

A study of factors influencing user stickiness behavior in online learning communities—Based on the theory of interactive ritual chains

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Abstract: *Since the outbreak of the COVID-19 in 2019, online learning has become an important way of acquiring knowledge, and informal online learning communities are more flexible in terms of knowledge co-creation and sharing. How to establish and maintain user stickiness in online learning communities is an important issue for the long-term survival and development of communities. Based on the theory of interactive ritual chains, this paper explores the influence of interactive rituals on users' sticky behavior, using short-term user satisfaction as a mediating variable, and uses the findings to build a user-type matrix to further analyze users and build a user relationship maintenance network for different types of users.*

Keywords: *Online learning communities; User satisfaction; User stickiness; Interactive ritual chain theory*

1. Introduction

Since the outbreak of the COVID-19 in 2019, online learning has become a major learning pathway, and the online education industry has followed the trend and developed extremely rapidly. Online education products usually have a clear direction, such as paid online courses for examinations and research, lecture services provided by online education institutions, etc. These products or services have great advantages in terms of organization and professionalism but lack flexibility. Online learning communities, as a kind of informal gathering place for online groups, are more flexible in terms of knowledge co-creation and sharing and can achieve the same effect as offline education.^[1] According to Tian Yuan, this is a new kind of collective learning community divided by category: a kind of communication, sharing, and accompanying learning phenomenon with online knowledge resource texts as the core. As Yan Kailun et al. say, compared to traditional teaching, online learning can break through time and space constraints, and it can effectively alleviate the problem of uneven distribution of educational resources, lower the threshold of learning, and promote resource sharing.^[2] Based on these advantages, online learning communities have not dissipated with the gradual stabilization of the epidemic in the post-epidemic era, but have instead gained momentum, and the integration of online and offline education has become the "new normal" in education.^[3] Online learning communities are knowledge-based products, and research by scholars such as Cha Advanced on the post-use behavior of users of online learning platforms has found that users' experience of using an online learning platform can affect their continued or abandoned use.^[4] As consumers of online learning communities, it is worthwhile to study how to improve the short-term satisfaction of online learning users and establish long-term emotional connections with learning communities.

2. Literature review

2.1. The impact of interactive ritual elements on user satisfaction

The interactive ritual chain was introduced by Randall Collins, who believed that social communication is situated in certain contexts and that individuals can only gain membership and emotional energy by continuously exchanging symbolic capital and emotions with other individuals in certain contexts, which is called interactive ritual. According to Collins, there are four conditions that must be met in order to form an interactive ritual: physical co-presence, an outsider's barrier, a mutual focus of attention, and a shared emotional state. Collins states that through interaction rituals, users are able to develop strong emotional energy and recognize their own membership, identify group symbols,

and spontaneously maintain group dignity. According to the interactive ritual chain theory, the transient emotional experience of a user in a situation is transformed into a long-term emotional commitment through the interactive ritual chain, which leads to a sense of belonging to a group and a sense of dependence on a group. Users of online learning communities exist as virtual symbols within a learning community and are distinguished from other communities by their learning and specific categorization. They focus on knowledge and information about a particular field and are willing to share their learning and experiences within the community. Users can satisfy their knowledge needs through the exchange and sharing of learning information within the learning community, and also gain emotional resonance and feedback, satisfying the need for knowledge acquisition and the desire for emotional exchange, and gaining short-term positive emotions, which is conducive to short-term user satisfaction. The end of a single interaction does not mean the end of the interaction ritual. Individuals will continue to be active in a learning community for knowledge acquisition or emotional needs, which can be seen as the continuity of the interaction ritual, allowing users to form a stable emotional experience in the ongoing interaction.^[5]

With the continuous development of the Internet, scholars have found that interactive ritual chains are also applicable to online communities. For example, Wei Lai et al. based on the theory of interactive ritual chains to emotionally analyze the pop-up messages of online videos. Based on the interactive ritual chain, Luo Yunjuan et al. used Jitterbug as a case study and found that the path of building a regional image through short videos reflects the image co-creation model in interactive rituals.^[6] These scholars modified the conditions for the formation of interactive ritual chains according to the characteristics of the Internet, arguing that the conditions for presence in online communities are virtual presence, and virtual symbolic presence,^[7] i.e. users are involved in interaction in the form of symbols. Ritual chain theory is a contextual theory in which all interactive rituals take place within a context of social connections and networks.^[8] Online learning communities construct a "learning information scene", and the scene is the core concept of contextual research. Online learning communities set the boundaries of the scene through community access restrictions, community attributes, and category settings,^[9] and users can quickly identify who is a participant or an outsider. Zhou et al. use the concept of virtual community feeling to explain why users are willing to participate in an online community in the form of virtual symbols, which they consider to be a sense of dependency, reflecting an individual's sense of belonging and identification with the group.^[10] By choosing to join an online learning community, users are willing to be symbolically present in the learning community, to be part of it, to label themselves as part of it, and to feel a sense of belonging and security from it. Users are present in the learning community in the form of virtual symbols, and because the online learning community is a barrier to others, users are able to access learning resources that are not accessible to non-users, satisfying their need for knowledge acquisition.

Users are motivated to enter an online learning community to gain access to learning resources or a way to communicate emotionally about learning, and online learning communities are organizations to which users voluntarily belong, joined by a common focus, shared values, and a desire for equal communication.^[11] In a community, users share common goals, interests, and visions, leading to a deeper understanding of what it means to share knowledge, and in turn, increase the quantity and quality of knowledge shared.^[12] The exchange of intellectual capital around a common learning focus in a community is consistent with the relevant findings of social capital theory. Social capital is a resource generated between people through relationships or social networks, and this resource can give individuals the opportunity to pursue their interests. Knowledge sharing, content generation, help-seeking, and information interaction by users in learning communities are all part of active participation.^[13] The user has the knowledge and is willing to share it with members of the community, and he is able to access the knowledge he needs as a member of the community. Social capital plays an important role in promoting intra-group cooperation and building long-term trust, and users can gain emotional satisfaction through community participation, such as pleasure, recognition, and friendship.^[14]

The needs of users of online learning communities do not stop at acquiring intellectual capital; they also rely on the community to express their feelings or express their emotions. Users express their thoughts and feelings in learning communities as a form of self-expression in psychological terms, and self-expression theory suggests that individuals expect social rewards for self-expression. In learning communities, users 'talk' about what they are experiencing in their learning and express their difficulties in learning, and expect other members to understand their feelings and give them feedback. In their study of users' self-expression and social relationships in live-streaming contexts, Liu De-Huan et al. found that users would engage in high levels of self-expression due to their high social needs and that high levels of self-expression would facilitate the development of social relationships.^[15] Interpersonal relationships can be divided into strong and weak relationships. Strong relationships refer to individuals

whose social networks are highly intersectional and homogeneous, meaning that they are similar and interact closely with each other,^[16] and generally speaking, friends, classmates, and colleagues are regarded as strong relationships. The American scholar Granovetter argues that the strength of relationships is determined by the length of the relationship, the frequency of communication, the extent to which communication affects emotions, the closeness felt by both parties and whether the relationship is reciprocal.^[17] The majority of relationships between users in online learning communities are between strangers, which should be "weak relationships", but Xu et al.'s research show that such relationships in social media show strong relationships, which are not in line with the original theory of strong-weak relationships. In this regard, he proposed the concept of 'strong-weak relationships', arguing that because this weak relationship brings benefits to each other, such as intimacy, social interests, and financial benefits, these not only help to maintain the weak relationship but can also be transformed into a strong relationship.^[18] With the intervention of contemporary social media, any user can have various social relationships in various communities and rely on these relationships to meet various needs and participate in more activities,^[19] and strangers can also get to know each other for mutual benefit and build intimate relationships.

2.2. The impact of user satisfaction on user stickiness

User satisfaction is a positive or negative emotional state that results from the use of a product or service and is determined by the user's perception of the product or service compared to their own expectations. User stickiness refers to the behavior of users who continue to use and do not switch easily, i.e. a stable state of mind that allows users to continue to follow and use the community without being affected by external circumstances or pressure to switch.^[20] Generally speaking, the higher the user satisfaction, the better it is to maintain user stickiness, and users with high satisfaction have high usage rates. In his study, Qi Xianghua showed that satisfaction is a necessary condition for loyalty,^[21] and loyalty means that users are willing to continue to use and do not switch easily. Lanlan Zeng also indicated that satisfaction is the main influencing factor of user stickiness.^[22] lien et al. argued that user satisfaction positively affects users' continued use.^[23] Wu Mingqin argued that under the demand of utility maximization, users would choose the service with the highest satisfaction level and high satisfaction can reduce users' willingness to switch.^[24] Wang Rong et al. showed that customer satisfaction with service quality has a strong influence on retention and switching intentions.^[25]

To sum up, the research model of this paper is shown in Figure 1.

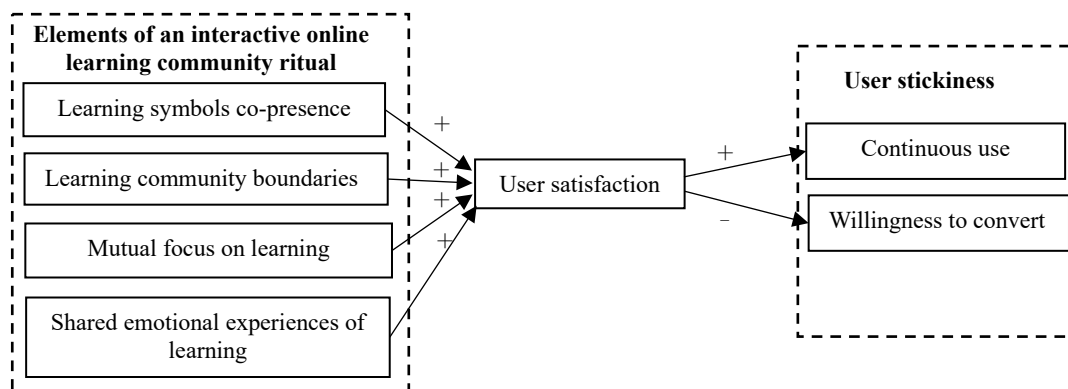


Figure 1: Research model

3. The user type matrix of the online learning community

In this paper, users of online learning communities are divided into four categories based on two dimensions of user stickiness, namely the degree of continuous use and the intensity of willingness to switch, as shown in Figure 2.

Users with high persistent use and low willingness to switch are high stickiness users, who continue to use the learning platform or are active in the learning community for a long time, and do not have any intention to switch to other platforms or communities. Users with a high level of persistence but a high willingness to switch are maintenance users. These are users who have been using the learning platform or have been active in the learning community for a long time, but are thinking of switching to another platform, perhaps because they are dissatisfied with the platform or community but have not found a

better one to move to. Users who are not consistently using the learning platform or are not active in the learning community, but are not thinking of switching to another platform, either because they are not motivated to learn or because there is no platform or community that can meet their needs. Users who are not consistently using the learning platform or are not active in the learning community, and who have not thought about switching to another platform, maybe in the trial and error phase, or maybe looking for a 'newcomer bonus'.

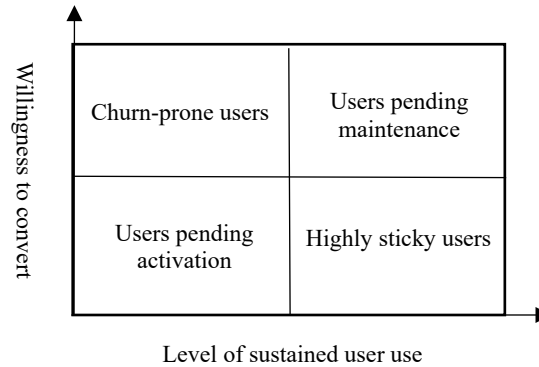


Figure 2: Matrix of user types

4. Factors influencing user stickiness in online learning communities

This paper uses software such as SPSS 26.0 to verify that the tangibility, assurance, reliability, responsiveness, empathy, and convenience of logistics service quality under the agricultural product community group purchase model have a positive impact on consumers' repeat purchase intentions. At the same time, consumer satisfaction plays an intermediary role in the impact of logistics service quality on consumers' repeat purchase intention. According to the conclusion of the research, the following enlightenment is given for the community group buying model of agricultural products and its logistics services:

First, for community group-buying platforms with fresh agricultural products as the main category, when choosing a third-party logistics company or using self-operated logistics, you should evaluate the professionalism of the equipment to ensure that the fresh agricultural products are safe during transportation. Damage can be minimized. This is because fresh agricultural products are perishable, cannot be collided, and must be kept fresh, which places extremely high requirements on storage equipment, sanitation and disinfection equipment, and loading and unloading equipment. For logistics companies, if it is the logistics promotion of agricultural products, they should pay attention to displaying the professionalism of equipment and reflecting the tangibility of their logistics services. Second, the community group buying agricultural products should focus on cultivating the professionalism of logistics service personnel, especially the delivery personnel at the end of logistics and community leaders. They directly contact consumers, and their professionalism directly affects consumers' evaluation and perception of community platforms. Community group buying platforms should train relevant personnel to make their business operations proficient and standardized. Third, the community group buying platform must respond to consumer needs promptly and process consumer order information promptly. Fourth, the community group buying platform for agricultural products should track the logistics status of consumer orders, confirm and communicate on time when abnormalities are found, and ensure that the goods can be delivered to consumers in a timely and accurate manner. Fifth, the community group buying platform for agricultural products should consider the individual needs of consumers. The self-pickup points set up in the community should take into account the journey of consumers to pick up the goods. At the same time, the pick-up time should also be flexible. Get off work late and wait for crowd service, etc. Sixth, the community group buying platform should consider the convenience of the whole process from placing an order to picking up the goods. For the following orders, there is a small program to place the order conveniently or report directly to the community leader to place the order on his behalf. To pick up the goods, you need to check the pickup code or directly report the phone number, etc. This is very important for the elderly to use community group buying.

4.1. The common identity

The common identity is a prerequisite for a user to join an online learning community. It is the point of contact between the user and the online learning community, which can be a common interest, a common feeling, or a common goal. Users identify different online learning communities through their common identity, match their own position with that of the community, and choose the community that best suits their needs to join.

4.2. The shared Belongings

Shared belonging refers to a user's sense of belonging to a learning community, a sense of identification, maintenance, and dependence on the community. Online learning communities set boundaries through community access restrictions, community attributes, and category settings to exclude outsiders, so that only insiders can share knowledge and emotions, receive protection and help from the group, and thus gain a sense of security and belonging. At the same time, because online learning communities set barriers to outsiders, insiders are able to access learning resources that are not accessible to outsiders, and the boundaries of the community are more clearly defined, allowing insiders to access unique knowledge resources and increasing the stickiness of users to the community.

4.3. The common Focus

Shared focus means that users in an online learning community share a common learning focus, and all their conversations revolve around a particular learning focus. By discussing the focus of learning together, users can obtain the information they need to solve their learning problems and satisfy their need for knowledge and information. At the same time, the users who provide knowledge and information are able to explore their own value and gain recognition from others in the process, satisfying their spiritual needs and effectively increasing their reliance on the community.

4.4. The shared Emotions

Shared emotion is the ability of users in an online learning community to express and vent their emotions in the community and to receive a response. Freedom of expression is one of the characteristics of online learning communities, where users are able to share their feelings of happiness and distress in the learning process. Because users share a common learning focus, the emotions they perceive are similar and can trigger emotional resonance with other users in the community, helping them to form emotional attachments to the community.

5. Suggestions for improving user stickiness

5.1. For highly sticky users

Highly sticky users are the most overlooked type of user because of their combination of high levels of consistent use and low propensity to switch. Firstly, maintaining a relationship with highly sticky users is key to keeping them active. Online learning community managers should offer material and moral rewards to high-adherence users to keep them active. Secondly, rewards for high sticklers can provide indirect incentives for other types of users. The generosity of rewards is not only an incentive for high-stickiness users, but also for other types of users, who will increase their active behavior when they know that they will be rewarded for staying active. Finally, community leaders are generated from high-stickiness users. Every online learning community has key opinion leaders who have relatively strong credibility and appeal, and who are influential centers of opinion and information dissemination within the community. Key opinion leaders are trusted by ordinary users, so online learning community managers should cultivate them to increase user stickiness.

5.2. For users to be maintained

The key to increasing the stickiness of a community is to reduce the willingness of users to switch. Firstly, it is important to start from the user's needs, capture the user's pain points with a problem-oriented approach, and maintain the user relationship in a targeted manner. Secondly, online learning community managers should increase the number of interactive sections, including an interaction between users and

interaction between the community and users. Finally, providing targeted rewards can also be a good way to reduce the willingness of users to switch.

5.3. For users to be activated

Users who are not activated are less likely to switch to other similar online learning communities, but their activity level is low. For this type of user, the online community manager can implement a learning card activity to encourage users to learn in the community by signing in and playing cards every day. They can also publish various learning topics in the community on a regular basis, so as to encourage users to participate in discussions and keep the atmosphere in the online learning community active, and weaken the resistance of users to learning topics. In addition, community managers should enrich the community's functions, using live streaming, video, language, and other features to enrich the learning format and meet the needs of users, and regularly collect user feedback to improve the community's operational system.

5.4. For churn-prone users

Whether or not community businesses should spend money on improving the stickiness of vulnerable users is a controversial topic. Some argue that the high propensity to convert and the weak retention of churning users suggests that they are not interested in the online learning community, but are simply curious or motivated by some interest. It is also believed that the percentage of users in this category is a warning that the community has a high attrition rate and that there are significant problems with the community's operations. The maintenance of vulnerable users can be done in two ways. On the one hand, the percentage of vulnerable users needs to be noted, and if the churn rate is high, then the community should be looked at from within to identify internal problems. On the other hand, a user growth system needs to be designed, whereby users can obtain growth values by completing specified tasks and are rewarded for reaching different growth values.

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