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Creation Loop Example of IDC Theory: CoCoing.info

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Abstract: Advocated by a group of Asia researchers, a design theory named IDC (Interest-Driven Creator) is proposed to support system designers to design learning system. The IDC theory as a learning-activity design theory has three major anchored concepts that are Interest Loop, Creation Loop, and James' Habit Loop. Furthermore, each of the anchored concepts has three well-defined components. For instance, the Creation Loop of the IDC theory is consisted of acquiring, combining, and staging components. From a learning system design perspective, the IDC theory provides a useful reference framework to guide the system designers on how to design a learning system. In this article, guided by the Creation Loop anchored concept of the IDC theory and the Creation Loop components, a social networking platform named CoCoing.info is implemented and illustrated. Learners on the platform can acquire their knowledge collaboratively, combine their knowledge in a shared workspace, and stage to present their work in the classroom. The developing experiences of the CoCoing.info indicate that a well-designed developing guideline such as the IDC theory provides system designers an effective and accurate developing process.

Keywords: IDC Theory, creation loop, CoCoing.info, social networking platform

1. Introduction

With technology evolution, learners utilizing information and communication technology (ICT) like mobile phone, tablet, and laptop computer can easily practice their learning activities anytime and anywhere (Wong, Milrad, & Specht, 2015). This movement has undoubtedly affected how people learn (Sawyer, 2005). However, adopting ICT to enhance learning requires a deliberate design (Chan et al., 2006) since designing ICT in learning is an interdisciplinary study covers various domains, such as social interaction, learning behavior analysis, educational goal, learning activity design and, no doubt, ICT. From an ICT enhanced learning designer perspective, too many design variables make ICT enhanced learning system design very challenging and difficult. Therefore, a well-elaborated reference framework might provide the designers a clear direction on how to design a learning system effectively and accurately.

To let the designers a clear design guideline, a group of Asian researchers has been developing an Interest-Driven Creator (IDC) theory which is a design theory based on three anchored concepts. The three anchored concepts are Interest Concept, Creation Concept, and Habit Concept. Each of these concepts is represented by a loop that comprises three components. For example, Interest Loop is consisted of Triggering, Immersing, and Extending components; Creation Loop is consisted of Acquiring, Combining, and Staging components; and James' Habit Loop is consisted of Cuing Environment, Routine, and Satisfaction. With technological support, the IDC theory developers advocated that the design of learning activities based on the IDC theory will enable students to develop their interest in learning.

When adopting technology in learning, a well-designed framework will improve the design quality (Chan et al., 2006). With technological support, the learning activities design based on the IDC theory will enable students to develop their interest in learning. In this study, by adopting the Creation loop of IDC theory, a social networking learning system named CoCoing.info is illustrated. On the CoCoing.info system, the learners can acquire knowledge, combine knowledge, and stage to present their combined outcomes. The experience of adopting IDC theory on designing the

CoCoing.info platform reveals that following a deliberate learning theory enables the designer paying much attention to the learning system design systematically and accurately.

2. CoCoing.info: An Illustrating Example of the Creation Loop

2.1. CoCoing.info Use Case

As mentioned above, the IDC theory designers argued that learning can be regarded as a process of creation and vice versa. Based on the Creation loop anchored concept, the Creation loop is further decomposed into three components which are acquiring, combining, and staging. Meanwhile, each of the three creation components can be a standalone learning activity. From the design point of view, the decomposed components design as a reference framework is helpful to guide the system designers to design their learning system. Based on the design philosophy, a social networking platform named CoCoing.info is designed (Shih & Chang, 2016). Figure 1 draws an outline of how the CoCoing.info platform fits into the Creation loop concept. As displayed in Figure 1, based on the three creation loop components, three screenshots are shown to illustrate the three components, correspondingly.

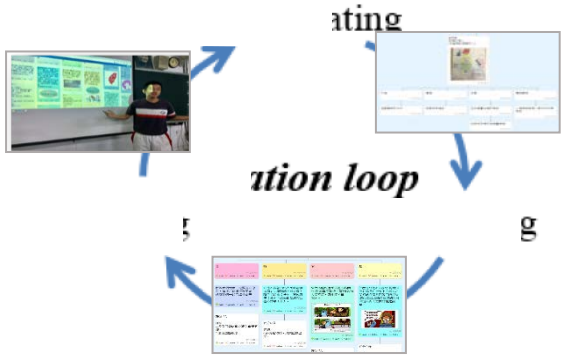

Figure 1. The Creation Loop and the CoCoing.info Platform.

The CoCoing.info is a social networking platform where learners could construct and share their personal concepts to themselves, to their friends and groups, and to the public.

Figure2 illustrates the CoCoing.info platform design, which provides functions that enable learners to acquire knowledge, combine knowledge and stage to share their knowledge.

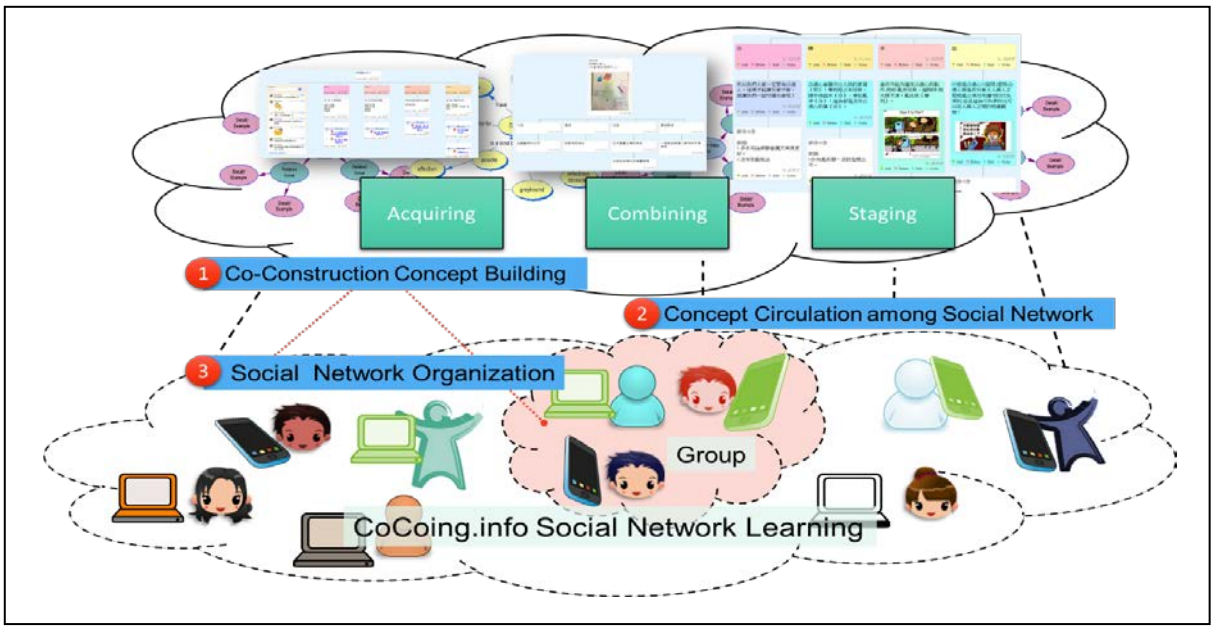

Figure 2. The Acquiring Stage of CoCoing.info activity.

2.2. CoCoing.info on Acquiring Stage

According to the IDC design theory, at Acquiring stage, the designers concern taking in inputting knowledge from the outside world to build one's background knowledge. When speaking of creation, there are two possibilities. They are the individual creation and group creation. Those design principles were adopted in the CoCoing.info design process.

On CoCoing.info platform, to facilitate learners to build their background knowledge, each learner has a personal space to build their concept map. Adopting concept map on CoCoing.info is because concept map is an effective tool and has been widely applied in various learning fields (Novak, 1995; Novak, 1998; Cañas & Novak, 2008; Chiou, 2008), and concept map can be applied to assess learner's understanding (McClure, Sonak, & Suen, 1999). On the CoCoing.info platform, for a specific topic, learners are provided with a set of tools to acquire their knowledge by drawing out their concept map. A learner on the platform can not only acquire knowledge individually but also from a group to explore knowledge collaboratively. All the students invited can be involved in the group concept building activity.

Figure 3 illustrates an instance of a person's concept map. The leaner draws out the concept after completing a book reading. The top of the figure is the book's title. Below the title, the student can explicit their idea by adding new concept nodes. Each user can represent and explicate their personal concepts through the user interface displayed in Figure 3. On the CoCoing.info platform, the user can create an idea and then add a node, delete a node, color a node or add text on the selected node based on the created idea. Through the interface, the user can easily draw out their concept.

Figure 3. The Acquiring Stage of a CoCoing.info activity.

2.3. CoCoing.info on Combining Stage

The IDC theory indicates that the learners at Combining stage refer to generate new ideas or things by combining existing ideas which have not been combined before. Based on the IDC theory guideline, the students on the CoCoing.info platform are formed as a group to combine their knowledge. Before entering this stage, all the students have built enough background knowledge at the Acquiring Stage.

Figure 4 displays an instance in which all the students build their background knowledge to construct an idea collaboratively. At this stage, the teacher just gives the students a topic and a guideline of the topic. The student based on the teacher's introduction and their background knowledge to discuss their idea, and then to combine a new product with their peers.

At Combining stage, the students learn how to express their ideas effectively. In the process, they can learn from each other, help each other, be recognized by each other, and build their self-confidence.

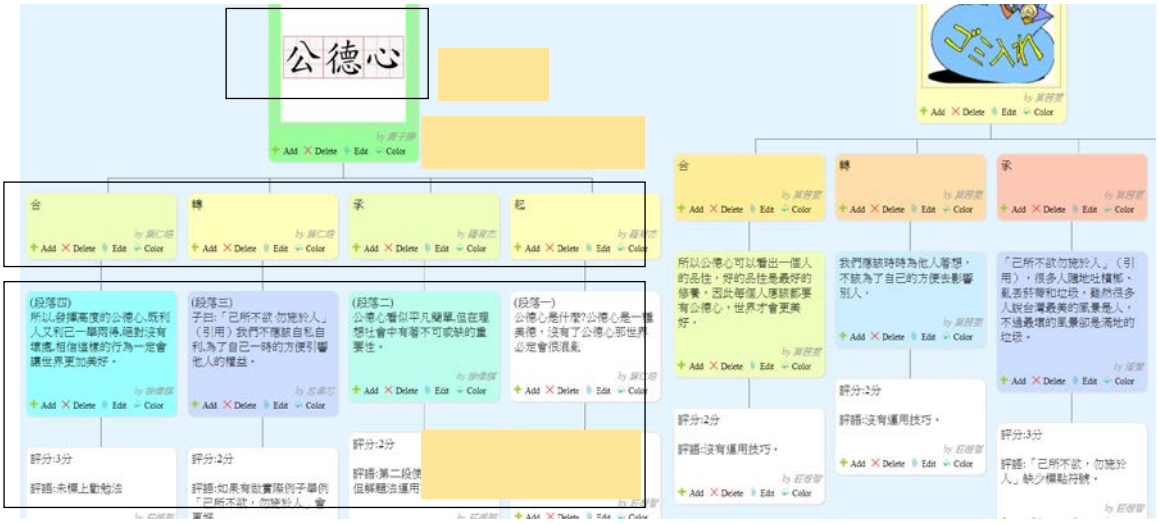

Figure 4. The Combining Stage of a CoCoing.info activity.

2.4. CoCoing.info on Staging Stage

According to the IDC theory statement, the Staging stage relates to improving the novelty and value of the created product through interactions with a community. Once the students have completed the Acquiring Stage and Combining Stage, they have enough background on the specific topic with combined knowledge. They are, at the Staging Stage, ready to present their knowledge to their peers and to get feedback from their peers.

Figure 5 shows an example of a student who is presenting the combined idea. With the CoCoing.info platform, the student can easily show their idea on the screen and present their work to their peers.

Figure 5. Staging Stage of a CoCoing.info Activity.

3. Discussion and Conclusion

As mentioned above, guided by the IDC theory, in short, creation is the process of acquiring, combining, and staging to refine knowledge. By creating, they progressively expand their relevant communities, sustaining their effort to contribute to them, building their self-esteem, and ultimately attaining self-actualization. Acquiring stage lets students build their background knowledge for further discussion, Combing stage triggers students to exchange and to consolidate idea, and Staging enables students to receive peer feedbacks for improving their creations' novelty and value.

In this study, based on the IDC theory guideline, the authors report a platform named CoCoing.info. On CoCoing.info, the users can practice the three concepts of the IDC Creation loop that consists of Acquiring, Combining, and Staging Stages. Students on the CoCoing.info platform can acquire knowledge personally in a concept map format, combine their knowledge with their peers, and then stage to present their idea to their peers to collect feedbacks.

Learning activity design is a complicated process. Designers will encounter difficulties if they try to manage too many complex design concepts simultaneously. More specifically, for a system designer, handing too many design concepts especially educational design concepts at the same time will let the user hard to focus on developing the learning system. With the IDC theory, only *anchored concepts*—interest, creation, and habit—are considered. With these anchored concepts, designers can begin to design at a macro-level, component concepts. The developing experiences of the CoCoing.info indicate that such kind of well-designed developing guideline theory provides system designers an effective and more accurate developing process.

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