

Creative learning in 3d modeling education essay



**ASSIGN
BUSTER**

Creative is a topic of wide scope that is important at both the individual and societal levels for a wide range of task domains. At the individual level creative is relevant, for example, when one is solving problems on the job and daily life. At a societal level, creativity can lead to new scientific findings, new movements in art, new inventions and new social programs. In order to develop more innovative learning outcome and student's creativity, lecturer must encourage their students to become more creative. The investigations of education system have started in the development of student creative abilities and skills. This paper proposes an evaluation model for enhance creative learning in 3D modeling. The evaluation model is based on the elements of creative cognition and process of 3D modeling.

“ Creative Thailand Building Thailand's Economy with Creative” is a campaign run by Thailand Creative and Design Center (TCDC), of knowledge management and development, with an aim to create public awareness toward the creative economy and promote the creative industries as a key for the national economic development. It seem too similar with the Europe development in creativity program, 2009 has been declared “ European Year of Creativity and Innovation”. The decision taken by the European Parliament and the Council is based on the conviction that “ Europe needs innovation, and learning systems which inspire innovation” and that creative should be seen as a driver for innovation and as a key factor for the development of personal, occupational, entrepreneurial and social competences. (Michela & Francesca, 2003). Theories and ideas about creativity started far back in history, according to Ryhammer & Brolin (1999), the development of new ideas and original product is particularly human characteristic. The notion of

' inspiration' or ' getting an idea' is found in the Greek, Judaic, Christian and Muslim traditions and is founded on the belief that a higher power produced it. During the Romantic era in Europe, the source of inspiration and its artistic expression was seen as being the human being. During this era, originally, insight, the creative genius and the subjectivity of feeling were highly valued. From the end of the nineteenth century, people began to investigate the question of what foster creativity. (Anna, 2001)

Guilford (1950) started that " a creative act is an instance of learning...[and that] a comprehensive learning theory must take in to account both insight and creative activity". As a matter of fact, research around the topic " Creativity" has been started attracting interest in recent years: most creativity research concerns the nature of creative thinking, the distinctive characteristics of the creative person, and the development of creativity along the individual lifespan and the social environments more strongly related to creative activities (Kerr & Gagliardi, 2003; Simonton, 2000). Besides, following the idea that " Education has the dual power to cultivate and stifle creativity" (UNESCO, 1972), the relationships between creativity and learning are also being investigated and the idea that there are basic skills and attitudes that can be fostered in educational setting as potential conditions/ agents of creativity, has been widely recognized (Michela & Francesca, 2003).

Understand 3D Production Pipeline

The nature of 3D production is constantly evolving as new software tools are created and computer technology advances. Today 3D animation is used to produce feature-length films, short films, television and cinema advertising, <https://assignbuster.com/creative-learning-in-3d-modeling-education-essay/>

television series and specials, computer games, interactive movies and educational games. Production pipeline can be divided into three major categories: pre-production, production and post-production. 3D modeling is a part of pre-production and production pipeline as following details:

Pre-Production

Model Design, creating of all necessary characters, set, and prop design.

Especially for character design, the following design sheets are created

full-front view

half-front view

left-side view (left profile)

right-side view (right profile)

full-back view

half-back view for the full figure

facial expressions

key character poses

walk cycle

character mouth shapes for lip sync

size comparison

Production

<https://assignbuster.com/creative-learning-in-3d-modeling-education-essay/>

Modeling, constructs the model from primitive shapes of polygon

Texturing, the process of creating/applying/painting textures to characters, sets and props

Developing Creative evaluation learning model

In order to increase creativity in learning 3D modeling process, the creative processes will be concern. According to While Stenberg (2005) the creativity should be regarded as a complex, multidimensional and multi faceted human characteristic involving different aspects of human behavior and thought.

Researchers have finally recognized that creative processes are mainly on: cognitive capacities (understanding and building knowledge), meta-cognitive abilities (i. e. the capacity of perceiving and elaborating weaknesses and strengths of own reasoning and/or actions), affective involvement in the tasks to be performed (which implies positively accepting the task and actively work to reach the intended goal) (Amabile, 1996; Sternberg, 1999; Torrance et al., 1989).

Creativity

Meta-cognitive

Monitoring

Regulating

Evaluating

Monitoring

Regulating

Evaluating

Monitoring

Regulating

Evaluating

Receiving

Responding

Receiving

Responding

Receiving

Responding

Affective

Cognitive

3D Modeling Process

Generating

Planning

Producing

Generating

Planning

Producing

Generating

Planning

Producing

Model Design

Texturing

Modeling

Figure 1. The model to evaluate the 3D model learning activities

According to the model to assess learning activities from the creativity viewpoint (Michela & Francesca, 2003), there are three main categories of indicators;

The cognitive category, which is defined by Bloom et al. (1956) as dealing with “ the development of intellectual abilities and skills” and refers to the students ability of reasoning on the proposed contents, linking existing elements, making hypotheses, thus constructing new meanings to accomplish the task at hand.

The affective category, which was argued by Kearney (1994) as emerging from “ the internalization of attitudes toward content or subject matter”, and <https://assignbuster.com/creative-learning-in-3d-modeling-education-essay/>

addresses the students' interest, opinions, emotions, attitudes, and values (Anderson & Krathwohl, et al., 1964).

The meta-cognitive category, which is defined by Flavell (1976) as dealing with “ one's knowledge concerning one's own cognitive processes”, and refers, instead, to the ability demonstrated by the student to take the overall process under control, either during, or at the end of the learning activity.

The cognitive aspect, as referred to the New Taxonomy of the Educational Objectives proposed by Anderson & Krathwohl (2001), the elements of creativity and 3D Animation process will describe as following:

Generating, a process which involves the mental representation of the problem at hand (whatever it could be), in all aspects and details, possibly making comparison with other problems/situation.

Planning, namely the process of figuring out and mentally designing problem solutions or even defining methods and plans to achieve a goal.

Producing, which is the process which deals with the actual enactment of what was generated and then planned and which may give rise to a new act or product.

The affective aspects, by referring to existing research in the affective domain field (Bloom et al., 1956; Rovai et al. 2009), two indicators have been adopted, able to account for students ' attitudes towards.

Receiving, or playing attention to stimuli. This is denoted by involvement and immersion in learning activities and includes being curious, motivated, trying over and over...

Responding, or reacting to stimuli. This refers to the actual expression of positive/negative feeling: satisfaction, joy, disappointment, excitement, depression, fear...

The meta-cognitive aspects, following the recent works of both Kim et al. (2009) and Murphy (2008), three main indicators have been considered, namely those related to the students capabilities of:

Monitoring, the enacted learning process, which implies the attitude and the ability of recalling and evaluating.

Regulating, one's own behavior on the basis of the perception/understanding of previously performed actions

Evaluating, one's own activities/performance from the viewpoint of the final outcome; this implies acquiring the awareness of what has been done by criticizing single actions in the light of comprehensive estimation/judgment of the results obtained

The idea is that the lecturer should use the model to observe the learning process through the 3D modeling process. The observation is including of skills and attitudes which are considered potential against of creativity. The evaluation of activities is conducted with the model evaluation form, using as a tool helps the lecturer to keep track of the process.

Table 1. The grid of organizing the creative evaluation activities in cognitive domain

Cognitive

3D modeling process

Generating

Planning

Producing

Model Design

-making a good problems solving (combines, estimates, compares)

Define methods and making schedule for model design sheet

-is correct methods planning

-is reasonable schedule

Concept/Idea generating and

making design sheets

-is generates new concept/idea

-is meets script and story

-is correct format

Modeling

-making a good problems solving (combines, estimates, compares)

<https://assignbuster.com/creative-learning-in-3d-modeling-education-essay/>

Define methods and making schedule for modeling

- is correct methods planning

- is reasonable schedule

Making 3D model

- is using correct tools

- is using correct modeling techniques

- is correct topology

- is meets design sheets

Texturing

- making a good problems solving (combines, estimates, compares)

Define methods and making schedule for texturing

- is corrects methods planning

- is reasonable schedule

Creating texture images and making texture mapping to 3D model

- is using correct tools

- is using correct texturing techniques

- is good texture quality

-is meets design sheets

Table 2. The grid of organizing the creative evaluation activities in affective domain

Affective

3D modeling process

Receiving

Responding

Model Design

-is curious

-is motivated

-is frightened

-express joy

-express disappointment

Modeling

Texturing

Table 3. The grid of organizing the creative evaluation activities in meta-cognitive domain

Meta-Cognition

3D modeling process

Monitoring

Regulating

Evaluating

Model Design

-is aware of the process

-reflects on the process

-controls the process

-adjusts the process

-judges the process

-evaluates the outcome

Modeling

Texturing

Production stage

Creativity viewpoint

Creative check list

Production Process

Student1

<https://assignbuster.com/creative-learning-in-3d-modeling-education-essay/>

Student2

Student3

Student n.

Design model

Cognitive

Generating

Good problem solving

Planning

Good method planning

Reasonable schedule

Producing

generates new concept/idea

meets script and story

correct format

Affective

Receiving

curious

motivated

frightened

Responding

express joy

express disappointment

Meta-cognitive

Monitoring

aware of the process

reflects on the process

Regulating

controls the process

adjusts the process

Evaluating

judges the process

evaluates the outcome

Modeling

Cognitive

Generating

Good problem solving

Planning

Good method planning

Reasonable schedule

Producing

using correct tools

using correct modeling techniques

correct topology

meets design sheets

Affective

Receiving

curious

motivated

frightened

Responding

express joy

express disappointment

Meta-cognitive

Monitoring

aware of the process

reflects on the process

Regulating

controls the process

adjusts the process

Evaluating

judges the process

evaluates the outcome

Texturing

Cognitive

Generating

Good problem solving

Planning

Good method planning

Reasonable schedule

Producing

using correct tools

using correct texturing techniques

good texture quality

meets design sheets

Affective

Receiving

curious

motivated

frightened

Responding

express joy

express disappointment

Meta-cognitive

Monitoring

aware of the process

reflects on the process

Regulating

controls the process

adjusts the process

Evaluating

judges the process

evaluates the outcome

Figure 2. The evaluation model form

The sample teaching activity

We are going to use some sample activities to briefly explain how to teach for creativity in 3D modeling lesson as following:

Students are asked to form groups of 2-4

Each group is asked to create “ the inspiration machine”

Each group listing as many ideas as possible then choosing the best ideas

Each group follow the 3D modeling process

Lecturer monitoring and tracking student activities then give score for students by using creative evaluation form (figure 2.)

Conclusion

In this paper has been briefly presented to evaluate learning activities in 3D modeling process to the development of student abilities and skills, which is the core both of creativity and modeling process. The propose model is still in the early stages of development and just started with 3D modeling process, which is about 20 percentage of 3D production process. The next development on this model will be test and find out the efficiency of use of this creative evaluation model to the real situation on 3D modeling process. If the efficiency is positive, the development of creative evaluation model for 3D production pipeline will be continue, which the goal to increase students' creativity to making a new movement in 3D film industry. To integrate creativity in to the lesson, lecturer should encourage learners to think from difference perspectives and withhold comments on the proposed ideas during the brainstorming stage. They should also facilitate learners explore <https://assignbuster.com/creative-learning-in-3d-modeling-education-essay/>

the alternatives for doing things and develop learners' ability to detect connection between ideas. Furthermore, teacher should encourage learners to produce original ideas and solve problems appropriate to context. (Yiuchi, 2009).

Acknowledgement

I would like to thank to staff in the School of Information Technology, Mae Fah Luang University, whose encouragement, guidance and support from the initial to the final.