A Study on Anti-fraud Education Model Based on Gamification Theory

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Abstract. The current anti-fraud knowledge learning model is tedious and suffers from process generalisation of knowledge content, which greatly reduces the public's interest and motivation in learning. The core of effective anti-fraud learning is to clarify the correlation between the low effectiveness of the anti-fraud learning model and the psychological motivation of the public, and to promote the internalisation of motivation. This paper explores the anti-fraud education model through the theory of gamification, analyses the relationship between internal and external motivation and the transformation process through self-determination theory, proposes the use of experiential learning theory to promote the internalisation of motivation, and analyses and designs the specific experiential stages of experiential learning theory by combining the core drivers of the octalysis. The final result is a transformation model of anti-fraud learning motivation based on gamification theories, which expands the research on gamification education in anti-fraud education and brings practical inspiration for the innovation of anti-fraud knowledge learning model.

Keywords: gamification · anti-fraud education · self-determination theory · experiential learning theory · octalysis

1 Introduction

In recent years there has been an increasing interest in the concept of 'gamification' design. Gamification refers to the process of incorporating game elements into non-game contexts in order to reinforce participants' motivation [1]. At present, the concept of "gamification" design has been applied to many fields such as education and training, health care and so on, and gamification education has been a hot spot for scholars' research. Since 2005, there has been a gradual increase in research on the theoretical aspects of gamification education. Experts and scholars in related fields are paying more and more attention to it, and relevant theories and literature are increasing year by year.

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However, there is no independent and well-developed research system on the gamification of anti-fraud education. Gamification of anti-fraud education can help solve the current problems of generalisation of the process of knowledge content and insufficiently engaging approaches to anti-fraud education work.

This paper focuses on the study of theories related to gamification, applies self-determination theory to analyse the key to internalising anti-fraud learning motivation, innovatively combines experiential learning theory with the design of an anti-fraud education model, summarises the conceptual model of gamification of anti-fraud education, and combines the octalysis to analyse and design the first phase of experiential learning theory. The model promotes the transformation of learners' external motivation into internal motivation and enhances learners' understanding and application of anti-fraud knowledge.

2 Literature Review

The ancient Greek philosopher Plato first emphasising the importance of not forcing children to learn, but rather allowing them to unleash their natural instincts through play. In the 1980s, American psychologists deci and Ryan put forward the self-determination theory. According to the content of self-determination theory, the motivation of players to play games can be disentangled and understood as a way to design improvements to game mechanics and game experiences [2]. And when placed in the field of gamification design, it can be analysed by these three motivations as well. The Finnish scholar Juho Hamari has published several research articles on gamification since 2011, and in his article published in 2014 [3], in a review perspective, he divided the practical research directions related to gamification into motivational availability, behavioural change and psychological change, analysing the effects and influences of the use of gamification and affirming its role in increasing motivation to participate. Since then, Juho Hamari has been exploring the effects of the use of gamification in terms of extrinsic motivational factors.

In 2015, Yu-Kai Chou proposed the octalysis from the perspective of motivation-driven in the book "Gamification Practice", analyzed and combined the gamification cases of many Internet products, and proposed gamification strategies with different driving forces, providing users with a very practical reference [4]. In 2012, Kevin Werbach interpreted the application process of gamified thinking from the practical perspectives of intrinsic and extrinsic motivation, basic elements of gamification, and steps to build a gamification system in his book Gamification Thinking [5].

Experiential learning sprouted from Rousseau's learning perspective of "seeking knowledge with shapes, learning by experience". In 1984, David Kolb proposed the famous experiential learning circle modelon the basis of the research of his predecessors, believing that experiential learning is a circular learning of "concrete experience, reflective observation, abstract generalization, and test application" [6], and its theory has been universally recognized and applied. Based on experiential learning theory, immersion theory and game design theory, Kristian Kiili proposes an experiential game model that integrates educational theory and game design [7], and has been widely used in gamification education. Zhang Lu and Shang Junjie of China sorted out the learning

theories associated with gamification, including the real learning environment theory that emphasizes cognitive authenticity, the experiential learning theory that emphasizes the learning process, and the generative learning theory that emphasizes the subjectivity of students, constructs a gamified learning experience framework, and summarizes the types of gamified learning experience from three aspects: situational cognition, social collaboration and subjective motivation [8], which has guiding significance for the research of gamification learning theory.

Summarizing the above, the international research results on gamification theory have been relatively fruitful, and some scholars have also applied gamification theory to the study of learning theory. However, so far, no gamification theory has been found to be applied to the study of anti-fraud knowledge learning. In view of this phenomenon, this paper will mainly explore the combination of gamification and anti-deception, propose a theoretical model of gamification of anti-fraud education, and try to make a certain contribution to related research in this field.

3 Theoretical Elaboration

3.1 Self-determination Theory

Self-determination theory is a research theory about the motivational process of people's self-determined behavior, emphasizing that people's needs and self-determination are closely related to people's behavior. According to the degree of self-determination, motivation can be regarded as a continuum from extrinsic motivation to intrinsic motivation. Theory divides motivation into extrinsic motivation, internalized motivation, and intrinsic motivation [9]. Internalized motivation refers to the intrinsic identification and pursuit of the meaning of learning activities by extrinsic factors, and becomes the dominant driving force for learning. The connections and changes between motivations can be summarized into the following four aspects: autonomy, competence, and the satisfaction of care needs are the basis of intrinsic motivation, the influence of external events on intrinsic motivation, the different forms of extrinsic motivation, and the internalization of extrinsic motivation [10].

3.2 Experiential Learning Theory

Experiential learning is a basic form of learning theory, which refers to a student-centered learning method that combines practice and reflection to acquire knowledge, skills and attitudes. Theory emphasizes the "subjective experience" of learners, while emphasizing that experiential learning is a phased cyclical process. In Kolb's Experiential Learning Theory Model [11], the learning process is specifically summarized into four links: Concrete experience -- observation and reflection -- abstraction and generalization -- examination and application (See Fig. 1).

3.3 Octalysis

Octalysis is a model proposed by Yu-Kai Chou to establish game attraction. Human behavior is driven by the eight core driving forces: Meaning, Accomplishment, Empowerment, Ownership, Social Influence, Scarcity, Unpredictability, Avoidance (see Fig. 2).

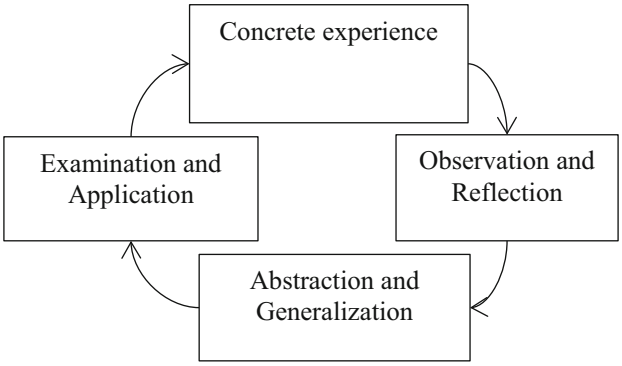

Fig. 1. Kolb's Experiential Learning Theory Model

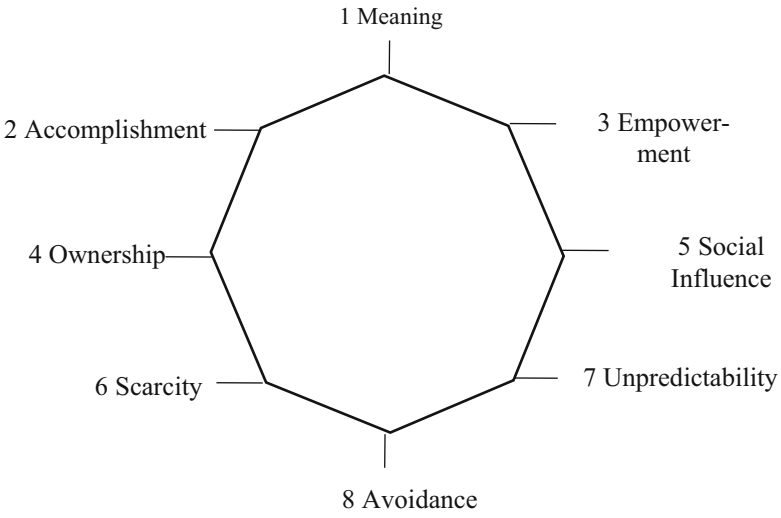

Fig. 2. Octalysis

Meaning means that users believe that the meaning of what they do is more important than the thing itself and give themselves a sense of mission Accomplishment represent the progress and new skills gained by the user as they accomplish something; Authorization means to provide innovative channels for users to exert their initiative; Ownership refers to the user's initiative to own and control things; Social Influence refers to the interaction between users and other users; Scarcity refers to something that only some users have; Unpredictability means to arouse the user's curiosity by showing a limited number of things; Avoidance refers to the disadvantages of presenting a bad event, and users will choose to avoid loss [4]. Through the exploration of the core driving force in the process of learners' behavior, we can clarify how to apply the driving force in each stage to stimulate learners' behavior, and provide a reference for improving the operability of learners' experience and behavior.

4 Analysis of Anti-fraud Motivation Based on Self-determination Theory

The current anti-fraud education does not allow the masses to generate internal motivation. In terms of independent psychological needs, anti-fraud education only blindly and unilaterally inculcates anti-fraud knowledge to the masses, resulting in the masses cannot give full play to their autonomy in the process of learning anti-fraud knowledge. On the satisfaction of the sense of competence, for most people, the learning of anti-fraud knowledge is not challenging. Based on the above analysis, it can be seen that at present, the masses mainly learn anti-fraud knowledge out of external motivation. Based on the Self-determination Theory, the process of the masses learning anti-fraud knowledge from external motivation to internal motivation is analyzed. This section analyzes the connection and transformation between internal and external motivation, so as to provide guidance for proposing specific solutions.

The forms of anti-fraud learning are mostly manifested as rational cognitive activities, and the external motivation of learners is mainly manifested as external adjustment type, whose behavior is regulated by the external event of avoiding the pressure or restriction of being cheated. It is the external motivation form with the lowest degree of self-determination and basically does not have any degree of internalization. Self-determinism points out that autonomy, competence and belonging need are three basic internal psychological needs, and the satisfaction of these three needs is conducive to the internal motivation of individuals in activities (See Fig. 3). In addition, according to the cognitive evaluation theory, when people experience achievement or efficacy, they must also feel that the behavior is self-determined, in this case, it can really promote intrinsic motivation.

According to the existing research, this paper believes that the process of anti-fraud learning should start from three aspects: autonomy support, ability support and relationship support, and produce deep internalization [8]. There is a similar connection between autonomous decision and the ability to achieve a high level of autonomy. Autonomous ability support promotes the internalization of the individual's external behavioral motivation, while the individual must have appropriate feedback and prepare for the best challenge when receiving the ability support [12]. At the same time, the emotional experience of interest and excitement, happiness, surprise and fun will be accompanied by the

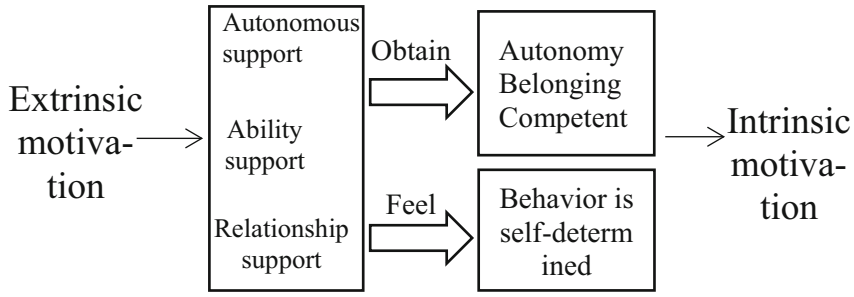

Fig. 3. Internalization process of anti-fraud learning motivation

cognitive activities stimulated by intrinsic motivation. Through motivation internalization, learners transform socially recognized values and rules into their own recognized rules or values, and integrate them into the self, finally realizing the continuous process of transforming the extrinsic motivation of anti-fraud learning into internalized motivation and then into intrinsic motivation. In anti-fraud learning, each learner has his or her own needs, interests, and emotions, which are the resources of intrinsic motivation. In the process of anti-fraud education, we should try our best to meet these three basic psychological needs and pay attention to the dialectical relationship between individual initiative and social situation.

5 Optimization of Anti-fraud Learning Model Based on Experiential Learning Theory

Based on the above analysis of the internalization process of extrinsic motivation in anti-fraud learning, this paper proposes to optimize the anti-fraud learning model with the help of experiential learning theory, take the experiential learning theory as the theoretical basis, and make a preliminary design with the Octalysis as the criterion mainly for the first stage of experiential learning theory (see Fig. 4).

Experiential learning provides a more effective way of learning, which can engage learners, bring new feelings and stimuli to learners, and enable learners to memorize and deeply understand anti-fraud knowledge. Here to do a brief introduction to the process of experiential learning so that readers better understand the motive conversion principle: learners completely into the Anti-fraud the actual experience of learning activities, from direct or indirect experience related to Anti-fraud, and then through the multiple dimensions of observation and thinking, will be abstract and summarized the experience, to create a logical and Anti-fraud related concepts and theories. Finally, learners will

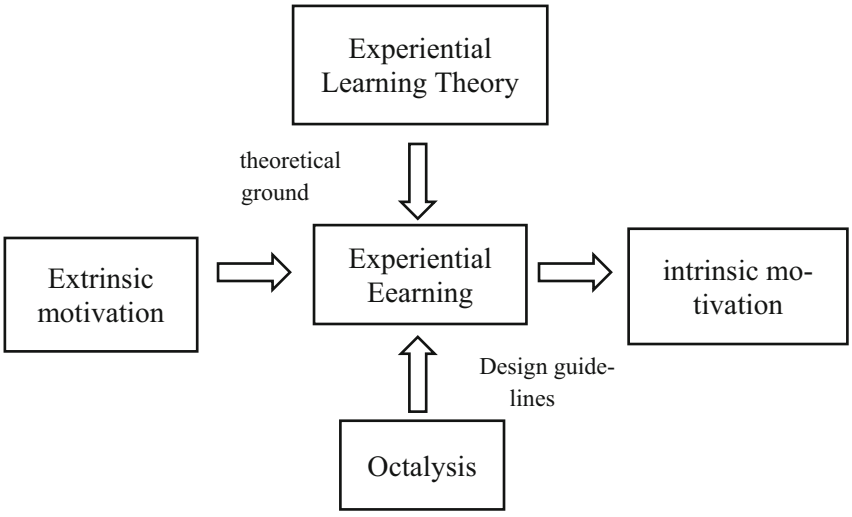

Fig. 4. Overall framework of internalization of anti-fraud learning motivation

verify and apply the newly formed concepts and theories in a practical environment, and then make decisions and solve practical problems based on them. Through repeated anti-fraud knowledge experiential learning, learners will gain a certain sense of autonomy, competence or belonging, so as to change their learning motivation. In order to realize the change of learners' learning motivation and obtain better anti-fraud knowledge learning effect, it is necessary to design concrete experience activities so that they can provide learners with autonomy support, ability support and relationship support. In an experiential learning situation of anti-fraud knowledge carefully designed by octalysis, the learner's learning motivation can be transformed from external motivation to internal motivation through continuous experiential learning. In this paper, octalysis is used to design concrete experience activities, such as Drive 1: Meaning, Drive 3: Empowerment, Drive 5: Social Influence, and drive 7: Unpredictability (See Fig. 5).

In the design of drive 1, the designer can give the learners the mission and goal of anti-fraud by means of early narrative and shaping the image of heroes, so that the learners can think that what they have done has great significance. The drive is the source of the internal trigger or internal behavior of the user. For example, combining the real environment and illusory imagination, constructing an anti-fraud task with learners as the core character, and entrusting learners with the mission of fighting against fraud groups.

In the design of drive 3, the designer can set up multiple options, branches, combinations or other means to make the learners pay some imagination and creativity to solve the problem, and give the learners feedback, so that the learners in the learning process has been kept fresh and attractive. For example: in the process of concrete experience activities, by providing multiple clues, let learners complete the task of preventing the victim from being cheated further. It is important to note that the creative process is draining for learners and abuse of Drive 3 should be avoided.

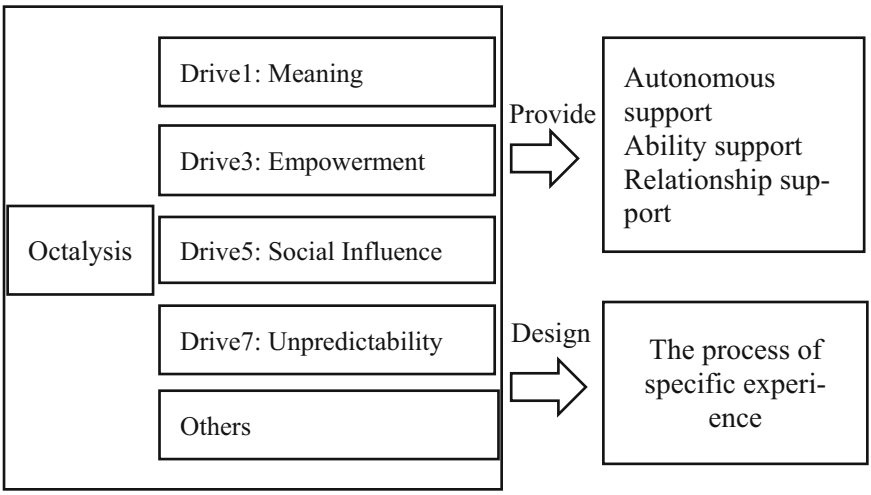

Fig. 5. Design concrete experience process based on Octalysis

When designing Drive 5, designers can meet the social needs of learners through forums, comment sections, group tasks, etc., thus creating enjoyable experiences. For example, let the learners participate in the learning of anti-fraud knowledge in the form of a group and give the group learning tasks.

In the design of Drive 7, the designer should make the concrete experience activities unknown and random, that is, let learners do not know what will happen, in order to fully mobilize the curiosity of learners. For example, let learners in the process of experiential learning do not know what type of fraud they will experience. At the same time, the combination of Drive 3 and Drive 7 can bring a stronger experience.

Furthermore, designers can make full use of Drive 2: Accomplishment. Motivate learners by setting challenging goals. In addition to the above examples, designers can also use their imagination and make appropriate use of other drivers to design specific experience activities.

In summary, a transformation model of anti-fraud learning motivation based on gamification theories can be obtained (as shown in Fig. 6).

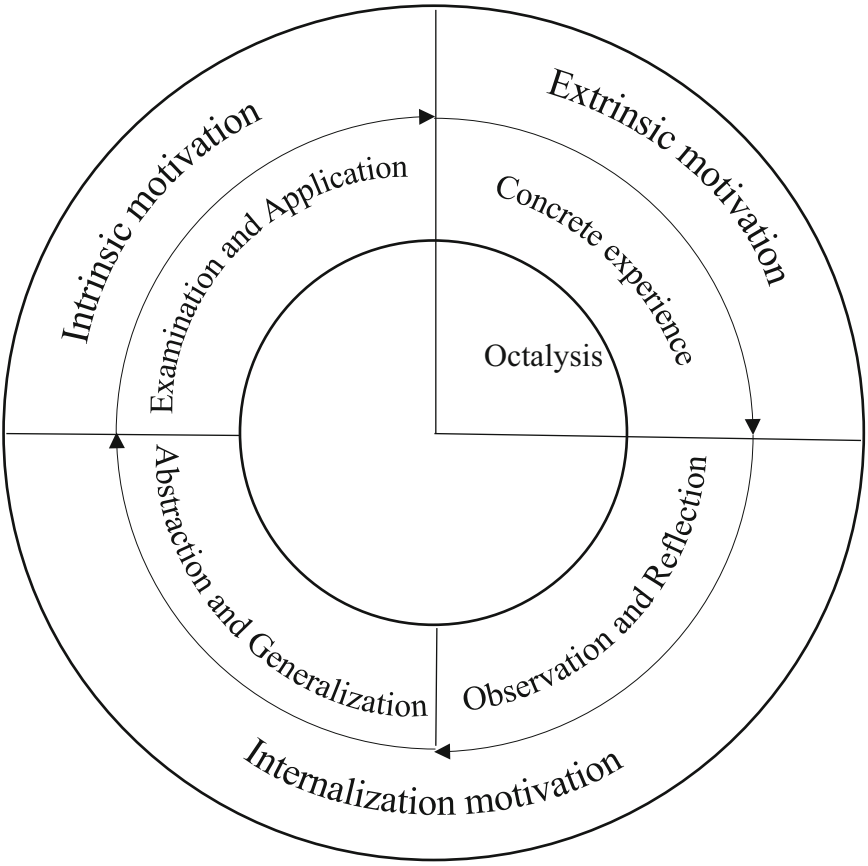

Fig. 6. Transformation model of anti-fraud learning motivation based on gamification theories

6 Conclusions

The research on gamification of anti-fraud education is still in the exploratory stage. This paper proposes a transformation model of anti-fraud learning motivation based on gamification theories through Self-determination Theory, Experiential Learning Theory and Octalysis.

Firstly, based on the Self-determination Theory, this paper analyzes the existing problems of anti-fraud motivation, and concludes that the current motivation of learners is mainly external regulation, a kind of external motivation. According to Self-determinism and Cognitive Evaluation theory, the key to motivation internalization is as follows: first, autonomy, competence and belonging are three basic internal psychological needs; The second is that while experiencing achievement, individuals must also feel that their actions are self-determined. Therefore, this paper concludes that the process of anti-fraud learning should be started from three aspects: autonomy support, ability support and relationship support, so that learners can transform the socially recognized values and rules into their own recognized rules or values through motivation internalization.

Secondly, through the Experiential Learning Theory, this paper concludes that anti-fraud learning achieves the purpose of internalization of learning motivation after four stages: concrete experience activities, observation and reflection, abstraction and generalization, examination and application. At the same time, the drivers of Octalysis, such as " Meaning", " Empowerment ", "Social Influence " and " Unpredictability ", are used to complete the design of experiential learning situations.

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