

Research on university teaching in Metaverse era from the perspective of interactive ritual chain

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Abstract. According to the development of Metaverse, its outstanding features and the logical relationship of Metaverse empowerment education, this paper uses the interactive ritual chain theory to explore that the arrival of Metaverse will bring new changes to link in the ritual chain of new educational symbols, "presence" in teaching, boundaries and barriers, ways of sharing emotional experience, etc. Therefore, this study mainly discusses the chain interactive logic of college teaching situation setting from the perspective of Metaverse, and then provides some ideas of teaching changes in university under the Metaverse era.

1 Introduction

The Metaverse is regarded as the next-generation Internet paradigm that allows humans to play, work, learn, and socialize in an alternative virtual world with immersive experience [1]. With the detonation of the concept of the Metaverse, countries, companies, organizations and individuals all over the world acted quickly. In the Metaverse era, the self-iteration of education has more possibilities, and the classroom from the perspective of sociology is a micro-society [2].

The process of class teaching is actually a social interaction process between teachers and students with symbols as the medium. This paper selects the interactive ritual chain theory proposed by Randall Collins (2004) [3], a famous American sociologist, as the perspective, see Figure 1. According to the theory of interactive ritual chain, there are four main elements of interactive ritual: group gathering, setting barriers for outsiders, common attention focus and shared emotional experience. These four elements interact with each other, thus strengthening the mutual focus and shared mood, and finally forming the result of interactive ceremonies such as group unity, individual emotional energy, social relations symbols and moral standards [3]. The metaverse is expected to turn imagination into reality through the convergence of various technologies and should be considered as a medium for university education [4].

"Interactive ritual chain" provides us with a clear picture of the process of ritual construction in educational activities and emotional transformation in teaching [5]. The interactive ritual formed by the process of exploration and creation with life, depth and rich connotation is the proper meaning of university teaching.

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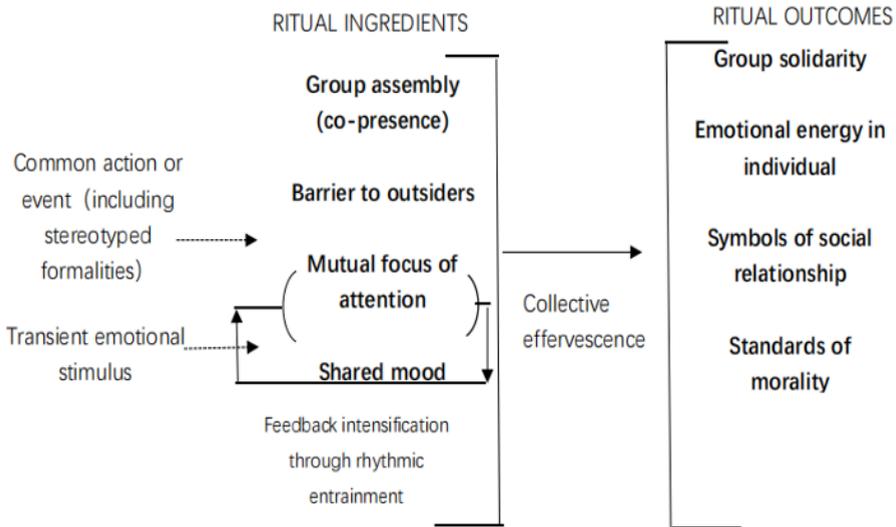


Fig. 1. Interactive ritual chain (IR) model. [3]

2 The infrastructure of university teaching interactive ritual chain from the perspective of Metaverse

2.1 Literature Review of Metaverse and interactive ritual chain

Metaverse combines “meta,” meaning virtual and transcendent, and “verse,” referring to the world and universe [1]. Duan et al. [4] implemented a Metaverse in a university campus by creating a virtual space using the Metaverse platform to examine the behavior of students engaged in it.

As for interactive ritual chain, Randall Collins [3] believed that any interaction between audiences was a kind of ritual. A high degree of mutual concern is the core mechanism of interactive service chain theory, namely the high degree of emotional joint and a high degree of mutual subjectivity, etc. Traditionally, the composition of ritual requires the group of body coexistence to gather [3], but in the Metaverse era, body coexistence is replaced by consciousness coexistence. Constructing the Metaverse teaching organization is not simply to build a Metaverse school in the Metaverse world.

2.2 The infrastructure of university teaching interactive ritual chain

It is necessary to reconstruct the relationship of "human-domain-element" in teaching by combining the education regular pattern, and link the real world with the virtual world through technologies such as human-computer interaction and virtual engine in Metaverse era, so as to realize the ritual chain of teaching interaction.

From the perspective of Metaverse, the university teaching will increase the immersion of multi-dimensional environment and the high-quality experience of the interconnection of everything, thus changing the phenomena of one-way, mechanization, repetition and low connection in college class. As shown in Table 1, the improvement of teaching interactive ritual chain by Metaverse needs to be built on the physical layer, technical layer and functional layer.

Table 1. Metaverse universe teaching organization.

Structure organization	Hierarchical technology	Content description
physical layer	User access equipment Computer base station Communication network Teaching publishing equipment, etc.	The physical layer, such as teach-publishing equipment , is the equipment foundation in the interactive ritual chain of education in the Metaverse and the base to realize the presence and barrier in the interactive ritual chain [6].
Technology layer	Artificial intelligence(AI) Blockchain [7] Emotional calculation Digital Twin(Digital twin can be defined as a virtual representation of a physical asset) [8] Holographic technology,etc.	The technology layer is the technical basis for creating a dynamic, adaptive and immersive learning environment in the Metaverse, and the technical realization condition for realizing the common focus and emotional cohesion in the interactive ritual chain.
Functional layer	Creation and re-creation function Social interaction function Habitual function Deduction function Think-tank function, etc	The functional layer, such as preservation function, is the function and function construction of university class in Metaverse. In addition to the educational function in the existing teaching environment, it should also have the related attributes of managing and recording learners' learning habits, creating and recreating educational and teaching contents, social interaction and so on [9].

3 Reconstruction of university class from the perspective of Metaverse

The interaction between people takes place in specific micro-situations, which are "social connections or networks formed by individuals" [3]. The educational Metaverse broadens the physical space for "objective presence" groups to gather, greatly enhancing the feasibility of communication at any time. Technologies such as digital twins in the Metaverse make it possible to "go online" or "be present", and learners, teachers can focus on learning topics in the virtual field. Co-existing groups in the Metaverse also set thresholds through physical means such as access to equipment and access to base stations, and exchange emotions through language or writing in the Metaverse environment supported by AR/VR and other technologies [9]. These conditions meet the necessary conditions of ceremony, can realize the common value goal in the virtual domain in the educational Metaverse, and form an effective teaching process. Of course, the realization of these conditions requires the construction of class situations with emotional energy.

3.1 Multi-situation group gathering

Objective conditions such as multiple campuses and class size will limit the group gathering in university teaching. However, in the Metaverse, the limitation of time and space will be broken through, and the gathering activities of various groups in virtual space (such as sub-cultural groups, ceremonies, speeches, sand tables, etc.) can realize the possibility of learners gathering in the teaching ceremony, and the participants can also form unlimited interaction. Through the multi-scene group gathering in the Metaverse, learners may change the current silence phenomenon in the university classroom. Group aggregation doesn't mean unified and synchronous learning, but can accurately calculate the educational scene that each

student needs through a large number of historical data samples of students in the Metaverse in a virtual group.

3.2 Identity-based barrier to outsiders

Learning activities in college classrooms have natural boundaries, and different subjects have different audiences. With the advent of the Metaverse era, the barrier to outsiders brought by identity is more adaptable. In the Metaverse, the symbols that are more in line with college students' self-identification in "Z era," such as "face pinching" and labels, will be presented in the class greatly [6].

In the class, students will independently design the course logo, which can be either a visual entity logo or a sound logo. Through multi-modal and multi-sensory community interaction in the Metaverse, class ritual strengthening symbols are formed. After the participants in the class gain the experience of group identity and emotional sublimation in the Metaverse teaching situation, they have a sense of association with related symbols and further strengthen the exclusive strategy.

Relying on the technology of edge and cloud [10], we can realize the consistency of symbols in different teaching situations in class and enhance the barrier to outsiders. Therefore, in the situation generated by the education Metaverse, the abstract emotional energy is associated with the figurative group unity signal and the external barrier, which endows the collective symbol with value significance. On this basis, a new round of specific situation interaction is carried out, which spirals upward, and the participants in learning are accompanied by strong psychological feelings, resulting in high-frequency and high-quality thinking touch, which brings the internalized knowledge transfer process.

3.3 Common focus of attention

According to the interactive ritual chain theory, group unity and emotional energy are generated in situational interaction, and the transformation of cohesive emotions into long-term unity and concerted action requires internal members to have a common focus. Metaverse has a strong decentralized feature [11]. In the educational Metaverse, the simple one-way behavior taught by teachers will be transformed into a diversified teaching process, which will enhance the chance of generating common concerns distributed in many places, and makes students become formal subjects and substantive subjects in the university class, which is coupled with the interactive ritual chain theory that mutual practitioners are physically present and influence each other.

At the same time, the immersion, extension and full-link teaching service brought by resource integration in Metaverse can bring learners feedback learning ecological environment in the university classroom, and the focus of classroom attention is more obvious. On the other hand, the Metaverse learning environment can reasonably deduce learners' intentions according to learners' behavior habits, and give corresponding feedback to teaching organizers, so as to ensure that learners' common focus in the teaching environment is always condensed, and they will not "get lost" in the Metaverse data jungle.

3.4 The situation of emotional cohesion

Randall Collins believes that emotion is the core component and result of interactive ceremony [3]. Only when participants share common emotions or emotional experiences can make a successful ritual. In the Metaverse, the class will still need to guide learners to have a sense of belonging and identity with education as the starting point. More realistic and delicate virtual scenes will be designed, and practical activities such as ceremonies, parades,

debates, and business operations will be set up to greatly expand the boundaries of the learning space.

In this process, learners can experience situations of success, failure, excitement, time focus and emotional energy cohesion. Learners realize positive emotions such as self-identity and self-expression in the organization, arouse the peak experience of each subject through collective practice activities in the Metaverse, and generate collective identity with emotional energy as the unit, which greatly improves the thinking presence and awareness presence of learning participants, and reaches the threshold of shared emotional state. On the other hand, the situational composition of co-existence of consciousness in the Metaverse not only enhances the cohesion of the learning community, but also provides an outlet for negative emotions such as academic tension and frustration, which has a positive stabilizing effect on both the learning community and learners. At the same time, the addition of virtual people which called as Avata in the Metaverse [11], especially ones with emotional understanding, enables the atmosphere in the learning situation to be dynamically adjusted, so that learning state can be better maintained.

4 Conclusions

The mission of university education should be to cultivate personalized, driven learners. All kinds of social interactions can be understood as interactive rituals, which can continuously create and maintain group unity, that is, an individual's feeling about the membership of a specific group. Of course, learning activities are the setting mode of university class based on Metaverse in this ritual [12]. Learners are immersed in diversified situations, practical situations of emotional cohesion, and situation-specific symbols to realize the teaching mode that learning content is more acceptable and absorbed, and truly realize deep learning and self-driven learning [13]. This research has following limitations. Firstly, although Interaction Ritual Chain Theory believes that the mutual focus of attention is the vital factor for the successful interaction, the successful interaction ritual needs the mating of emotional energy from both parties, the current studies regarding learning ritual mainly focus on relationship between students and teachers, but ignore the students' own relationship enthusiasm [14]. Secondly, the interactive ritual chain just is one method on studying university learners' learning rituals, the learners' study enthusiasm, learning habits and many other aspects are not included. So, researchers can focus on learning habits, learning environment, learning content and many other aspects in the Metaverse era.

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