IASDR 2019
International Association of Societies of Design Research Conference 2019
DESIGN REVOLUTIONS

Manchester School of Art
Manchester Metropolitan University
02-05 September 2019

A Study on the Effective e-Learning Content Image Composition and Direction Method for Generation Z

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It has been more than 20 years that e-learning has spread in Korea in earnest. In this process, many universities have introduced and operated e-learning. However, due to changes in the media environment, the tendency toward media adoption by the 'Generation Z*' has diversified, and the content creation environment has also undergone many changes. This change in environment has a lot of influence on e-learning. The proliferation of smart devices and MOOC (Massive Open Online Courses) has caused many changes in learning environment and learning behavior of e-learning, making it difficult to expect learning effect with existing e-learning production method. The purpose of this study was to examine how the composition and design of online education contents should be changed and applied according to the tendency of learners who have evolved in various ways. Several suggestions have been drawn from the study. First, the design approach to the e-learning screen composition. Second, fragmentation into small chapters. Third, the speed of lecture, the diversity of accent, and the proper screen switching speed. Fourth, the natural appearance of daily life. All of these things can be summarized as a necessary factor for successful e-learning.

* Generation Z: The generation reaching adulthood in the second decade of the 21st century, perceived as being familiar with the Internet from a very young age. 1990s as the next in the alphabetical sequence of Generation X and Generation Y. (Oxford Dictionary)

Keywords: e-learning; personal media; video directing; contents planning; teaching and learning

1 Introduction

Online education has developed with the development of science and technology.

Gráinne Conole (2013) presents a timeline to introduce the key techno logical developments in online education over the last 30 years as shown in Table 1.

Table 1 A timeline to introduce the key techno logical developments in online education

Timeline	The key techno logical developments in online education
1980s	Multimedia resources
1993	The Web
1994	Learning objects
1995	LMS (Learning Management System)

1998	Mobile devices
1999	Learning Design
2000	Gaming technologies
2001	Open Educational Resources
2004	Social and participatory media
2005	Virtual worlds
2007	e-Books and smart devices
2008	MOOC (Massive Open Online Courses)
2010	Learning analytics

Source: Gráinne Conole (2013)

And according to the e-learning status announced by the Ministry of Education and Human Resources Development of Korea, it is stated that Korean e-learning started with the spread of computer use to education in the 1980s. In 1998, 15 institutions were generalized to the public while piloting cyber universities. In the early 2000s, the evaluation of cyber universities was smooth and commercialized in primary and secondary education. In 2003, e-learning support centers were established in each area. The reason why online education is spreading and developing is that online education is able to do learning activities beyond the limit of time and space. In addition, it does not limit the specific time of content in terms of learning achievement, this is because it has the advantage of being able to learn repeatedly until fully understandable. Therefore, online learning is focused on improving learning achievement rather than learning time, so content production has been developed to improve achievement. In recent years, however, people habitually use mobile on a daily basis, and these lifestyles have been reflected in the educational environment, so people are becoming accustomed to short and dynamic content such as YouTube videos and increasingly emphasizing the convenience of content. Table 2 summarizes the Korean e-learning trends by timeline. Of course, education does not have to meet the demands of education consumers or consumers unconditionally, but because of the characteristics of online education contents that depend on changes and developments of media, it is important to focus on the tendency of learners according to the age change and personalized education we must not overlook the current direction of education. Therefore, the purpose of this study is to examine how the constitution and design of online education contents should be structured and directed according to the tendency of the learners who are changing in various ways.

Table 2 A timeline of Korean e-learning trends

Timeline	Periods	Trends
1980s	Early-stage	e-Learning started with the spread of computer use to education
1998	Settlement	15 universities were generalized to the public
2000s	Development	Commercialized in primary and secondary education
2003	Stable period	e-Learning support centers were established in each area
2019	Diffusion	21 universities. Widely and easily spread by Mobile and YouTube

2 Online education contents and video image design

Most e-learning contents consist of images using media. Jyoti Chauhan and Anita Goel (2015) point out that the instructors who make video lectures focus on various aspects of video, including video interfaces, functions and characteristics, as well as lecture notes.

"Video length, speaking speed, and the type of production." In other words, if the understanding of the characteristics and elements of the image is supported, the pedagogy can be accurately designed according to the intention of the instructor, which will affect the learning effect.

Visualization refers to visualizing a message to be delivered based on storytelling as a moving image. In order to visualize a moving image, it must be configured according to the communication grammar of the image so that the correct message can be transmitted. This visual grammar means the method of presentation, and visualizing it is the composition of the screen.

2.1 Aesthetic composition of screen

The composition of the image is represented by mise-en-scene. Mise-en-scene refers to the composition of the screen, that is, the aesthetic composition of the screen. A composition is the most basic image structure as a matter of how to arrange objects in the screen. Among the various image principles, the third law is a typical method of drawing a virtual line by horizontally dividing the screen into thirds and then arranging the object so that the object is arranged on the virtual line as much as possible. Since the image expresses a moving object as a visual message, the rhythm, beat, lightness, intensity, and magnitude of the motion in the screen determine the nature of the image and stimulate the complex senses of the human being through the visuospatial attributes related thereto Emotions. According to Herbert Jettle (2013), the viewer's view is through the camera, so the screen chosen by the cameraman should be centered on the facts of the incident, as well as identifying the crucial nature of the event and effectively communicating it.

Table 3 Four components of the shot related to the composition of the camera.

Components of shot	Screen compositions with the camera angle
Camera position	front shot, side shot, slice shot, back shot
Camera angle	level shot, high angle shot, low angle shot
Camera size	extreme close up, close up, medium shot, long shot, extreme long shot bust shot, waist shot, knee shot, full shot
Point of view	bird-eye view, high level position, eye level position, waist level position, low level position

The purpose of screen composition is to get the viewer's interest and reaction. In Table 3, the camera position refers to the position of the camera with respect to the subject, and is an important factor that directly affects the screen composition with the camera angle. The size of the shot depends on the size of the subject on the screen. Appropriately arranging the personality and viewpoint in terms of the interaction between the visual content and the viewer is a mediator that causes various interactions from the viewer. Therefore, the screen composition of the e-learning contents should be structured so that the learners can naturally immerse themselves in the screen in harmony with the overall flow of the program.

2.2 Changes in learning time

The playing time of the e-learning lecture video contents defined by the Ministry of Education of Korea is defined as at least 25 minutes for the online contents to be played for 50 minutes in offline class. This is 25 minutes of pure lecture content, excluding the time that occurs between faculty and students in the lecture room. For 3 credits, students must take 75 minutes of lecture content. Anna Hansch et al. (2015) noted the length of the video and said, "Students prefer short videos." In fact, most of the MOOC content is composed of short

videos within 10 to 20 minutes. Barbra Burch (2018) reported that "the majority of students liked that video content was helpful for learning, and the video's running time was kept to less than 15 minutes". Professor Philip Guo (2013) from the University of Rochester also emphasized the usefulness of short videos, saying, "Optimal video length is less than six minutes." Debbie Morrison (2014) Increase the degree. Student participation is drastically lowered after 6 minutes of running time". Particularly, due to the smart device, the consumption place of the contents spreads to the street, and the format of the image contents is changed to a short unit time of less than 5 minutes. E-learning content should also be approached as a chapter-type content strategy considering short learning time according to the changes of learners and learning environment. The most significant difference between general e-learning contents and chapter type contents is the difference of teaching-learning design due to difference of learning time per unit contents. While there is no clear academic evidence that short videos can help improve learning success rates, examples of successful learning completion are characterized by short running-time videos. Based on the results of many researches that high learning satisfaction leads to high academic achievement, it can be predicted that contents with a short playback time will contribute to enhancement of academic achievement in the modern educational environment where media is deeply extended in our lives.

3 Changes in generation Z and visual content

In the study of recognition of the success factors of the e-learning lessons of Korean-ASEAN cyber university teachers, Jung Young-Ran et al. (2016) pointed out that the lesson design is "whether or not the interesting composition of the contents was made so as to induce learning motivation" Learning motivation skill in class "as an important success factor. These results suggest that how to motivate learners and keep them motivated in e-learning is an important success factor in e-learning class. In other words, in order to induce motivation of learners, content design should be done considering the habit of learners.

3.1 Daily naturalness

Among the components of the e-learning image, the outlier is a component called 'lecturer'. It is similar to the roles of actors and characters in movies, advertising, and animation. The learner takes the lecturer's natural dialogue lecture, gesture, expression, pronunciation and voice very seriously. Therefore, it would be desirable to produce images that include natural movements, such as in a lecture room, such as a gesture of a teacher and a writing style. As a result of the research by Choi Yoo-mi (2018) on the actual learners, the learners seemed to be uncomfortable to the learners because the sight of the professor gazed at the air or side, and the gaze did not meet with the students, while they're talking. The 'Generation Z', born in the mid-1990s and early 2000s, features a 'digital native' generation that has grown in digital environments since childhood. They are familiar with the Internet and IT, preferring images and video content rather than smartphones and texts over TV and computers. For them, video is the language of daily life. For them, the unnatural appearance of a teacher would be a factor in avoiding the learning contents itself. In recent TV screen programs, the scenes of mistakes that were considered to be NG in the past are being broadcasted without filtering, and the moderators naturally acknowledge that they are mistakes and changed to a format that continues the program. This phenomenon is interpreted not as an artificial and formal content but as a tendency of a generation Z that desires non-formal and improvisational daily naturalness. In addition, the appearance and upbringing of the video

production staff are exposed on the screen. The fact that the director, camera director, writer, lighting and sound engineer, and even the manager, not to make mistakes in production appear on the screen means that the image is not a video but a reality. In other words, for media generation, video is a part of life connected with daily life. Future contents of e-learning should be based on the needs of generations. The active and natural activity of the instructor, the lecture at a speed faster than usual daily conversation, and the most important eye contact are the making-content strategies of daily life that can be shared with the generation Z, in terms of e-learning teaching and learning methods.

3.2 Changes in Video Editing

Screen composition of video contents and speed control of video flow in scene change are very important editing factors. The video speed of the e - learning contents is not only the learning effect but also the learning motivation and learning continuity. On the audio side, Guo, Kim & Rubin (2014) suggests that lecturers feel enthusiastic, fast-paced videos that make learners feel more attractive and ultimately achieve better learning outcomes. According to Choi Yoo-mi (2018), many students actually watch the lecture 1.2 times faster than the normal speed when taking the contents of e-learning lectures. This means that the learners do not need to speak intentionally slower than usual because they can listen again whenever they want. Most of the content ranked high on the popularity of YouTube, which is one of the media in recent years, can feel the speed of word is quite fast. Even the breathing space between the syllable of narration is removed to make it feel as if it is a mechanical noise.

On the video side, the speed of screen switching is considered to be a very important part in terms of giving the learner a constant visual stimulus. The screen composition of the e-learning contents is basically a case where the instructor and lecture material are synthesized on one screen. As a result, the screen switching speed according to the lecture contents of the instructor is shortened so that the screen can not be switched from one minute to longer than 10 minutes. Since the movements of the instructor are generally the movements of the hands and arms, the learner must watch the fixed boring screen for a long time. The recent conversion of YouTube media contents is directed to not exceed 3 seconds on average. Broadcast entertainment programs are also edited to allow continuous conversion without exceeding a maximum of 4 seconds per cut.

Screen switching from 3 to 4 seconds is a normal speed for the Z generation who are born from the media. The fixed screen for more than one minute is forced to get away from the content of the content. This is why in-depth academic research on media acceptance patterns of media generation should be supported during e-learning production. A storyboard review of the screen must be made so that effective transition can be made along with the design of the contents of the e-learning contents.

4 Conclusion

E-learning is based on images. Video content cannot be made by the efforts of a performer. Broadcasting and movies are all arts and designs that require collaboration of dozens of professionals such as planning, directing, screenplay, photography, editing, sound and costume.

The following points can be summarized in planning the e-Learning contents suitable for the media generation derived in this study.

First, a design approach to screen composition is needed for aesthetic composition of e - learning contents screen. Continuous screen composition studies should be done on the visual aspects that can be synchronized to the media generation by applying various image presentation techniques.

Second, the learning time of lecture contents should be divided into short chapters according to change of environment and consumption pattern of media, and concentration should be increased. As the place of media consumption expands, the burden of lecture should be reduced.

Third, the professor should focus on fast speed and intonation like everyday conversation rather than slow and clear speech according to traditional teaching method. It is also desirable to be able to maintain a proper screen switching speed in accordance with the respiration rate of the media generation in the post-work such as editing, thereby causing visual interest.

Fourth, it is necessary to design instructional contents and contents to link the naturalness of daily life to e-learning content. The teaching professor is moving away from the recognition that he is an 'educator', and the consciousness of being a member of entertainment in the viewpoint of educational entertainers is required to be changed. The teaching designers and production staffs are continuously researching teaching methods and screen element design appropriate to the communication grammar of the media generation and new initiatives need to be introduced.

Finally, we need to think about the value of e-learning. This is related to exploring what qualitative goals e-learning is seeking. A good e-learning is possible when teaching development, contents planning and production operation are performed based on consensus on the value goals that teachers, learners, managers, and producers pursue through e-learning.

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Acknowledgement: Especially thanks to Prof. PhD. Kiyoshi Tomimatsu, Prof. PhD. Daewoong Kim and Prof. PhD. Ryoichi Tamura, Department of Design Strategy, Faculty of Design, Kyushu University, Fukuoka, Japan.