Chapter 15
Quantitative Analysis of Newcomer Integration in MMORPG Communities

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Abstract Players of massively multiplayer online role-playing games (MMORPGs) build online knowledge communities that can serve as learning environments for informal adult learning. Technologies that can make these communities "smart" require quantitative models of specific processes. Aiming to inform the development of smart technologies for MMORPGs, the present research proposes and validates questionnaire survey scales that quantitatively explore the process of newcomer integration in German MMORPG player communities. Two correlational studies within samples with a total of $N = 276$ participants reveal players' perceptions of recruiting strategies, monitoring, and consistent training, influenced by gender, age, and community exposure time. These perceptions, in turn, significantly impact players' subjective competence, sense of community, and evaluations of community practice. The findings make headway in smart community research by suggesting quantitative models for social processes in MMORPG communities.

Keywords Knowledge communities · Massively multiplayer online role-playing games (MMORPGs) communities · Newcomer integration strategy

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15.1 Introduction

Knowledge communities (KCs) are groups of mutually engaged people communicating online over longer periods of time and sharing interests, knowledge, and activities. Research points at KCs, either online or traditional, as particularly effective environments for informal adult learning [1, 2]. KCs are characterized by their sociocognitive structure that includes central, active, and peripheral members [2]. A particular case of KCs are online knowledge communities (OKCs) built by players of massively multiplayer online role-playing games (MMORPGs) [3] that display similar sociocognitive structures, processes, and outcomes such as traditional KCs. Identity within KCs typically develops from newcomer and novice to old-timer and expert. The participation outcomes in KCs include the acquisition of skills and applicable knowledge [1, 2], participants' positive self-evaluation and development toward expert status [2, 4], and the emergence of a sense of community [5].

Eberle et al. [6] explored the participation support structures for newcomers in faculty student councils and found out that newcomer integration may be the purpose of *recruitment strategies*, which in turn may be backed by the *accessibility of community knowledge*. *Positive welcome strategies,* which are a newcomers' first contact with the community, are meant to foster their gratefulness toward the community and their interest to acquire specific community knowledge. *Negative welcoming strategies* are initiations confronting newcomers with their own shortcomings, which aim to show them the need to attain a higher level of knowledge and skills to become full community members. Nevertheless, a community will recognize the need to attract newcomers (*legitimation*) and offer them *opportunities for participation*. Senior community members may offer *role models* by showing newcomers how to behave according to community norms; explicitly *train* newcomers in the community practice; *sponsor* them by serving as a contact person; and *encapsulate* them by encouraging newcomers to spend time dedicated to the team and in separation from potentially distracting influences. Welcoming and training strategies are usually complemented by *monitoring newcomer behavior* and *assessing* their *knowledge* about the community and its practice. Eberle et al. [6] empirically demonstrate that two specific participation support structures, the recruitment strategies and the accessibility of community knowledge, predict newcomers' level of participation.

Newer technologies can make OKCs "smart," e.g., by automatically analyzing typical processes and thus predicting future learning or social behavior or informing certain interventions [7]. So far, little is known about newcomer integration in KCs, and especially in OKCs. Therefore, the present research starts from one of the few quantitative studies exploring newcomer integration in KCs, proposed by Eberle and colleagues [6], and extends it to MMORPG communities. The findings add to current research on smart communities [7].

15.2 Research Questions, Methodology, and Findings

Against the background of the provided theoretical considerations, the following research questions were formulated: (1) Which newcomer integration strategies do players perceive in their MMORPG community? How far are these impacted by demographic data, in particular by gender, age, and community exposure? (2) What are the effects of perceived newcomer integration strategies on participants' subjective community outcome?

Two quantitative, correlational, survey-based studies were conducted in different player communities. In Study 1, newcomer integration strategies were searched for by scales derived from the definitions provided in the theoretical framework [6]: the *recruitment strategies* scale (e.g., "In our players community, I actively search for new players with whom I can play"); the *negative welcome strategies* scale (e.g., "Newcomers have to go through a difficult initiation ritual before they are accepted"); the *consistent training* scale (e.g., "Our players community offers a kind of regular training for newcomers"); the *modeling* scale (e.g., "I am always to behave as an example for newcomers"); the *monitoring* scale (e.g., "I always look very carefully at new players before I play together with them"); the *integration strategy evaluation* scale (e.g., "I am happy with the way in which our player community recruits new members"); and the *self-evaluation of player competence* scale (e.g., "I am one of the best players in our community"). Additionally, community output was assessed as *sense of community* with a *social* and a *learning* component [5]. All scales consisted of statements that had to be rated using seven-point Likert scales from 1 = very weak to 7 = very strong perceptions.

Study 1 was conducted in a MMORPG community of approx. 500 German players of the game "Guild Wars 2." The participant sample consisted of $N = 123$ players, 106 male and 16 female, aged on average $M = 25.12$ years (SD = 8.19).

RQ1. The results displayed moderate values of the following perceived recruitment strategies: *consistent training, modeling,* and *monitoring;* low values of *negative welcome strategies*; and high values of *sense of community*.

Male players perceived integration strategies more strongly than female players, which was true for *monitoring* (male: $M = 3.55$, SD = 1.64; female: $M = 2.64$, SD = 1.16; $F(1, 119) = 4.534$, $p < 0.05$); *negative welcome strategies* (male: $M = 2.23$, SD = 1.14; female $M = 1.64$, SD = 0.55; $F(1, 120) = 4.083$, $p = 0.05$, marginally significant); *recruitment strategies* (male: $M = 3.28$, SD = 1.74; female: $M = 2.40$, SD = 1.06; $F(1, 120) = 3.904$, $p = 0.05$, marginally significant); and *consistent training* (male: $M = 5.80$, SD = 0.95; female: $M = 5.31$, SD = 1.07; $F(1, 120) = 3.574$, $p = 0.06$, marginally significant). No significant gender differences in modeling or in both components of the sense of community scale. Participants' *age* had very weak, negative effects on *monitoring* ($r = -0.28$, $p < 0.01$, $R^2 = 0.07$), *recruitment* ($r = -0.23$, $p < 0.05$, $R^2 = 0.04$), and *consistent training* ($r = -0.19$, $p < 0.05$, $R^2 = 0.03$).

RQ2. No significant effects of perceived integration strategies on any component of sense of community could be detected. *Community exposure* had weak, negative

effects on *consistent training* ($r = -0.21$, $p < 0.05$, $R^2 = 0.04$) and *sense of community (learning)* ($r = -0.19$, $p < 0.05$, $R^2 = 0.03$). Due to the very small cleared variance, these effects can hardly be considered as significant.

As a follow-up, **Study 2** was performed in various German player communities built on several games such as "Guild Wars 2" and "World of Warcraft". The sample was demographically similar to Study 1 and consisted of $N = 153$ players, 123 male and 30 female.

RQ1. The newcomer integration strategies *recruitment*, *consistent training,* and *monitoring* were moderately perceived. High values were measured in the *integration strategy evaluation*. *Sense of community* was highly perceived.

Again, males perceive integration strategies stronger than females: *recruitment strategies* (male: $M = 5.17$, SD = 1.04; female: $M = 4.12$, SD = 1.12; $F(1, 151) = 26.380$, $p < 0.000$); *monitoring* (male: $M = 3.64$, SD = 1.17; female: $M = 2.88$, SD = 1.21; $F(1, 151) = 14.074$, $p < 0.01$); and *consistent training* (male: $M = 5.00$, SD = 1.18; female: $M = 4.58$, SD = 0.86; $F(1, 151) = 3.493$, $p = 0.06$, marginally significant). No significant gender differences were found in *modeling* and in both components of the *sense of community* scale. Participants' *age* had very weak, negative effects on *monitoring* ($r = -0.18$, $p < 0.05$, $R^2 = 0.03$), and no significant effects on recruitment strategies and consistent training.

RQ2. Participants' *integration strategy evaluation* was influenced by *consistent training* ($\beta = 0.33$, $p < 0.01$) and *monitoring* ($\beta = -0.20$, $p < 0.05$), which cleared $R^2 = 0.10$ of the variance. Recruitment strategies had no significant effects.

The *social* component of *sense of community* was significantly impacted by *consistent training* ($\beta = 0.46$, $p < 0.000$) and *monitoring* ($\beta = -0.23$, $p < 0.01$) and marginally by *recruitment strategies* ($\beta = 0.16$, $p < 0.10$), clearing altogether $R^2 = 0.26$ of the variance. Further on, *consistent training* had a moderate effect ($\beta = 0.47$, $p < 0.000$) on the *learning* component of *sense of community*, clearing $R^2 = 0.28$ of the variance. Recruitment strategies and monitoring had no significant effects.

Participants' *subjective competence* was strongly predicted by *consistent training* ($\beta = 0.53$, $p < 0.000$) and *recruitment strategies* ($\beta = 0.25$, $p < 0.01$), which cleared $R^2 = 0.46$ of the total variance. Monitoring had no significant effects.

Finally, *community exposure time* had significant effects on *subjective competence* ($r = 0.43$, $p < 0.000$, $R^2 = 0.18$), *sense of community (learning)* ($r = 0.39$, $p < 0.000$, $R^2 = 0.14$), and *sense of community (social)* ($r = 0.21$, $p < 0.01$, $R^2 = 0.04$).

15.3 Discussion and Conclusions

The presented research quantitatively explored newcomer integration in various MMORPG communities of German players. For the survey, a first version of integration strategies scale was formulated based on Eberle et al.'s study [6]. Only some of these scales proved reliable; therefore, the corresponding strategies were

measured. Thus, the collected data successfully revealed players' perceptions of newcomer recruitment strategies, consistent training, and monitoring. Additionally, the first study also identified the perception of negative welcome strategies and modeling. A gender-specific pattern appeared, such that male players, who were the majority in the examined communities, more strongly perceived the newcomer integration strategies. Further, younger players perceived the newcomer integration strategies somewhat stronger than older players. This may be due to status differences [3], or simply to different perceptions of male versus female and younger versus older players. Direct observation data may reinforce this finding in future studies.

According to data from Study 2, consistent training seems to be the most important newcomer integration strategy, positively, and moderately to strongly impacting players' newcomer integration strategy evaluations, as well as their sense of community and subjective competence. Recruitment strategies only affected the social component of sense of community and the subjective competence, to a positive but relatively small amount. Monitoring had a negative effect on players' integration strategy evaluations and their social sense of community. These results emphasize the importance and positive effects of community strategies aimed at fostering members' expertise. Monitoring, on the other hand, may be indispensible for the individual and community development process; however, it seems to have negative social effects. The findings support the application of Eberle et al.'s [6] approaches in MMORPG communities. In future studies, objective data based on direct observation and discourse analysis [7] may additionally substantiate the findings.

Community exposure has relatively strong effects on players' subjective competence and sense of community, which suggests that these essential components of community output increase over time. This finding is consistent with the mainstream community research [2, 6]. However, it is limited by the subjective transversal data and has to be substantiated in future research by longitudinal data.

In consequence, these findings add to current research on MMORPG knowledge communities [3] and inform smart community research [7]. Follow-up studies are aimed to refine the data collection instruments and to add longitudinal, direct observation data.

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