, tracks, levels and level ranges, badges, and points. Leaderboard page, leaderboard widgets, user profile page, and gamification notifications are considered components of the gamification user interface (UI). These components play critical roles in administering and moderating the gamification feature.

Gamification Components

Rules. Gamification rules allow the gamification administrator to configure the points received by users for participating in the community by performing certain actions. Although Now Community has several pre-defined rules, the administrator can modify those rules as needed or even create new rules. Table 3 illustrates the pre-defined gamification rules (actions) and points that can be earned for performing each action. If a user reverts to a previously performed action, then the points associated with the activity are deducted.

TABLE 3
GAMIFICATION RULES

Action	Points
Comment marked as *helpful*	5
Document marked as *helpful*	5
Video marked as *helpful*	5
Blog marked as *helpful*	5
Answer marked as *helpful*	20
Document bookmarked	20
Blog bookmarked	20
Video bookmarked	20
Answer marked as *correct* for a question	40

Note. Adapted from (ServiceNow Madrid Customer Service Management. 2020, p. 5)

Tracks. In Now Community, "*tracks* provide a way to logically separate points assigned in the communities into different areas" (ServiceNow Madrid Customer Service Management. 2020, p. 6). There are two pre-configured tracks: *Community Expertise* and *Community Participation*. Community administrators can create new tracks based on user needs. Now Community can be configured to accumulate points by tracks, but tracks are not visible in the community portal in the Madrid version of ServiceNow.

Levels and Level Ranges. According to ServiceNow Madrid Customer Service Management (ServiceNow Madrid Customer Service Management. 2020, p. 6), "points accumulated by community users can help them achieve different reputation levels." The community is pre-configured with three different achievement levels through which users can earn points and achieve expertise or a reputation: *Community-*, *Forum-*, and *Topic-*. These achievement levels represent accumulated points based on activities across the entire community (community-level expertise), in forums associated with the activity (forum-level expertise), and in topics associated with the activity (topic-level expertise).

In Now Community, there are ten levels of community expertise, five levels of forum expertise, and five levels of topic expertise. Gamification administrators can configure the point ranges for each level. Table 4 shows the pre-configured point ranges for each level within community-, forum-, and topic-level expertise. Accumulated points and achievement levels for each user are visible on the leaderboard page and leaderboard widgets, at the top of the users' profile page and in their Achievements tab, and on the content pages (ServiceNow Madrid Customer Service Management. 2020, p. 7).

Badges. Now Community has two types of pre-defined badges: *Community Badges* and *Community Expertise Badges*. Users can earn community badges by providing a certain number of correct or helpful replies to questions posted by other users. For example, users can earn a *Correct Answers 5 Badge* when they give correct answers to five questions. Other correct answer badges can be earned by offering correct answers to 10, 25, 50, 75, 100, 150, 200, 300, or 500 questions. Similarly, users can earn *Helpful Answers Badges* by replying helpful answers to 5, 10, 25, 50, 75, 100, 150, 200, 300, or 500 questions. In addition to correct answers and helpful answers badges, users also can earn a *SNUG Leader Badge* and a *SNUG Member Badge* when they become a leader or a member of a ServiceNow User Group (SNUG), respectively (Bruhn, 2019).

TABLE 4
ACHIEVEMENT LEVELS AND POINTS RANGE

Levels	Points Range for Community-Level Expertise	Points Range for Forum-Level Expertise	Points Range for Topic-Level Expertise
Level 1	200 – 499	200 – 1,799	200 – 1,799
Level 2	500 – 999	1,800 – 4,199	1,800 – 4,199
Level 3	1,000 – 1,999	4,200 – 8,999	4,200 – 8,999
Level 4	2,000 – 3,999	9,000 – 18,599	9,000 – 18,599
Level 5	4,000 – 7,999	18,600+	18,600+
Level 6	8,000 – 14,999		
Level 7	15,000 – 29,999		
Level 8	30,000 – 49,999		
Level 9	50,000 – 99,999		
Level 10	100,000+		

Note. Adapted from ServiceNow Community (2020)

Users can also earn community expertise badges to highlight their expertise levels. To earn a community expertise badge, users must provide a certain number of responses marked as *Correct* or *Endorsed*. Each community has three levels of expertise: Level 1, Level 2, and Level 3. To earn a Level 1 community expertise badge, users must have 10 replies in a certain community marked as correct or endorsed (Bruhn, 2017). To earn a Level 2 community expertise badge, users must obtain the Level 1 community expertise badge first, and then have at least 20 more replies marked as correct or endorsed (Bruhn, 2017). Last, to earn a Level 3 community expertise badge, users must obtain the Level 2 community expertise badge first, and then have at least 40 more replies marked as correct or endorsed (Bruhn, 2017).

Points. As mentioned earlier, Now Community users can earn gamification points by contributing and performing certain activities in the community (see Table 3 – Gamification Rules). According to Bruhn (2018, para. 1), "The point system is designed to help members find quality information faster and to acknowledge those members who contribute highly technical content to the ServiceNow Community". Points accumulated by community users can help them achieve different reputation levels. The community is pre-configured with levels where community users can earn points and achieve expertise or a reputation. For example, overall points accumulated across the entire community belong to *Global* level, points accumulated in forums associated with the activity are part of *Forum* level, and points accumulated in topics associated with the activity are *Topic* level. Gamification administrators can configure ranges within each level (servicenow, 2019e). These ranges progress from a starting point value to a higher value (point ranges do not overlap) and have unique, configurable names. Earned points for each user are accumulated and displayed in the leaderboard and the user's profile pages.

Gamification User Interface Components

Leaderboard Page. According to ServiceNow Madrid Customer Service Management (ServiceNow Madrid Customer Service Management. 2020, p. 9), "The leaderboard page displays the top contributors in the community, in a forum, on in a topic." Top contributors are determined based on their earned points and ranked in descending order. The leaderboard offers options for filtering search results based on ranking according to all-time or current month, and a specific forum or topic. The leaderboard shows the rank, user name and picture (if available), total points earned, and current level number (i.e., community-, forum-, or topic-level number) for each user on the leaderboard.

Leaderboard Widgets. The leaderboard widgets appear in several places in Now Community—the community homepage and the landing pages for a forum or topic. The widgets display the rank, name and picture (if available), and total points earned for the top five contributors. The maximum number of users that can be displayed on the leaderboard widgets is 10, and the limit can be configured by gamification

administrators. Forum- and topic-level leaderboard widgets also display the forum or topic name (ServiceNow Madrid Customer Service Management, 2020).

User Profile Page. The user profile page displays various types of information about a user. The user profile page has multiple sections—header area, main body, contributions, forum expertise, and topic expertise. The header area typically includes the user's name, photo (if uploaded by the user), title, earned badges, contact information, and a brief bio. The main body of the user profile page contains six tabs—Content, Activity, Network, Achievements, Events, and Ideas. The content tab shows the content (such as questions, blogs, videos, etc.) authored, participated or commented, and bookmarked by the user. The activity tab shows the user's latest activities (e.g., question asked, question replied, achievement earned, etc.). The network tab shows a list of *followers* and *following* users. The achievement tab shows the user's achievement levels, badges earned, and points accumulated. The event tab shows a list of events the user created or is planning to attend. The idea tab list all the ideas submitted by the user. Once an idea has been submitted by the user, it can go through several states—Under Review, In Consideration, Planned, Available, Unlikely to Implement, Duplicate, and Already Exists. The contributions sections display the number of questions asked, blogs created, videos uploaded, documents uploaded, events created, correct answers given, marked helpful, and featured content by the user. The forum and topic expertise sections in the user profile page list the user's areas of expertise, level of expertise, and points earned in each area of expertise (ServiceNow Community, 2020).

Gamification Notifications. In Now Community, users can receive notifications through the activity feed when they advance a level (global-, forum-, or topic-level) by accumulating enough points and when they earn a badge. All followers of the user also are notified through their activity feeds (ServiceNow Community, 2020). Next, we explain how these components are used to administer and moderate the Now Community's gamification feature.

Administer Gamification

To administer the gamification feature in Now Community, a user must have the gamification administrator role. Gamification administrators can perform various activities to configure the community's behavior and facilitate user participation. For example, gamification administrators can configure gamification properties; create gamification rules, tracks, and badges; and manage gamification levels and level ranges (servicenow, 2019e). Gamification properties can be customized according to organizational needs. One gamification property allows administrators to control the appearance of gamification-related widgets on the community portal. Other gamification properties can be used to control gamification level that is displayed next to the user's name on the Content pages, set number of days to keep the gamification activity records in the database, enable the debug logs for the gamification feature, and set maximum number of levels that can be defined for the gamification feature (Gamification Properties, 2019).

Moderate Gamification

According to servicenow (2019a), common actions performed by gamification moderators include awarding points, removing points, awarding badges, and removing badges. Points are awarded to users in recognition of their contributions to the community. Points are deducted if users violate community principles by cheating the gamification system. To award or remove a user's points, moderators can update the user's profile page by entering a positive or negative number, respectively. Gamification moderators also can specify reason(s) for awarding or removing a user's points. Gamification badges can be awarded by gamification administrators or moderators to users in recognition of their community activities. A badge removed from a user can be awarded to that user again. In addition, a user's badge can be removed by gamification administrators or moderators if the badge is no longer relevant for that user. A deleted badge is no longer visible on the user's community portal.

IMPLICATIONS OF THE STUDY

Study results showed 10 different types of user roles in Now Community, with a focus on setting up, configuring, moderating, and using the community. Study results also showed that Now Community has five different gamification components—rules, tracks, levels and level ranges, badges, and points. The gamification user interface components include leaderboard page, leaderboard widgets, user profile page, and gamification notifications. These components are used to administer and moderate the gamification feature within the community. These gamification components and their usage are likely to evoke user feelings and emotions (such as achievement, recognition, status, belonging, progression, competition, self-expression, and collaboration) in the community. Badges evoke a sense of achievement and the users' ability to climb levels by earning more points. When users reach a certain level and earn badges, they feel recognized, valued, appreciated, and respected. The leaderboard page and widgets may further amplify users' recognition by making their badges and points more easily visible and accessible throughout the community. Higher levels are likely to correlate with more experience and notable status.

Community members share an enhanced sense of belonging because they can subscribe to one or more community forums of their choice. As stated previously, forums bring together a group of likeminded users to discuss matters of mutual interest. Even though different members within a forum may be at different levels, quick responses to questions suggest that users are more likely to consider themselves to be a part of a larger professional online group—"ServiceNow professionals" or "ServiceNow members". The gamification feature in Now Community gives users a sense of progression up the leaderboard ladder as they participate more and earn more points and experience. Components like points, badges, and levels foster among participants a sense of competition. According to some scholars, competitiveness is a biological trait that co-evolved with basic human survival needs (van der Linden, 2015). From the ancient Greek Olympics to the modern World Cup Soccer, people have enjoyed organized competition throughout the world. Thus, gamifying a professional online community stimulate the competitive nature of human beings.

The gamification feature used in Now Community gives its users the ability to self-express and to customize their user interface. For example, users can manage their own profile page by uploading their picture; changing display name; adding various fields such as their title, company name, phone number, e-mail address, and country information. Users can also provide a short bio in their profile page. Another way users can self-express is by choosing if they want to link their other social networking sites within Now Community. If they prefer, users can provide links to their LinkedIn, Twitter, and Facebook accounts in their Now Community profile page. In Now Community, users have the ability to configure information as "public" or "private". Fields marked as "private" are hidden from public view. Other features in Now Community (e.g., content types, feedback types, access types, etc.) provide users an opportunity (within limits and restrictions) to interact and collaborate, share solutions and best practices, discuss products and services, and discuss professional development. No community can thrive without effective collaboration among community members—Now Community can provide valuable insights into how to use different user roles to gamify a professional online community.

CONCLUSION

Different user roles in Now Community were identified and described in this case study. The researcher also presented the gamification components and described how they work in this online community. Although this case study focused on one popular professional online community, the approach and results should be reasonably applicable to other online communities looking to implement gamification. Professional online communities have become increasingly popular in recent years as traditional search engines are often not adequate to address unstructured, complex, and product-specific questions or problems. Primary reasons for using a professional online community include broader access to answers to questions, sharing expertise, and learning more about a company's products and services (Imroz, 2019). Users can only realize benefits when they are motivated and engaged by providing meaningful content.

Gamification can increase users' participation, loyalty, and engagement in online communities. To ensure that the gamification feature is useful, users' access rights and permissions must be managed efficiently and effectively. Many organizations struggle to manage their users' access rights in accordance with governance and compliance policies. Managing access rights for thousands of users in a transparent manner while maintaining consistency across diverse systems can put constraints on organizational resources, and especially on IT. An understanding of different user roles, permissions, and the ways in which they are used to set up, configure, and moderate an online community can provide valuable insights into creating a role-based access control system that is transparent, effective, efficient, and practical.

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