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**Intercultural project-based learning and multiliteracy:
An ethnography study on Finnish-Chinese PLATINUM project**

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Here are growing numbers of exchanges and cooperation projects among universities around world. Most of these projects are interdisciplinary and intercultural. Participants' different cultural and disciplines background requires participants to have many abilities to work with others. Although considerable researches have been devoted to personal competences in intercultural project based learning, rather less attention has been paid to how multiliteracy and intercultural group work as project based learning affect the outcome of the project. This present thesis focuses on dialogue between multiliteracy and intercultural project based learning in intercultural university projects. The aim of the study is exploring how intercultural group work as project based learning and students' multiliteracy in dialogue with each others and affect the outcome of the project. The main question is how intercultural project-based learning contributes to participants' multiliteracy and the outcome of designing a virtual reality game. The goals of this thesis are pursued by utilizing the method of ethnography. From observation and interview, the study finds that intercultural group work has a positive influence on students' multiliteracy through collaborations with other members and works on media products. Instruction, restriction, grouping, courses and schedule are key factors for promoting efficiency of intercultural project based learning. This study supports an earlier intercultural fieldwork research about factors fostering intercultural competence on personal level. This study extends an earlier research about the progress of university students' multiliteracy. The study finds that students like to put elements from other culture to the final artifacts. This study gives some empirical experience on how to promote efficiency in intercultural project based learning and the significance of multiliteracy in intercultural project based learning. More virtual reality gamed related intercultural projects could be set for promoting teachers and students' multiliteracy. Empirical driving questions and curriculum schedule should be taken into account before projects start in designing intercultural group work.

Key words: ethnography ,
intercultural competence , media
literacy, multiliteracy, project based
learning, university students ,
virtual reality game

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1.INTRODUCTION

Today we face growing numbers of exchanges and cooperation projects among universities around world. Many of these projects are interdisciplinary and intercultural. In intercultural projects, students with different backgrounds cooperate to make artifacts. The development of intercultural projects among universities has led to the hope to study the implementation of the intercultural project and its pedagogical meaning from students' point of view.

Participants' different cultural and disciplines background requires participants to have many abilities to work with others. For example, Yuan, Bazarova, Fulk & Zhang (2013) did a research examining the influences of different communication styles on obtaining and perceiving expertise in intercultural group work among American and Chinese students. The study found out that confident communication among students affects both expertise recognition and perceived influence. That study also found out that communication with a clear task-goal has positive impact on perceived influence and expertise recognition. The other finding of this research is that dominance and talkativeness cannot predict expertise recognition or perceived influence.

Brendel (2016) did a research to find out which factors can foster intercultural competence based on a one-week multicultural group work excursion. Eight German students and eight Turkey students in the research worked together on a task related to sustainable development. As a consequence, Brendel found out that multicultural fieldwork fosters intercultural learning on a personal level.

Although considerable researches had been devoted to personal competences in intercultural project based learning, rather less attention has been paid to more communal approach like multiliteracy and intercultural group work as project based learning and how multiliteracy and intercultural group work affect the outcome of the project. Hence, the present study explores students' group work in an intercultural project of making a virtual reality game and the implementation of this intercultural project per se.

The overall aim of this research is to understand how intercultural project based learning in dialogue with multiliteracy and how they two affect the outcome of the project. PLATINUM, as

part of my project study in the master degree program in media education, whole name as Playful Approaches to Technology, Interaction and User-centered Media, which is a project aiming to build a simulated nature-based virtual environment to restore stressful individuals, is the study case of this study. Sixteen students from China and Finland are enrolled in PLATINUM. This project included four workshops, started from June, 2016 to August, 2017, produced mediated virtual environments which simulate the Finnish natural forest environments and Chinese traditional gardens. Sixteen students from different study field, including graphic design, game design, environment psychology, media education joined in this project and gathered in Tampere, Hong Kong and Beijing in each workshop. Each workshop lasted one week. During the long gaps among four workshops, there were online group discussion and reading tasks for preparing students to the next workshop. As a participant of PLATINUM, I experienced every stages of this project-based learning and observed how my group members cooperated to build a VR game. My role was designing the story line and game scenes with my group members, studying animals' habits (users transform into different animals in our VR game), going into Finnish and Chinese forest and gardens to explore features with other students and supervisors, and gathering material including sound tracks and items which can be applied to the game. The study uses ethnography as the method to experience, observe and investigate this intercultural project based learning. Research diary, interviews with participants and the records of each groups artifacts are written done for analysis. The study uses thematic analysis to deal with the data.

Focusing to this study, as the case in this study is a VR game related project, the study will discuss how intercultural project based learning in dialogue with university students' multiliteracy and affect the final outcome of the project in designing VR games by observing the case PLATINUM in which university students gathering and designing VR games and juxtaposing components of multiliteracy and intercultural project-based learning.

In chapter 2, project-based learning, multiliteracy, VR game and other abilities (media literacy, design thinking, computer-supported collaborative learning and etc.) that are important for understanding this VR game related project would be discussed in four subchapters. The first subchapter is also divided into two parts: project-based learning and intercultural competence. The second subchapter first discusses multiliteracy and then discusses media literacy as a concept related to multiliteracy. The third subchapter presents design thinking, computer-supported collaborative learning, and VR game which are important means for implementing PLATINUM

and also gives readers a better understanding on the case study. The fourth subchapter finalizes the discussions as conclusions and presents the main question. In chapter 3, the game design based intercultural project case would be presented and analysis on how intercultural project based learning in dialogue with multiliteracy in this case would be presented as well. In chapter 4, the empirical research would be brought back to the theoretical part. In chapter 5, the evaluation and difficulties of the study would be discussed. Chapter 6 would discuss the contributions, limitations and possibilities for further researches.

2. CONCEPTUALIZATION

This chapter presents theoretical literature in four parts: 1) project-based learning and intercultural competence, 2) multiliteracy and media literacy, 3) techniques and new learning methods supporting VR game, 4) questions raised from literature review. This chapter integrates all these concepts together, because a VR game design-based intercultural project related to many concepts and these concepts overlap and interact with each others. This chapter also finalizes the discussions and presents the research questions.

2.1 Project-based learning and Intercultural competence

2.1.1 Project-based learning (PBL)

In the 1990s, education researcher found out that almost all students get bored in traditional classroom. (Csikszentmihalyi, Rathunde, & Whalen, 1993) At the same time, a college assessment showed that students in high school can only understand knowledge superficially. (Thomas, 1999, 2) For increasing students' study engagement and their knowledge acquisition, many curricula researches had been done. As a consequence, project-based learning, onwards written as PBL, shows to be a good way to enhance students' understanding of material.

Besides the needs of a new learning method to improve students' engagement and study outcomes, underpinnings for emerging a new learning method are also important. Thomas (2000, 5-9) found three other learning methods which inspire the emergence of PBL. One is expeditionary learning, which is grow out of wilderness expeditions and emphasis corresponds with outward world and team work. The second is problem-based learning, which initially aims to enhance medical students' hypothetic-deductive thinking skill and then extends into many other disciplines such as math and business. The third one is researches on cognition, which emphasis students' autonomy and challenge. These three learning methods all contribute some strands to PBL, including collaboration and reflection from expeditionary learning, case-based method from problem-based learning and student-centered ways from research on cognition.

According to Blumenfeld (1991), here are two essential components of project-based learning: A driving question and an artifact (or a final product) which responds to the driving question. Thomas summarized five features of project-based learning environments in 1999 by working seven years with teachers who designed, developed and tested project-based science curriculum materials. The five key features are driving questions, situated inquiry collaboration, learning technologies, and artifacts. Driving questions (Thomas, 1999, 18-23) provide a context from where students start their study and research. Good driving questions can motivate students to find out solutions. The driving question should be feasible for students, worthwhile and not harmful to anybody. Situated Inquiry (Thomas, 1999, 18-23) refers to the process and space for answering the driving question. The process of looking for answers of the driving questions always takes a long term. Students need to learn and find answers in empirical world. Thomas (1999, 23-25) also emphasis collaborations in PBL, because students are dominator of project-based

learning, Students, teachers and all other members related to the project need to collaborate to investigate questions and find solutions. A project-based learning environment is a community where all members need to work together to contribute to the final artifacts.(e.g.) By using technology tools to support learning, students can gather data, analyze data and create models and multimedia artifacts. Students can extend their knowledge coverage and make connections to more different ideas and manifestations (Thomas, 1999, 25-29). The creation of artifacts could be in any forms but they should address the driving questions. The final product is an answer of the driving question and a presentation of the learning goals (Thomas, 1999, 30).

In this study, PLATINUM (Playful Approaches to Technology, Interaction and User-centered Media, June, 2016-August, 2017) can be seen as a project based learning environment. It has the five features of project based learning. First, the driving question, making a VR game simulating nature environment to restore players and promote players' wellbeing, was raised by supervisors. This practical and meaningful driving question can motivate students to work together and find out solutions and it's worthwhile. Second, the process of the project lasted one year, including four workshops and some online reading works among each workshop. It gave students enough time to learn and find answers in empirical world. Third, all members including students and supervisors collaborated for the final artifacts in this project. Fourth, students used many softwares and virtual reality devices to create game models. In this process, students extended knowledge coverage and learn skills and ideas from other study fields. Fifth, all group works of PLATINUM made virtual reality games which are related to Finnish and Chinese natures. Players can enjoy natures and get restorative by playing the game. The final artifacts did address the driving questions.

Project based learning is a learning approach which organizes learning around projects. In the 1990s, many researches had been done to find the effectiveness of PBL. However, researchers couldn't get a consensus on the definition and features of PBL. Thus, It was hard to define if a research is really related PBL. Thomas (2000) wrote an inclusive review to summarize all PBL researches before 2000. In his review, Thomas summarizes others' definitions and research results and put forward five criteria to define PBL, which are centrality, driving question, constructive investigation, autonomy, realism. Centrality means that projects are the centre of PBL. Students encounter knowledge and skills while looking for answers to the driving question and they are involved in constructive investigation. Students are autonomic in projects and projects aim to solve realistic problems.

Since the study is about students' PBL in university level and the aim of the case was preparing students to fit into society, a broader title "situated learning" and three cores of situated learning are presented here. The topic PBL can also be treated under the title situated learning. The Situated learning is put forward by Professor Jean Lave and independent researcher Etienne Wenger in the 1990s. When they first set out this concept, they described that situated learning should be applied in social project instead of school education. Situated learning emphasis on the link between learning and social situation where the learning process occurs (Hanks, 1991). In 1991, Lave and Wenger published "Situated learning legitimate peripheral participation". In this book, they put forward three core concepts of situated learning. One is community of practice. Lave and Wenger believe people who do the same practice form a community. Newcomers need to join those social and cultural practices for getting in to a community. The second is legitimate peripheral participation. Legitimate means that in the already existed community, all members are willing to accept the newcomers to be part of the community. Peripheral means newcomers start their practices by doing some peripheral tasks. After gaining enough skills, they can get the chance to do pivotal tasks for the community. The third is apprenticeship which means there are qualified participants help apprentices in the learning process. In short, situate learning emphasizes two features. One is practice knowledge in real situations. The other is using cooperation and interaction to consolidate knowledge. Lave and Wenger think situated learning should be applied to adult education and may not be suitable to school education. But afterwards, many education researchers applied situated learning to their classroom. It is practiced in cooking, literature, PE, music and performance art classes.

In this VR game design based project, participants formed a community according to the situated learning theory above. In each workshop, some students left and new students came in. Old group members shared experience and knowledge to newcomers. Supervisors in the game designing project also helped newcomers in the learning process. The new London group (Cazden, 1996) considers that situated learning is one way of pedagogy of multiliteracy, which integrates media, ICT and intercultural perspectives.

Researches show many advantages of PBL. Firstly, students show to be much more motivated (Green, 1998). Secondly, students get profound understanding of knowledge by practicing the knowledge in time (e.g.). Third, they acquire many long-term learning skills in the

process of carrying through the project (e.g.). And PBL even increase students' self-confidence, creative abilities and responsibility (Frank& Barzilai, 2006).

These advantages of PBL have been seen in many cases. Ross (2002) conducted a comparative study with his colleges from University of Memphis. They compared the academic grades of students from Co-nect schools, which are schools emphasis on project-based leaning, interdisciplinary studies and application of school content to realistic society with students from other traditional schools in Memphis. The result shows students from Co-nect schools gain 26% more grades than students from other school from 1996-1998. Similar researches result is published by Cincinnati Public Schools (1999) in a research done in Cincinnati from 1995-1999. Williams, Hemstreet, Liu, and Smith (1998) made anther comparative study with 177 seven grade students. Students were divided into two groups. The group which studied a science concept through PBL also showed better performance than the control group. A more influential and valuable study was conducted by Boaler(1997) from 1995-1997. The study was conducted on math courses on two middle schools' 300 students, who have similar academic performance at the beginning of the research in Britain. The controlled group got traditional didactic courses, while the other group studied through students-centered and open-minded project. Boaler(1997) interviewed students and teachers in three years and also compared their test grades as a reference. The consequence showed that student from PBL group not only got better grades but also had more interests in math study.

PBL changes the way of students' study engagement and knowledge acquisition. Another significant aspect of PBL is that it changes students' role in study process. The aim of project-based learning is eliminating inert knowledge and making students get motivated and acquire knowledge in depth by engaging in investigation of authentic problems (Blumenfeld et al., 1991, 1). In this process, both students' and teachers' roles change. According to Thomas (1999, 3), students can investigate questions, put forward hypotheses, discuss their ideas with others and raise new ideas after discussion in a project-based classroom. Students also get emulated project and driving questions with authentic content and assessment. Learners not only collaborate on inquiry and problem solving, but also present learning outcomes in specific works. In short, PBL is learning by doing. Students explore real-world problems and challenges by themselves (Licht, 2014). At the same time, the role of teachers is transformed into a guide or supervisor. Teachers' responsibilities change from giving knowledge in traditional class to helping students to

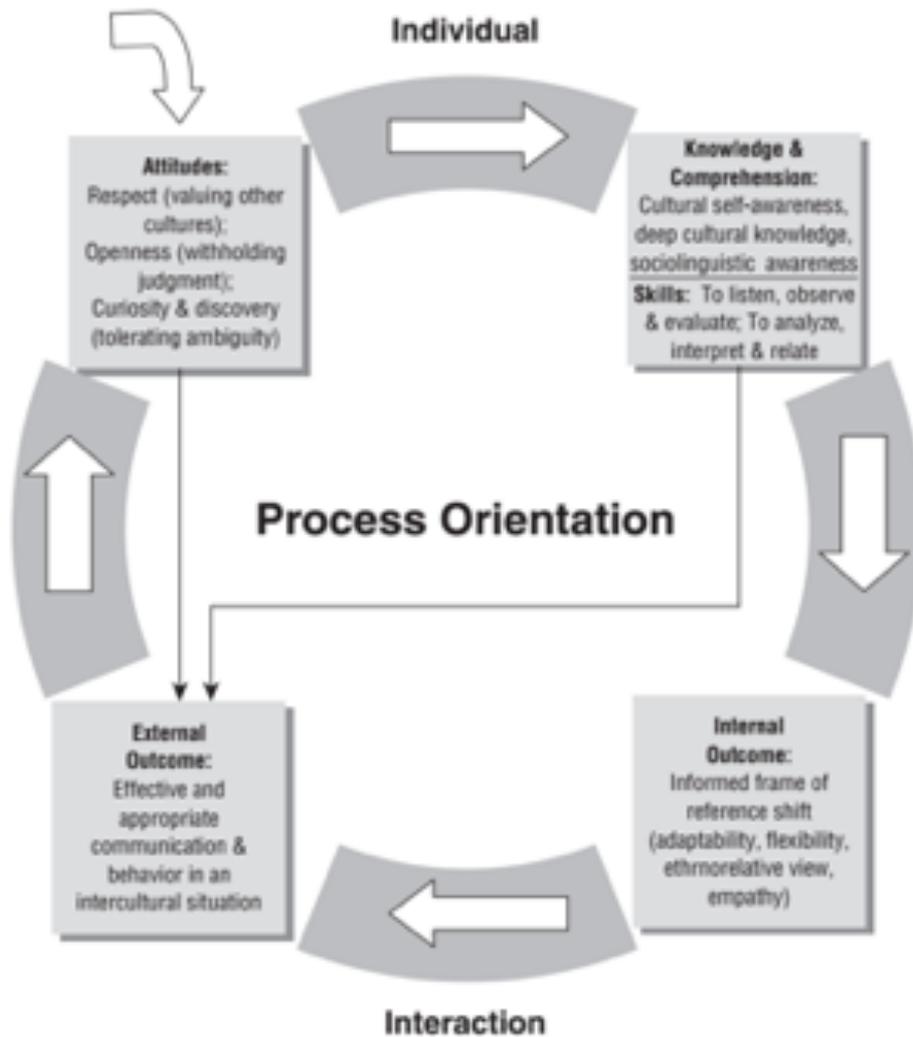
cooperate, communicate, reflect and acquire knowledge and skills by themselves (e.g.). Therefore, the knowledge is not directly derived from teachers, but actively acquired by students in the process of doing the tasks. In this student-centered learning environment, all participants can develop a number of competencies such as management, information gathering, presentation, communication, self-reflection, group cooperation using resource tool application, and critical thinking.(e.g.)

As the role of students in PBL is central and the aim of PBL is motivating students, some competences which are important for intercultural collaboration and making a VR game need to be discussed next.

2.1.2 Intercultural Competence as a learning process

Intercultural learning focuses on studying the differences among cultures. It is linked with the rise of globalization and cultural studies. One aim of intercultural learning is developing intercultural competence (Messner, 2012). Here are many definitions of intercultural competence. The most widely accepted definition is put forward by Byram (1997, 34). Byram considers intercultural competence is a competence for knowing others and self. People with good intercultural competence have skills to discover, relate, interact, interpret and relativize others' values, beliefs and behaviors to themselves. Linguistic competence is also part of intercultural competence. Deardorff (2006, 247) summarized the element mentioned in most definitions as cultural awareness, which means awareness of one's own culture and others' cultures. From learners' perspective, intercultural competence includes three components: skills of discovering information from other cultures and interpreting them, culturally sensitive knowledge (critical cultural awareness) and motivated attitudes (openness, curiosity and readiness to other cultures) (e.g).

Deardorff (2006, 255) built the process model of intercultural competence to explain the process of how these elements mentioned above interact with each others. The process model below is adapted from Deardorff's book for a clear explanation. Requisite attitudes including respect, openness and curiosity to other cultures and cultural diversity contribute to knowledge of cultural awareness (both self-awareness and comprehension of other cultures) and skills to listen, observe, interpret, analyze and evaluate. Knowledge and skills gained through requisite attitudes in intercultural group work then support internal and external outcomes of intercultural competence. In other words, internal outcome including adaptability to different communication styles and behavior; flexibility in choosing appropriate communication ways in intercultural group; ethnorelative view and empathy and external outcome including completing common goals in intercultural group work with appropriate behavior and communication manner.



1. The process model of intercultural competence.

This Process model of intercultural competence above is designed by Deardorff (2006, 255). This model starts from requisite attitudes. With respect and openness to other cultures and curiosity and tolerance to ambiguities in intercultural learning, students can increase knowledge on cultural awareness, both on one's own and others' cultures, as well as skills to listen, observe, evaluate, analyze and interpret. The openness attitudes, cultural awareness and skills can lead to an increasing degree of external outcomes: effective and appropriate communication and behavior in an intercultural situation. The cultural awareness and skills can increase students' internal outcome: informed frame of reference shift, which is a key element for increasing external outcome. Then an appropriate communication behavior would feed back to better attitudes in intercultural situations. This process model would be used in analyzing the change of students' intercultural competence in the VR game design project next chapter.

Montgomery (2009) did a comparative research to demonstrate how students' intercultural competence changed from 1998 to 2008. Montgomery (2009) compared her study result to Volet's study result in 1998. Volet(1998, 5) did a research about students' intercultural competence in Australia. The findings of Volet's research have two sides. From the optimistic aspect, cultural diversity on campuses created good social forums for promoting students' intercultural competence. From the disturbing aspect, local students and international students lacked interactions. Montgomery (2009) focused on same issues and used a similar methodology (interviews focusing groups with semi structured questions) and did a research again for changes of student interaction in intercultural group work after ten years. Montgomery coded the interview data with 70 students from different countries into several themes: different social atmosphere, language and communication, complex translations, interaction of people and cultures-transformative, the influence of the teaching, learning and assessment environment, provisional identities and etc. The research in 1998 focused more on cultural diversity on campus instead of group works, while the research in 2008 focused more on intercultural diversity in group works. The study in 2008 showed that compared to ten years before students viewed cross-cultural interaction more positive. There were conflicts, but not rising from cultural differences, instead students with different cultural debated for making things done. Since this study is done in June, 2016 to August, 2017, another ten years after Montgomery's study, an extension of Montgomery's research findings would be discussed in the conclusion part to see how students face intercultural interaction today.

As PLATINUM is a VR game design related group work, intercultural competence is not the only competence required for participants to handle all the problems that happened during the project, here is a need to explore the concept of multiliteracy, media literacy and other concepts related to virtual reality.

2.2 Multiliteracy and media literacy

2.2.1 Multiliteracy

The section below describes the concept of multiliteracy and how to practice pedagogy of multiliteracy in previous studies. The term “multiliteracy” was first used by the new London group (Cazden, 1996). The new London group believes people’s cognitive styles would change fundamentally from traditional literacy to new ways including audio, visual, spatial, gestural and linguistic design. Multiliteracy integrates textual literacy with multimodal texts in audiovisual and digital formats (e.g). From 2000 to 2015, Cope and Kalantzis from the new London Group published more than ten articles to explained multiliteracy. Multiliteracy emerged with the process of globalization and technologization. With globalization, world becomes closer, people speaking different languages with different cultural background have to cooperate with others more often. People especially young people need to adapt to diversification of culture and language (Cope&Kalantzis, 2000, 5). With technologization, media supplies multiple communication ways. Development of technology supplies new ways to communicate (e.g.). For example, people all around the world use Emoji to chat online and they can understand others without other languages and communicate only through Emoji. At the same time, technologization is also a challenge and people need to increase their technological literacy to fit this change. In PLATINUM, participants face challenges from both intercultural aspect and virtual reality aspect.

Overall, cultural and linguistic diversities and multiplicity of media pour into people’s daily life. Traditional language-based literacy is not enough for people to handle enormous information and diversity languages they facing every day. Multiliteracy can make up for the deficiency of traditional language-based literacy.

The definition of multiliteracy has evolve with these media and times changes talked above. Cope (2015, 3) believes that multiliteracy has two layers of meaning. One layer is the different contexts. Multiliteracy requires learners can negotiate among different contexts (different cultures, different life experiences, different subjects and etc.). The other layer is multimodality. Nowadays, our communication ways changed from language centered expression to multimodal ways. Written linguistic mode is not the only way of creating information; oral, audio, visual, gestural and tactile and spatial modes are all important parts of expressing information. Simultaneously, visual signs,

audio as well as text symbols are communication ways and semiotic resource at the same time (Kress, 2000).

From the perspective of university education, pedagogy of multiliteracy is important for preparing students to fit into society. Multiliteracy emphasizes that negotiation of linguistic and cultural differences is the core of pragmatics of students' private and social lives (Cazden, 1996). Here are two goals for applying a pedagogy of multiliteracy. First, a pedagogy of multiliteracy enables students to understand multiple languages used in social and private lives, which empowers students to assimilate into intercultural society. The second goal is fostering students' critical engagement to meet needs in all aspects of their future lives (Cazden, 1996).

The multiliteracy processes steps can also be applied to analysis data in this VR game design project. The new London group (Cazden, 1996, 60-93) believes human knowledge generates from social collaborative interactions. In a community with learners full of diverse skills, learners work and then generate a specific domain of knowledge through collaborative practice. Then with critical understanding and cultural understanding, learners master and apply these knowledge with conscious awareness. At last, learners reframe and transform the knowledge into other different contexts. Based on this understanding, the new London group designed a complex of four components: situated practice, overt instruction, critical framing and transformed practice. (Cazden, 1996) Situated practice leads to mastery in practice. Mastering knowledge in practice requires students immersed in designed and designing experience and then recognizing and acting on data and experiences. Usually, when students study in an immersion environment, they master knowledge without conscious. However, with overt instructions, students can learn with conscious, control what they have learned and shape an explicit metalanguage of design. Students reframe what they have learned by combining it with socio-cultural context critically. Through critical framing, students acquire critical and conscious awareness. Transformed practice backtracks the knowledge mastered in situated practice to other contexts. Transformed practice also make students re-create the design skills to other domains. (e. g) After some curriculum practices in the next decades by using this idea, Cope and Kalatzis (2010, 4) modified knowledge processes into four steps: experiencing, conceptualizing, analyzing and applying.

Multiliteracy is drawing more and more interests from the aspect of pedagogy (Mills, 2009, 103). Mills in 2009 interrogated academic research worldwide debating the importance of multiliteracy on student's participation in this diverse society. From 2015, Kotilainen and her colleagues

did seven workshops on young people who are at risk of drop-outs at schools in seven different cities. The students were taught and asked to create media content such as shooting videos, taking photos and writing creative comments on social media. These workshops aim to see how artistic media workshops can develop mediated multiliteracy of young people and increase their participation in this media penetrated society. As a result, they proposed a pedagogic model of inclusive media education. (Kotilainen, 2016)

2.2.2 Media literacy

What follows is an account of media literacy. The first reason of putting media literacy here is that the definition of media literacy and multiliteracy overlaps in some parts. A clarification of these two concepts can facilitate the operation of the terms in practice (Palsa, 2015, 3). The second reason of putting media literacy here is that the outcome of PLATINUM is a VR game-a media creation. The ability to create media text is one of the most important part of media literacy.

In an article analyzing the concepts of multiliteracy and media literacy, the author Palsa (2015) used media literacy as an educational outcome, while multiliteracy as a pedagogical approach. This doesn't mean multiliteracy cannot be seen as a pedagogical approach or vice versa, but Palsa emphasis multiliteracy focusing more on pedagogical approach while media literacy focusing more on outcomes. It's obvious that media literacy has many similarities with multiliteracy. Understanding the different features of these two concepts can be vital for discussion and analyzing the data next.

Media literacy can be defined as the ability to access, analysis, evaluate and communicate messages in a variety of forms (Aufderheide, 1993). From the definition, we can see media literacy emphasizes more on different patterns of media and information. It's more tightly related to communication technology and is based on media. The aim of improving media literacy is enhancing young peoples' abilities to handle information and media. In contrast to media literacy, multiliteracy is related to both media and culture. The aim of improving multiliteracy is making young people get used to intercultural, interdisciplinary and multimodal contexts. There are multiple definitions on media literacy after Aufderheide (1993). Scholars tend to see media literacy from different views and added more and more meanings to media literacy. Potter (2010) stated media literacy has protectionist purpose on the negative effect of media and can influence larger social structures, which gives media literacy a broader range of objectives. Some other researchers point out that media literacy emphasizes more on the impact of media literacy on social phase and has many overlapping parts (the abilities to get used to mediated society) with multiliteracy. As well, both multiliteracy and media literacy can be enhanced through media education (Palsa , 2015). Both media literacy and multiliteracy are coined with globalization and the development of technology. Thus, this subchapter explains media literacy in the following for a clearer line between the two concepts.

With the development of computer and information technology, the content of media literacy is becoming wider—"computer literacy, cyber-literacy, Internet literacy, network literacy, digital literacy, information literacy" (Livingstone, 2004). And all these media literacy abilities can be seen as a skills-based-approach in the digital age. In the print and telephony ages, there were many barriers to get access to information. Nowadays, Internet and TV give universal citizens a shared culture and provide free-to-all information. Livingstone (2004) suggests that media access underdetermines use. However, with the easier accessible to information (the provision of ICT facilities and commercial TV program and net pages), the needs for public to analysis and evaluate information by themselves are becoming necessary and essential. To interpreter and understand information. Buckingham (1998) built a six-fold scheme for analytic competences. Audience and viewers should have abilities to address questions on "media agency, media categories, media technologies, media languages, media audiences, and media representations of information, literate, information background, history and etc." Compared to print age, huge number of netizens can produce and disseminate their productions through World Wide Web in this digital age. Here are no press companies or other authority organizations to filter information. The amount of information also become huge compared to the print age. It's very important for netizens filter and evaluate information by themselves, but evaluation is not easy. "Critical evaluation rests on a substantial body of knowledge regarding the broader social, cultural, economic, political, and historical contexts in which media content is produced" (Bazalgette, 1999). It's easier for people to create media message with all kinds of ICT facilities. Creation is a way to express ourselves and involved in cultural participation. Many think creation is the best way for learning media.

Media and information literacy is a combined set of competencies, from media literacy to media and information literacy. The study scope of Media and information literacy includes all forms of media and information providers, like libraries, archive and museums. (UN website, 2017, <http://www.unesco.org/new/en/communication-and-information/media-development/media-literacy/mil-as-composite-concept/browse/5/>)

In a digital age, the way of information production changes. Thinking and learning ways change at the same time. In a mediated world, people can access to information without boundary of time and space. Media texts shows local diversity (cultural diversity) and global connectness characters (Cazden, 1996). Taking news as an example, in different places, media reports a same piece of news in different ways with different standpoints. However, at the same time, they all

concern about a same event. From the perspective of audience, they can access to news from all over the world, see how different media companies reporting a same piece of news and then define the truth beneath different kinds of reports. This process requires viewers to have a high level media literacy. Viewers need to have abilities to access to news reports abroad, understand these reports and define which of them are true or not by using their knowledge and background base. Improving ML is important for people to survive and engage in society.

After reviewing the overlaps and differences between multiliteracy and media literacy, as previously stated, another reason for reviewing media literacy here is that the study on VR game design project is related to media product creation. In Hamdy and Gomma's research (Hamdy, 2012), 100 selected Egyptian universities students participated in Inter-news program and Active citizen program. At the end of the program, they got an media literacy test and the consequence of their test is compared to the other students who didn't participate in the programs. The finding is that selected students get promotion on media literacy through participating video production. The reason that Hamdy chose video as a tool to reinforce media literacy was that he thought video is an effective way for the most powerless to express themselves and camera and video website are easy to access to.

Overall, although here are many overlaps in media literacy and multiliteracy, it's obvious that research about media literacy concentrates more on media messages in different contexts, whereas research about multiliteracy concentrates more on collaborative work. And when the collaborative work boundary broaden, intercultural group work based on Internet and even the content of collaborative work is about virtual reality, as in the case of PLATINUM in this study, it is important to include the concepts of design thinking and computer-supported collaborative learning as well.

2.3 Design thinking and computer-supported collaborative learning

Design thinking and computer-supported collaborative learning are important means in implementing project based learning in the field of information technology, VR game and etc. The idea of design thinking can be date back to “The sciences of the artificial” (Simon, 1969). Design thinking is a process of problem solving in PBL, through which students learn new knowledge and skills in a just-in-time fashion while trying to design something. Design is both connected to product and process. Cultural diversity of individuals and communities affect design thinking. The nature of design learning is design oriented activity. Design thinking is a way to promote and practice students’ critical and creative mind through group work (Pirita, 2007).

Pirita (2012) introduced how collaborative design learning works in practice. In the design process, students generate ideas and make reflective judgment under self-regulation. At the same time, students can maintain attitudes and dispositions that benefit critical and creative thinking. In a project based learning, the first step is idea generation. Idea generation starts from problem space. The problems need to be solved usually don’t have pre-determined answers. Students need to find solutions by their own. Through gathering new materials on the Internet or library, talking with others to find new perspectives and brainstorm, designers (students) put up with many ideas. Then they should narrow down problems and focus to the problem they chosen, compare their question with other similar problems, gather information from target audience or users and use these information to analysis the problem. Understanding targets audience’s perspectives also broaden designers views, which benefits critical thinking as well. Then they move to solution process, where designers put forward possible solutions, brainstorm, build prototypes, test the feasibility of the models and propose a solution at last. In solution space, students can find flaws and infeasible elements of their prototype. Designers would go circles between problem space and solution space until they solve all flaws in the prototype. (Pirita, 2007)

In this designing process, critical thinking is throughout. First, with a lot of possible ideas that students got on the ideas generation stage and a great amount of information through Internet, students need to filter and combine these information and ideas to develop those feasible solutions. Using reflective judgment, a component of critical and creative thinking, students can separate, combine and organize information based on their own experiences and former similar solutions that they searched. In the process of ideas generation and reflective judgment, students get the abilities to make and adjust plans, set goals and monitor progress. (Pirita, 2007) Second, in solution

space, prototype testing can make designers find flaws in the models and make adjustment in time, which can enhance critical thinking. (e.g.) Third, students build ideas to solution of the problem. They do the practice between problem space and solution process. All these design stages are related to critical thinking. (e.g.) Finally, in a collaborative designing group work, designers learn to think from others' perspective and generous to ambiguity. Students also learn to be confident, tolerant and flexible, all of which are key elements to critical and creative thinking. (e.g.)

In a project-based learning, projects are usually predetermined and topics have been narrowed down beforehand. In this case, students don't need to spend much time on finding problem and narrowing down questions, but can easily follow the enquiry line. They can devote more time on gathering new knowledge and information, cooperate with partners and make the artifacts. On the contrary, design thinking is more helpful for students' critical thinking and creative thinking. The process of finding problems and narrowing down the topic is important in design thinking.

This process of raising new ideas and collaborative with others in design thinking is related to multiliteracy. Especially the designing thinking process in PLATINUM, participants needed to raise ideas from intercultural perspective and they tested their prototype in other countries' market. In chapter 3, this study will analysis how students' design thinking process happened in the VR gamed design based intercultural group work. PLATINUM was a project for university student, majored in graphic design, game design, media education. The modus of PBL differs in school grades. In this project, participants do the practice between problem space and solution process. Critical thinking is throughout the whole project from collaborating with other members, finding solution by experiencing real natures to testing feasible of prototypes. In the project, student work through interaction with the limitation of time, space and cultures.

Having discussed PBL, multiliteracy and design thinking, the final section of the conceptualization addresses computer-supported collaborative learning. Computer-supported collaborative learning, onwards written as CSCL, is a learning science studying how people can learn collaboratively with the help of Internet and computers (Stahl, 2006). CSCL is closely related to all levels education. In 1990s, students used computers to study in an isolated way without the Internet. Afterwards with Internet, scholars suggested that CSCL can be used with online-teaching. People imagined that students and teachers can learn through Internet. However, it was proved that online-teaching costs much more efforts than face to face study. Now, CSCL stresses more on collaboration. Students study through interaction. Computer can help to achieve this interaction. As well,

CSCL can also be applied in face to face study (Stahl, 2006). Students use computer to access to outside worlds. According to Schraw (2006), CSCL can even promote students' self-regulation when they collaborate with others.

Virtual reality can be seen as a part of CSCL. In case PLATINUM, it is the core of the game design process. Virtual environment uses virtual reality headsets and other computer related devices to build multi-projected environments within physical spaces to generate realistic images, sounds and other sensations that simulate physical environment. Slater (1997) proposed two main ideas, presence and immersion, for defining the characteristics of virtual environment. Presence means being in the environment in psychological sense. Players believe that they are present in the virtual environment instead of the real physical world around the players. Slater proposed immersion is essentially a description of technology with several dimensions. There are several dimensions of immersion: inclusive, extensive, surrounding and vivid. Inclusive refers to the physical reality in which players are located. Extensive is the range of sensory modalities accommodated. Surround means that player can experience a panoramic zoom instead of being limited in a narrow field. Vivid is related to resolution-the fidelity and variety of cues simulated within a particular modality (visual, auditory, haptic, olfactory). Technically, soundscape, memory, matching between feedback of the players' body movement and the information generated from the displays are all factors of the immersion of a virtual environment. The immersion level of a virtual environment can be judged by these four dimensions. High level immersion means high level presence, and vice versa.

One core for building an attractive VR game is constructing narrative in game. In PLATINUM, the driving question had been settled by supervisors beforehand. Students construct the narrative line on the premise that VR nature can relax players. Bryant (2015) considered people's perceptions in forests or gardens are also shaped and affected by their previous experiences in life which again highlights the impact of individual differences. There is a thinking that if nature can help improving our benefits, why not go out to be in a natural space but using virtual space. Bryant proposed two ways to solve the problem. First, giving unusual experience like unusual watching angles like flying can make players enjoy a different feeling compared to the real world. Second, doing some contributions for the nature and let players communicate with nature and help nature. In the process, player can get satisfaction in the virtual environment. Satisfaction can be a kind of emotional experience to improve wellness. Storytelling has its root in interactive experiences.

2.4 Conclusions

This chapter has discussed and conceptualized project-based learning, intercultural competence, multiliteracy, media literacy, design thinking and computer-based collaborative learning. Students' multiliteracy could be promoted in situated practice theoretically, as well project-based learning can be seen as a kind of situated learning as it has some features of situated learning. Design thinking and computer based collaborative learning are pivotal features for realizing a intercultural VR game-design based project.

More concretely, this study will concentrate on how participants from different study fields , cultures and universities collaborate. This study will extend Montgomery's study (2009) and find out students' attitudes to intercultural group work and factors that influence intercultural group work in this era, test the process model of intercultural competence (see picture 1) in the game design intercultural project, see how local diversity from different media texts influence students ideas on designing game and how new learning methods like computer based collaborative learning and design thinking process contribute to intercultural VR game design project.

Based on these discussions mentioned above, the research question in this study is how intercultural project based learning in dialogue with multiliteracy in a VR game design project?

3. IMPLEMENTATION OF THE STUDY

3.1 Ethnography as a Method

Kottak (2008, 263-270) introduces several techniques to do ethnographic research. One is observation and participants observation. Ethnographic researchers often observe personal and collective behavior on various occasions for more than one year and can therefore directly get first-hand information. The second technique is conversation and interviewing. Interview could be either structured or unstructured and could be in different forms, including informal talk to maintain a relationship of mutual trust and get knowledge of current activities. The third way is genealogical method. Early researchers developed the genealogical method to study relatives, heirs and marriages in pre industrial society. This method is often used by anthropologists to gather pedigree information to understand social relations and rebuild history. The fourth technique is key cultural consultants. In every community or group, there are always some people who can provide useful information and know lots of things of the community because of their experience or position in the community. Thus, communicating with a key cultural consultant can be an efficient way to do ethnographic study. The fifth technique is life history. In a community, some people may be more helpful than others to researchers. At that time, researcher can spend more time and energy to collect information about his (her) life history and experience. The sixth technique is a combination of local beliefs and perceptions and researchers' beliefs. In linguistics, locals' beliefs and perceptions is "Emic" and ethnographer's belief is "etic". "Emic" explores how people in communities understand, think and classify the world, while "etic" emphasizes on what researchers noticed and thought about. "Emic" emphasizes on field. "Etic" is from the perspective of researchers. The seventh technique is problem orientated ethnography. The aim of doing ethnography is changing from the narrative of a whole view to problem orientated ethnographic research. Now, researchers realize it is impossible to know full view of a community. So before doing the field work study, researchers need a prepared question. Then they can focus on collecting information to solve the problem. The eighth technique is longitudinal research. Longitudinal research is a long term research of a community, culture or oth-

er units. It's often based on multiple revisits. Most of the ethnography ways included at least twice field studies. The ninth technique is team research. Academic is a collective cause. New researchers use discoveries which have been founded by pioneers to enhance their knowledge on the research fields. The tenth technique is culture, space and scale. More and more researchers do study in large-scale societies. They innovated many ways to combine ethnographic researches and researches. As a result of the investigation and study of large and complex groups, statistic analysis is needed. (Kottak, 2008)

The theoretical framework impacts the way of studying and interpreting knowledge. There are four paradigms of the theoretical framework. Choosing a suitable paradigm to the study can support a further correct choice of methods and research design. The first research paradigm is positivist paradigm. Positivist paradigm sees the world as various and ambiguous. The truth in one cultural group may be wrong in another cultural group. Positivism interprets knowledge through measurement and observation. The method of positivist paradigm is mainly quantitative data collection (Mackenzie & Knipe, 2006). The second research paradigm is constructivist paradigm. Constructivist paradigm focus on the perspective of participants' situation and rely on researchers experiences. The method of constructivist paradigm is mainly qualitative data collation or a combination of qualitative and quantitative data collection.(e.g.) The third research paradigm is transformative paradigm. This paradigm pays close attention with diversities of values , positions and stances like racism and feminism.(e.g.) The fourth paradigm is pragmatic paradigm. Pragmatic paradigm emphasizes on what and how of a research problem. In pragmatic paradigm, all approaches operates around the research problem. Both quantitative and qualitative data collection methods can be used in pragmatic paradigm.(e.g.)

The theoretical framework in this study is pragmatic paradigm. First, this study is a problem-centered research (Mackenzie & Knipe, 2006). The problem of this study is how intercultural group work as project based learning and students' multiliteracy in dialogue with each others and affect the outcome of the project. Second, the project is a real-wold practice oriented project.(e.g.) The problem was studies through a researcher participated project. Third, the method mainly used in this studying is observation and interviews.

This ethnography study of PLATINUM involves multiple ways talked above including observation, conversation with other group members and interviewing some of the participants during the workshops, key cultural consultants like the coordinator of the program and some

supervisors of the project and problem oriented ethnography. Most data is collected through observation and interview. Research diary and study notes are one part of the data. Interviews after the workshop are also useful for knowing all participants' understanding and thinking of multiliteracy and project based learning. Here are informal conversations with group members to know what they think. In this process, conversations with two cultural consultants (Kottak, 2008, 263) who can supply more information than other participants. One is the coordinator of the project and the other is a supervisor of the project. Both of them have a full view of PLATINUM. They can supply more useful information tightly related to the project than others. The seventh technique Kottak put forward is problem oriented ethnography, this study collect, evaluate, adapt and interpret data based on the question how multiliteracy and project based learning integrated. Hence, ethnography is suitable for this case study.

The role of ethnographer in this study is a student participant at the same time as a researcher. As a student in the project, my role is gathering audios material, animal living habits and forest material for building the virtual environment; construct the story line with other group members; test operation of the VR game demo. As the researcher, I joined in one group in PLATINUM to experience, observe the whole process, having informal conversation with participants in some situations to understand the problems in the research, sent open-ended questionnaires and interview participants at the end of each workshop to acquire the data.

3.2 Data

The period of data collection included six stages which are related to four workshops and some group online work among workshops in PLATINUM.

Period	PLATINUM	DATA
May 31st-June, 2ed, 2016	Wechat course	Observation/Research Diary
1st-5th, August, 2016	Workshop1	Interview/ Observation/ Research Diary
11th-15th, October, 2016	Workshop2	Interview/ Observation/ Research Diary
November, 2016 & February, 2017	Online discussion	Observation/Research Diary
20th-24th, March, 2017	Workshop3	Observation/Research Diary
7th-11th, August, 2017	Workshop4	Observation/Research Diary

Table 1: Period of data collection

On May 31st, June 1st and June 2ed, 2016, all participants took a three-day online course on Wechat. Supervisors from different studying fields gave five professional talkings through WeChat. The first talking was about virtual environments and design issues associated with virtual environments. The second talking was about constructing narrative in game-like applications and the basis for character and world design. The third talking was about nature, restorative, experiences and well-beings. The fourth talking was about social village and media environment. The fifth talking is about game design and features of a game. Research diary based on observation was written down after each talking. The research diary included the content of each talking per se and how the talkings happened. (see table 1)

From 1st to 5th, August, 2016, all participants both from China and Finland gathered in Tampere to work based on Finnish forest natural environment to build a game demo. Students were divided into four groups: spirit group, mushroom group, forest group and sound group. The

outcome of this workshop were four game demos from four groups. Several days before the workshop, an interview with the project coordinator was made. During this workshop, open-ended questionnaire included questions about students' media habits and their experience in the project learning process are sent on the last day of the workshop. One group interview was made with sound group for a better understanding of their media habits and group work. Research diary was written down every day including what participants did, some informal conversations with other members and each groups' outcome of Workshop 1.

Workshop 2 carried out in Hong Kong from 11th to 15th Oct, 2016, all participants gathered in Hong Kong to experience Hong Kong nature, took course about VR game, and put up with different ideas of VR games based on the experience in Hong Kong. Because two third students from workshop 1 graduated and new students joined into the project, all students regrouped and restarted new game design plans. The outcome of the this workshop were new paper demos. Face to face interviews with twelve participants included questions about impact of the workshop on their multiliteracy and their thinking about the project were made on the last day. Research diary was written down every day. The research diary includes schedule of every day work, informal conversations with other members, instantly thinking about things happened during the workshop and each groups' outcome in this stage.

Online discussion took place in November, 2016 and February, 2017. Tasks about reading articles and group talk were done by students in groups. The outcome of this stage was students keeping working in groups through the Internet, preparing more ideas and equipment which would be needed for the next workshop. Research diary on how group members from different time zone and studying field discussed articles from other discipline was written down.

Workshop 3 was carried out on 20th to 24th, March, 2017, students gathered in Tamper to promote the paper demos in five days. Students experienced many real VR game, took a course about game marketing and built VR game demos. The outcome of this workshop was that each group built a VR game demo and students tried other groups' game demos. The research diary focused on group transformation and how students cooperated in making the VR game in group in this group.

Workshop 4 implemented on 7th to 11th, August, 2017. Students gathered in Beijing and went on to streets and markets to do researches about Chinese users using habits on VR devices. The outcome of this workshop was that all groups found out how to progress their VR game demo

to suit different market. Research diary was written down every day. The research diary included all activities group transformation did in this stage.

More detailed information of the data is attached in Appendix 1.

3.3 Analysis

Thematic analysis is a kind of qualitative analysis. Braun and Clarke (2006) put forward six phases of thematic analysis. The first phase is getting familiar with the data. The second phase is coding. In this phase, researcher generates labels for characteristics of the data, and then collates the codes with relevant data extracts. The third phase is searching for themes. Researcher links coded data to constructed themes. The fifth phase is reviewing themes. Researcher checks if all themes connect the initial data and find relations among different themes. The fifth phase is defining and naming themes. Researcher generalizes the essence of all themes and tell how each theme fits into the overall analysis. The sixth is writing up, narrating a story of the data and contextualizing it into the whole texts.

In this study, all texts would be differentiated and coded. links among these codes would be studied. Next these codes would be put into themes. Then analysis on how these themes links with each others can answer the research question. More concretely, the analysis would take place in two steps in this study. The first step is differentiation the content from interviews and research diary (Braun &Clarke, 2006). Many similar and opposite opinions can be found in interviews and research diary. The second steps is coding these content and synthesis these coded contents around different themes and then finding links among these themes to answer the research question.(e.g.)

The data included research diary, interviews and even some pictures. It's hard to find out refined keywords in the text. In *Chapter 2.1.2*, it already introduced that Montgomery(2009) studied students interaction in intercultural group work by coding its data into many themes, including language and communication, social atmosphere of groups, different source of conflict, awareness of diversity within culture and etc. Although the problems of two researches has some differences, the research of Montgomery is also based on intercultural group work and have many similarities of this study based on PLATINUM. The themes extracted by Montgomery (2009) would be used as a reference of coding in this study. All the text would be read and check if here are contents similar to Montgomery's themes and found new themes during the readings process. PLATINUM is a VR game related project and it has some characteristics about media artifacts and media literacy, so this study might extracts some codes in these fields from the data. Referencing Montgomery(2009)'s codes and mixing an analysis of the research diary and interviews of this study, new coded themes would be categorized. The purpose of this extraction is to make all texts more visible from the viewpoints of multiliteracy, project based learning and VR game designing

to answer the research questions: How intercultural project based learning in dialogue with multiliteracy?

After the extraction, the links among these themes would be analysis. In literature parts, concepts including media literacy, VR game, design thinking, project based learning and etc. are introduced. The link and bias among these concepts are clear. Multiliteracy refers to abilities to acquire, understand and deal with multiple texts in the era globalization, which requisites good degree of intercultural competence. Media literacy contain the concept of VR game and has a tight link with multiliteracy. Center of project based learning and design thinking are both students. The process of design thinking penetrates in each step of project based learning. After coding themes, the essence of all extracted themes would be analysis using the concepts introduced in literature parts. This study would then see if the links among these themes can verify the links of these concepts in literature parts and how they integrated in the practical study.

After the analysis of an overall situation, the data from group transformation during Workshop 2 would be analysis as a supplement of the overall situation. The data about group transformation included a very detailed diary about how group members established relations, cooperated and built the VR demo. Many informal conversations during the workshop were recorded. Interviews with all members in this group after the workshop were made. Here are three reasons for picking the data of one group in one workshop as an example. The staffing in each group is similar: one is responsible for audio; one is responsible for building Unity model; one is responsible for graphic design; one is responsible for copy plan. Group members are usually from different studying fields, different cultures and have different multiliteracy. The reason for choosing data about group transformation to analysis is that I, as the ethnographer, experienced the whole procedure of building group transformation's demo. The ethnographer has an overall understanding of what happen in this group and has an exhaustive record data. The second reason for choosing group transformation is that students' attitudes to intercultural group work and factors that influence intercultural group work is quite subject. Choosing the group which I participants can include many informal conversations and researcher's perceptions recorded during the workshop during data analysis. The third reason is that in workshop 2 students regrouped, so here is a process of how group members getting to know and trust others.

Deardorff's process model of intercultural competence (2006, 255) mentioned previously would be applied to analysis data collected from group transformation in Workshop 2. The

progress of group transformation's VR game demo building and group members interaction can be analyzed following Deardorff's model. The analysis can show how individuals' attitudes to others changed, how they acquire skills, increase internal outcomes and external outcomes in this game designing group work.

After the analysis of the overall data and detailed data in group transformation, all findings in this practical study would be brought back to answer how intercultural project based learning in dialogue with multiliteracy with the data support.

4. FINDINGS

This chapter presents the findings from the analysis of the study. The empirical study aims to answer the question: How does intercultural project based learning in dialogue with students' multiliteracy in case a game designing project?

4.1 Multiliteracy plays a decisive role

4.1.1 Technological literacy and media literacy

One finding is that students' technological literacy and media literacy help students to deal with situations they are not familiar with. Technology and media literacy was important for advancing the process of this VR game designing project. Many courses and group discussions were online. In adobe chatroom, participants share group ideas and papers online. VR was a new thing for many of the participants, even some of the supervisors hadn't tried VR devices before. Good Media literacy enabled participants absorb new abilities quickly. Media literacy included the ability to create media artifacts.

One detail that supports this finding is online communication. Online communication is one of the themes which were mentioned very often in interviews. In February and November, 2017, participants held group meetings online to discuss articles and made preparation for the next workshop. All interviewed students mentioned that the online group work let students keep on touch with others and prepare knowledge which are related to the game demo building. During workshop 4, group transformation asked former group members who had exited the project to supply some help online. Here is an excerpt from the research diary during the gap time between Workshop2 and Workshop3:

From Feb, supervisors organized students to prepare more for the workshop on March. We meet in adobe chat room online (a Tuesday morning). Two new members join in our transformation group. We talked online and decide what equipment that we will need for next workshop. It's my first time to use adobe chat room, and I even didn't know how to get enrolled in the beginning. (Research memo, Feb, 2017)

Since students are from different countries and areas, the communication platforms they normally used are different. Technological literacy gives students the ability to get used to new communication platforms and digital devices in short time.

This study confirms that technological literacy is the ability to use, manage, assess, and understand technology (Frank & Barzilai, 2006). It includes two parts: one is the knowledge of using technological applications; the other is the ability of using technological literacy to deal with

all kinds situations in real-world (ITEA, 2003). Citizens who get used to work and live with modern technology are easier to participate fully in global society (ITEA, 2003). In this project, many participants are not familiar with online discussion platforms at first. For example, most Finnish students didn't use WeChat and most Chinese students didn't use adobe chatroom. Although many students didn't know these, their technological literacy help them to deal with all kinds situations.

Another theme mentioned a lot in interviews is VR. PLATINUM is about VR game designing. Here are two excerpts from interviews during Workshop 2 in Hon Kong:

We designed the schedule based on our own teaching here. Actually, because our students just began their classes. Besides, we focused on VR; there was one lecture about VR in campus. (Supervisor H, October, 15th, 2016)

A: Compared to the workshop on August, do you feel any differences this time? Have you got any new thing?

T: We have much better understanding on VR and restorative environment now, and we could use the ideas from before. Using last workshop's ideas and come up with better ideas. (Student T, October, 15th, 2016)

Students are from different studying fields. Some of them study game design or digital programming, and some others are from media and cultural study majors. Students' background knowledge on VR is different and some of students even knew nothing about VR in the beginning.

Comparison of data mentioned above with Palsa's study (2015, 3) confirms that the ability to create media text is one of the most important part of media literacy. In PLATINUM students learnt new knowledge about VR and applied their VR knowledge in building VR game in short time. Although many students knew nothing on VR, students' media literacy help them to acquire new knowledge quickly through comparing VR to other familiar medium.

One unanticipated finding about media literacy in this study was that here is no causality between students's media literacy practice and their media creation of a game design project. The outcome of the game product may be not ideal, but students did practice media literacy and multiliteracy in the process. Here takes team transformation as an example to explain. Team transformation's process of building a paper demo showed what technology tools they used to support building a VR demo and to what extent the VR game demo solved the driving question. Three students from three majors divided up the work according to their study backgrounds and

shared usable knowledge to others. For example, some students in the group knew nothing about the software Unity 3.0, which is used to build the VR game demo. The programmer taught others how to program the game in Unity. Although others participants couldn't code the program, they knew how the program works in the storyboard, then all other members can collect suitable audio recourses and gave useful opinions on how to build the three-dimensional game. One defect of this VR related project appeared with the progress of the game building. The driving question put forward by supervisors before the project was to build a VR nature environment which has restorative effect to restore people living in big cities. Students experience Finnish and Chinese nature and simulate the restorative nature into the VR games. However, after students building the demos, they found out that wearing VR devices in a long time is uncomfortable-feeling dizzy and sore eyes. According to the market survey done in workshop 4, nearly all VR game users preferred exciting and thrilling experience to restorative experience. So from the aspect of outcome, the final artifacts didn't solve the driving question in the game building project. From the perspective of students' multiliteracy, participants gained a lot. Each of the student got more cultural knowledges of other cultures and can accept others thinking ways after discussions and team tasks. Team transformation members also learnt new skills on VR and graphic softwares through online courses and group discussions. From individual view, participants learnt how to get along with the informational and global world.

Besides creating VR games, another goal of media literacy education is that students can use media as a tool to convey themselves. In this project, students found the social problem that people living in big cities lack chances to go into nature and also found out solutions to ameliorate this problem by themselves. In this VR game building process, the goal of media literacy education was achieved to some extent.

4.1.2 Intercultural competence plays a decisive role

One interesting finding is that intercultural differences and barriers inspire students design thinking. Language and cultural differences were barriers on one hand. Students had disagreements on how to advance the game and the outcome of the demo. For example, one group had a disagreement on how to arrange time. On the other hand, culture differences stirred some inspirations. For example, one group built a demo which has two modes-the Finnish forest rock climbing and the Chinese attic climbing. The outcome of PLATINUM was making a VR game demo. One interview mentioned that a Finnish student put forward an abstract element (Qi) from China culture and they finally put this “Qi” as the core element in their game demo.

In this VR game design project, students in each group were from different studying fields and places. Language barrier and cultural differences were obstacles in group cooperation. Here are some excerpts mentioned about language barrier and cultural differences during Workshop 2 in Hong Kong:

A : Did you have any difficulties in working with them?

L: There were some difficulties to understand some things, because of language. That was not a big problem. After all, we can make sure everybody understand. (Student L, October, 15th, 2016)

I think people in China and Finland both work hard. But in Finland we like to do it fast and keep the day kind of short and in China people work long time. Sometimes it's too long even you don't need to. (Student E, October, 15th, 2016)

I found Chinese students are more concentrated on small and edible things like mushrooms and berries while Finnish students more enjoy the upper part of the forest. (Research memo, October, 3rd, 2016)

It's a short time team work. In our group, me and another Finn wanted to make it short and efficient and tried to get some time to do other stuff too. But the Hong Kong students kept concentrating on small details. In Finland we just like to start doing things, but they like some other way round. (Student E, October, 15th, 2016)

This study confirms the process model of cultural competence. With respect and openness to other cultures and curiosity and tolerance to ambiguities in intercultural learning, students can increase knowledge on cultural awareness, both on one's own and others' cultures, as well as skills to listen, observe, evaluate, analyze and interpret (Deardorff, 2006, 255). The openness attitudes, cultural awareness and skills can lead to an increasing degree of external outcome: effective and

appropriate communication and behavior in an intercultural situation.(e.g.) Cultural awareness and skills can increase students' internal outcome: informed frame of reference shift, which is a key element for increasing external outcome. Then an appropriate communication behavior would feed back to better attitudes in intercultural situations.(e.g.) Many participants mentioned language barriers, different working habits, time arrangement habits and thinking ways in cooperation, which were the first step of curiosity and tolerance to ambiguities in intercultural learning in PLATINUM. Students were getting to know others through activities and visiting cultural attractions such as parks with national characteristics. Through these activities and communication, students knew other cultures and led to an increasing degree of outcome. These outcomes fed back to better attitudes in intercultural communication in this intercultural group work, and helped students to handle obstacles caused by culture differences at last. Here is an excerpt from an interview with student W during Workshop 2 in Hong Kong, which showed how students getting to respect other cultures and their openness attitude feed back to the intercultural behavior:

Our game is about a pilot drive a plane in forest to help all kinds of animals and the plane may met some trouble and need to be repaired. We got the idea from that day on the dragon's back. We want to let players feel the freedom of the plane and get relaxed from that freedom. Lassi put forward the concept of Zen. Zen is a Chinese concept. I'm surprised that this idea was put forward by a Finnish group member first. (Student W, Oct, 15th, 2016)

Another finding is that grouping and team building are important for project based learning, especially when participants are from different culture and studying fields. In the case of group transformation, students aimed to making a VR game, which needed much professional knowledge related to game design and VR. In workshop2, students were not familiar with other members. Three of the students had different degree of knowledge on VR game design. For example, a student from media education with little knowledge about VR production and Game design might not confident enough to convey herself when it came to feasible checking step. As a media education student, the student should give out some opinions on how to prevent player from getting addicted to the game, how to be sustainable during the whole process. However, student might not give out any advice about feasibility of the group work, because of lacking trust to other group members. In workshop 3, the situation changed a lot. All group members felt free to convey their thoughts. One reason was that students got to know others. Team transformation had online talkings during the gap between two workshops. The experience in nature and instructions also

make a better cooperation among group members. For example, a one-day trip to an island in Hong kong gave the VR games many visual and audial sources, made group members trust others better and the instructions on the island gave some tips on how to use the materials. With more understanding and trust among group members, group members gave out advices without worrying if that was suitable to VR game design. Students knew even they got things wrong, other group members can correct it with their professional knowledge. One interviewer also claim during Workshop 2:

The goal for this workshop is to get people know each other, because this is the first time and this is multi-culture environment and it may take a lot of time to get to know the others. The most important thing is to form the team. (Supervisor H, October,15th, 2016)

In a game designing project, every student in the group has different subject background. Each student needs to devote opinions from different subject perspectives, which are all indispensable for the final outcome. Bad communication affects the result and makes some precious ideas missing at last, while successful communication makes views from all subjects integrating into the final outcome. From this point of view, intercultural competence plays a decisive role on project based learning.

4.2 Project based learning supplies an environment for improving multiliteracy

4.2.1 Critical thinking and design thinking

Experience from the project stimulated students' critical thinking and design thinking. One aim of multiliteracy is increasing students' capacity on critical thinking. Critical thinking is also one theme mentioned in many interviews in this study case. Many students believed that PLATINUM supplying environment to stimulate their critical thinking. Here are some statements extracted from interviews during Worksop 2, which described that experience in group work stimulated students creative and critical thinking:

With group work, we can think from different perspectives and the efficient is high in group work. (Student D, October, 15th, 2016)

A: What's your hope?

H: Another goal is to experience Hong Kong nature with the critical mind, analytical mind and reflective mind. The students not only absorb but also reflect on what they have experience. (Supervisor H, October, 15th, 2016)

A: Do you think this project has any help on students' creative thinking or multi-literacy?

C: The course should be more rigors in that sense, not just going to nature and having fun. There is some critical thinking about it. I saw a lot from yesterday's presentation. People really thought about it and defined what things they found. (Supervisor C , October, 15th, 2016)

A: Have you got any new abilities in this learning environment?

D: The experience affects our thinking and our thinking on choosing game themes. Our thinking becomes broad by going outside. (Student D, October, 15th, 2016)

This study supports evidence from Pirta's observations that students' critical thinking and design thinking were practiced in the project. Design thinking is a way to promote and practice students' critical and creative mind through group work (Pirita, 2007). Design thinking is more helpful for students' critical thinking and creative thinking. The process of finding problems and narrowing down the topic is important in design thinking (e.g.). Through the analysis about group members' experience in Team transformation below, how intercultural group work in PLATINUM

stimulating students' critical thinking and design thinking is described. Team transformation in workshop 2, experienced in Hong Kong park and island, took lectures on mechanics of VR games, watched 4D movie in cinema and got instructions given by supervisors. These four types experience gave students chances to link their experience to the VR game demo with design thinking.

This result may be explained by listing team transformations' experience and inspired designs. In team transformation's game demo, group members hesitated on how to transform players' modes for a long time. Students put forward the idea of using small objects as trigger for transforming modes from the experiencing in nature. On the second day of workshop 2, team transformation went to visiting a park and saw some flowers on the ground. That picture gives group members an inspiration of using natural items as triggering items for transformation. They took a picture to record the last flower remaining on the tree and use that feeling and items to the transformation VR game. Student T said it's very tired to hike a long way up the hill, but when she saw the flower, she got refreshed and full of energy again. So she got this "trigger" idea. Student T stated that she got inspired by nature experience with the help of two things. Before hiking, group members got instruction to observe small details in nature and took pictures. Student T is an art student and she is more sensitive to these elements in nature.

The second experience stimulating students' design thinking is the experience on a lecture. Team transformation got the idea about how to arouse the "triggers" from the lecture which is about mechanics of VR game during the workshop. Students had a VR class reviewing the history of VR and common mechanics of VR-looking, picking up, shooting, puzzle solving, physical movement and so on. After the class, each group continued to work on the prototype. In the lecture, students got more ideas about trigger items as flower on the tree, seaweeds in the lake, nuts on the ground, and came up with many ways for player to transform their play modes. For example: Human being (mode 1) can transform to squirrel (mode 2) by eating (mechanic) a nut (trigger). Squirrel (mode 2) can transform to fish (mode 3) by picking up (mechanic) seaweed (trigger).

The third new idea about "loop" is evoked by experience in a cinema. During Workshop 2, the supervisor organized all students to watch a 4D movie. Students went to a cinema to watch a 4D movie called Peregrine's Home for Peculiar Children. The chairs can move with the plot and shot of the movie. A wood block punch audience's back with the plot. There were water and

fragrances spurt from the front seat. The movie tells a story about a group of peculiar children lives in loops to protect themselves. The original aim for bring all students to the cinema was giving students some experience about 4D movie. However, for group transformation, group members got some ideas from the content of the movie instead of the form of a 4D movie.

Some ideas about the significance of the VR game were evoked from instructions. With knowing the significance of the game, students got more motivation to keep on making the demo. A booklet was delivered to students with questions such as where did you feel safety, where did you feel dangerous, what small things and big things you found interesting, what feels did you get when you saw those things, what things were you familiar with before a trip in nature. All students filled the booklet with questions about emotion changes. Then students sat out of the temple in groups and talked how can modify the game idea according to the experience students had today. Team transformation recorded emotion changes during the experiences on an island and reflect this emotion changes to the VR game demo. Players can choose day light mode and midnight mode in the game. With day light mode, players emotion may be happier and exciting. With moon light mode, players emotion may be more peaceful and relaxing.

Experience in a VR game design project can stimulate students' critical thinking and design thinking randomly.

4.2.2 Situated learning environment for pedagogy of multiliteracy

A VR game design project supplies a situated learning environment for applying pedagogy of multiliteracy. Cazden (1996) designed four components of pedagogy of multiliteracy-situated practice, overt instruction, critical framing and transformed practice-to explain how to promote students' multiliteracy. This intercultural game design project supplies a learning environment for participants to practice pedagogy of multiliteracy and promote students' multiliteracy.

Students with diverse knowledge worked together and immersed in the practice of making a VR game demo. In Workshop 1 and Workshop 2, students collected stories and natural elements from both Finland and China nature. Students worked in groups with overt instructions. Supervisors gave targeted courses among workshops and guided instructions in workshops. With these overt instruction, students learnt new knowledge and skills with conscious. Students learnt with conscious and control their cognition of knowledge. Participants reframed the knowledge that learnt among workshops and combined it to group works. In intercultural group works, students also learnt to locate their culture in situated practice with critical and conscious awareness. For example, one group combined the feature of Finnish forest and Chinese garden into the VR game.

Besides making a VR game as the external outcome of the project, students got knowledge and skills about VR, restorative effect of nature and mechanism of games, the experience in both Finnish and Chinese natures and the abilities to work with students from other culture. The internal outcome on every participant was helpful to participant themselves. A more detailed analysis on how PLATINUM supplying a situated learning environment for practicing pedagogy of multiliteracy is shown through the process of team transformation building the VR game demo in Workshop 2.

The establishment of team transformation's VR game demo can be divided into several steps: put up with initial idea; complete initial idea; test feasible of the idea and present the paper demo on the last day of Workshop 2. In the step of putting up with the idea (driving questions, collaboration), team transformation got the idea of making a game in which players can transform their roles during playing. Team transformation practiced what they had experienced and learnt during the workshop to the initial idea (situated practice).

We got an initial idea, that our group is transformation group and players can transform their identities in the game. In the beginning, the player is a human being, then by finding different rewards in the forest, the player will transformed

into other creatures such as bird, squirrel and fish. (Research memo, 12, October, 2016)

In the step of filling information into the initial idea (situated inquiry, collaboration), students applied the concepts of loop and VR mechanics into the demo (overt instruction, transformed practice). When students got some new skills or knowledge during the project, they learnt it with conscious and applied the knowledge to the practice immediately. For example, a supervisor's instruction of observing small details gives group members an inspiration of bringing "trigger" into the game (overt instruction, transformed practice).

We got the idea of triggering transformation through picking up items from the experience on the dragon's back: On the second day, we went to the dragon's back.... We got two same instructions as yesterday.... the other (instruction) is to find some details of this place and taking pictures for these details.... Our group chose a photo of a flower on the up way. This is the last flower remained on the trees. We had seen all other flowers littered on the ground. (Research memo, 12, Oct)

In the step of testing feasible of the idea (using technical tools, collaboration), students tested the feasible of the initial idea. Every member talked about the feasibilities from the perspective of their own study fields and gave constructive tips for modifying the demo. For example, the programmer taught other group members some common sense about 3D modeling before persuading others why the demo cannot make trees with lots of branches. After the discussion about mechanic of the VR game, all group members learnt many about 3D modeling (critical framing).

Student L, as a programmer remind us that building too many branches and leafs on trees would affect the running speed of the game and weaken the restorative feeling of a virtual natural environment. We discussed how to find a balance between the speed of the game and details of trees. Finally, we decided to build trees with few branches and remove the mechanics of "jumping" and "climbing". (Research memo, 15, Oct, 2016)

In the step of presenting the demo (artifacts), students reframed the knowledge again and learnt how to pitch in front of other groups who are from different social-cultural contexts.

The project supplied a learning environment to practice pedagogy of multiliteracy followed these four stages above.

4.2.3 Schedule, personnel changes and instruction facilitate students

PBL and pedagogy of multiliteracy facilitates students to fit into society. In an intercultural project, both students and supervisors met many uncertainties that influence the implementation of the project. These uncertainties let the learning environment more like a real society. This finding is consistent with that of The new London group (Cazden, 1996, 60) who set out that one aim of multiliteracy is to increase students' capacity for them to get engaged in society and make success. In PBL, students work in a real-world context which is a simulation of the society that they will work with in future. In this process, students get the precious abilities of collaboration, design thinking and etc.

In a real project, here are always many uncertainties happened. In this VR game design project, many things changed out of control just as a real society. Schedule, personnel change and instructions from supervisors are three factors mentioned a lot by participants. This VR game design project lasted one year, but each workshop just took one week. There were long gaps among each workshop. Using the gap to promote participants' skills and relationship was important.

Another source of uncertainty is grouping change. Students and grouping changed in every workshop. This led to redundant work of the VR game demos. Another defect of personnel change was that group members needed to take time to reach a tacit understanding in every workshop. For example, students in team transformation changed three times. In Workshop 1, there were four students and build a 2D game demo called mist forest. In Workshop 2, all students changed to new students and many new ideas came out. So team transformation gave up the mist forest demo and built a new paper demo about animal transformation. Then in Workshop3, Hong Kong students didn't went Tampere and Beijing students also changed, team transformation had to tell new comers all the background of their paper demo and achieved trust with others again in a short time.

Instructions are also important. In Workshop 2, clear instructions and courses about VR game and restorative effects on nature were given, so everything went well. On the contrary, in Workshop 4, participants were supposed to promote the VR game demo to suit China market. Without any instructions and courses on marketing, group work became hard.

These uncertainties gave challenges to the implementation of group work. Students need to use all skills to solve problem. The uncertainties in the game design project including schedule, personnel change and instructions trained students to practice multiliteracy.

4.3 Mapping the results

Multiliteracy plays a decisive role in project based learning. Students' technological literacy made students get used to new online communication platform quickly and learn new knowledge in short time. Many students knew nothing about VR before this project, media literacy let student absorb new information on VR and create this type of media in short period.

Intercultural competence plays a decisive role in implementation the project. This study supports Deardorff's process model of intercultural competence (2006, 255). For example, intercultural competence affects the external outcome of the project and the internal outcome of students' competences. Another finding is that intercultural competence influences the implementation of the project by team building. It takes long time for students from different studying fields and cultures to trust other group members. It's also hard for students to insist their opinions when they were the only one having that opinion in groups. Enough time and group activities are useful for building team. Trusting among team members are important for implementation of the project.

Project based learning supplies environment to stimulate students' critical thinking and design thinking. Design thinking and critical thinking are often evoked by experiences in project based learning. In the case team transformation, experiences related to nature hiking, lecture course on VR game, instructions and movie invoke group members' design thinking and critical thinking.

Situated learning supplies an environment for practicing pedagogy of multiliteracy. The example on the establishment of team transformation's VR game demo shows how features of PBL (driving questions, situated inquiry collaboration, learning technologies, and artifacts) are corresponded with four components (situated practice, overt instruction, critical framing and transformed practice) of pedagogy of multiliteracy in the case.

Uncertainties including schedule, personnel changes and instruction gave challenges to the implementation of group work. At the same time, these uncertainties made students collaborate and use different ways to solve problems and practice themselves to fit into society.

5.EVALUATION OF THE STUDY

Here are four obstacles in this study. One is that the adjustment of the research question. The second obstacle is extracting useful data. The third obstacle is students multiliteracy and personnel changes because of long gaps among workshops. The fourth obstacle is to clarify the research question and the purpose of the study case.

Research question needs to be adjusted with deeper understandings of the ongoing project. Ethnography research usually starts with problems in some areas. The orientation of ethnography is exploratory, so the initial questions and interests which motivate the research would be refined or transformed during research process. Only with adjusted problem which suits the real situation of the study, can the problem be answered in an effective way. This process usually takes long time. (Hammersley, 1986, 3) In this study, the initial problem was something about media literacy and project based learning. After involving into the project and experiencing Workshop 1, intercultural competence and VR game related knowledge showed to be more important. Hence, the oriented problem of this ethnography research transformed to how multiliteracy in dialogue with intercultural project-based learning.

Extracting the data tightly related to the research question from disorganized data in analysis phase is another obstacle. Researchers don't have a clear clue on data collection if the initially exploratory orientation of a research is unclear. The data collection such as what / who should be recorded and interviewed needs to be developed over time. In an ethnography study, unstructured interviews are made during the fieldwork. The field notes or research diary is messy. Because the data is messy and redundant, time and skills of making decisions in uncertainty are indispensable in processing and analyzing data. (Hammersley, 1986, 4) During Workshop 1, questionnaires about students' media habits were sent out, but afterwords with the adjustment of the research question, these questionnaires didn't use during data analysis. The other choice of processing data was focused the data in Workshop 2 to avoid processing repeated information.

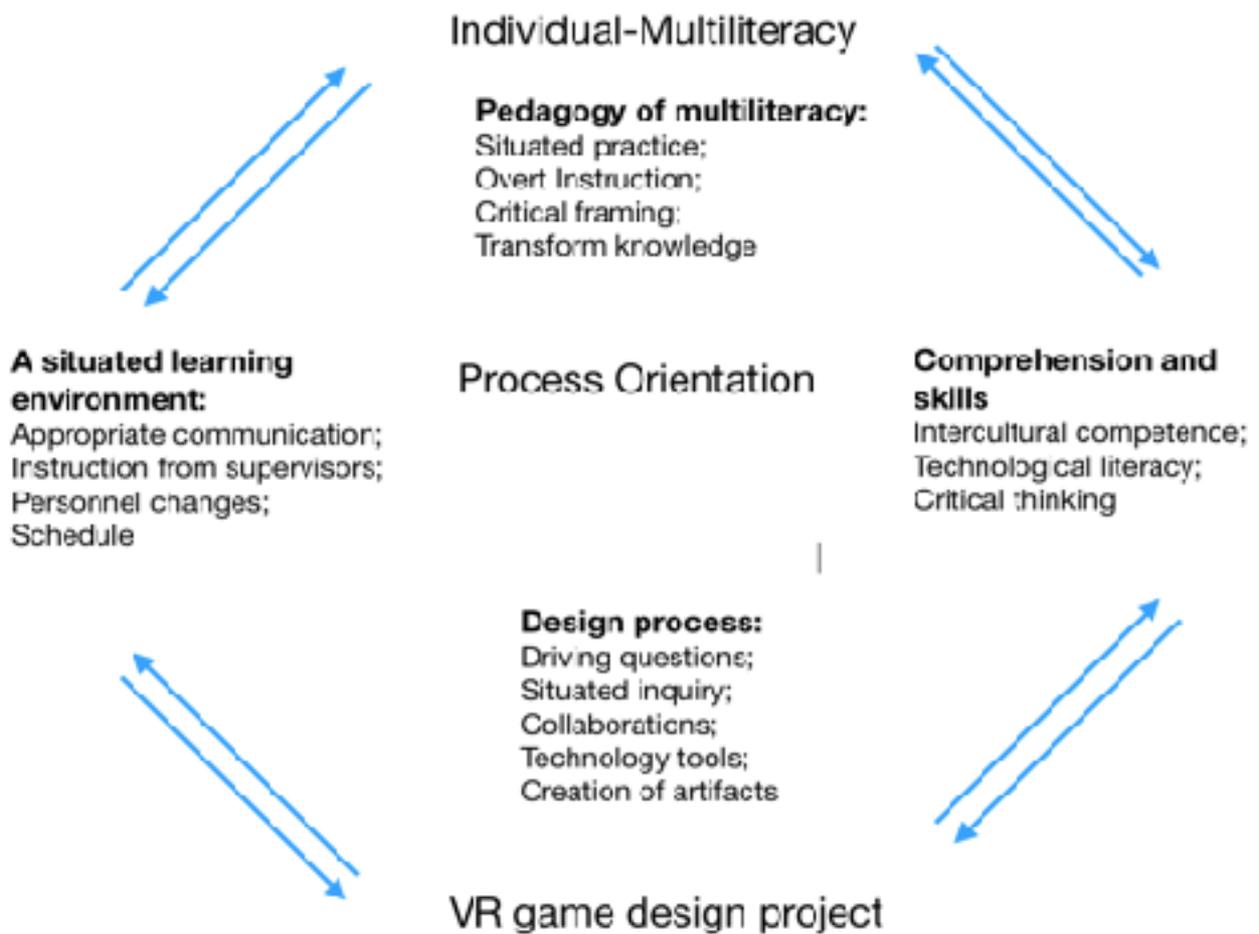
Long gaps among workshops result in students' multiliteracy and grouping different in each workshop. The data from different workshops cannot be compared directly. With the increasing

use of audio-video recording devices in recording data, micro things like what was said or did in particular occasions can be recorded. It arouses two questions: how to determine a proper wider context to situate the study and how to get knowledge which is really needed for the context (Hammersley, 2006, 6). Defining a proper context asks ethnographer to know if the context is discovered or constructed, and if it's constructed, it's constructed by participants or analyst (e.g.). In this study, the intercultural project was constructed by participants themselves. Each workshop was a relative closed situation. One obstacle was that the project last for one year and there were long gaps among each workshops. Students were involved in other studies and activities during these gaps, so data from different workshops cannot be compared directly. This study only chose one workshop in the whole project to analysis the micro data.

Researcher needs to distinguish the research question of this study and the project target of PLATINUM. The project target of PLATINUM is to see if VR game which simulates natural environment has restorative effect on human beings like a real natural environment. This project target is tightly related to restorative effect of natural environment and game design. In contrast to this, the research question of this study is how multiliteracy in dialogue with a VR game designing project, which is more based on the problems of integrating PBL, multiliteracy and computer-supported collaborative learning. Focusing on the research question is important on both data collection and analysis phases.

6.CONCLUSIONS

In this chapter, conclusions on how to make a game design project more efficient and build a better situated learning environment for practicing pedagogy of multiliteracy would be discussed. Combining with five features of project based learning summarized by Thomas (1999) and four component of pedagogy of multiliteracy by Cazden(1996), a process orientation model (see picture 2) of individuals’ multiliteracy and VR game design project is made mainly based on the research of PLATINUM.



Picture 2: Interaction of Individual’s multiliteracy and VR game design project

This process model above shows how individuals' multiliteracy contributes to VR game design project and how a project supplies a situated learning environment to train individuals' multiliteracy. A game design project and participants' multiliteracy facilitates each other mutually. VR game design project supplies a situated environment to practice pedagogy of multiliteracy, as well as individuals' multiliteracy are important factors for improving efficiency of project based learning. The acquisitions and deficiencies summarized from PLATINUM give out some suggestions for other intercultural game design based projects in the future.

A pedagogy of multiliteracy stimulates students' comprehension and skills. When students have to cooperate with other group members and share ideas with others to find solution of the problem, they use all their comprehension and skills to convey themselves and understand others. Intercultural competence, technological literacy and critical thinking are throughout the game design project, from driving questions, looking for answers to the questions, collaborations with groups members and using all kinds of technology tools to support learning.

In an intercultural VR game design project, many factors should be took into account for supplying students a better situated learning environment to practice the pedagogy of multiliteracy. Time arrangement, instruction, grouping, activities with group members and field work can decrease variations in group work. Regular communication and online group work make team members keep trust on others, especially when group members are from different cultures. Instructions and activities arranged by supervisors influence the outcome of the artifacts, because students often put up with ideas from their experience. Grouping is a key for the implementation of pedagogy of multiliteracy. Each group should have students from different culture and study field, and the number of students from different culture and discipline should to be similar. For example, if three students were from Tampere and only one students were from Hong Kong, students came from same place may lose the chance to practice their intercultural competence. If three students studied game programming and only one student studies graphic design, students study programming may not have many chances to expire themselves.

This study extends Montgomery (2009)'s research. Comparing to ten years before, students view intercultural interaction more positive. Students can know other cultures through talking and experience by themselves. They get inspirations from the cultural differences and even add these cultural differences into the artifacts they made.

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Table 1 : The timetable and activities of PLATINUM

Time	Place	Participants	Activities
31st, May-2nd, June , 2016	Online	All participants	Online courses
1 st -5 th Aug, 2016	Tampere	All participants	<ol style="list-style-type: none"> 1. Trips to hell's gorge national park and Pyynikki park 2. Making VR game demos
11 th -15 th , Oct, 2016	Hong Kong	Participants from Tampere and Hong kong. The Hong Kong students changed to other new participants	<ol style="list-style-type: none"> 1. Experiencing a pond park (a park in city center)/ an island/ dragon's back park (a natural park) 2. Experiencing a 4D movie and an escaping game 3. Taking courses about VR 4. Making new paper VR demos with no relation to the last one.
Nov, 2016/ Feb, 2017	Online	Students from Tampere and the new participants from Hong kong.	<ol style="list-style-type: none"> 1. Reading articles 2. Group meeting
20 th - 24 th , March, 2017	Tampere	Student from Tampere and Beijing. The Beijing students changed to other new participants	<ol style="list-style-type: none"> 1. Group work - promoting paper the VR demos made during the second workshop 2. Making VR game demos

7th-11th, Aug, 2017	Beijing	Students from Tampere and the new participants from Beijing	1. Doing market research online/ in the forbidden city/ in markets/ in VR experience shop 2. Presenting ideas for marketing the VR games
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Table 2: Activities and the game demo progress of group transformation in Workshop 2

Date	Group “Transformation”	Activities	Progress of the demo
11th, Oct, 2016	Students from Tampere and Hong Kong gathered and knew others.	<ol style="list-style-type: none"> 1. Visiting a pond park in city center 2. A supervisor gave some instructions on nature’s restorative effect. 3. Introducing ourselves in classroom 	<ol style="list-style-type: none"> 1. Having an initial idea that our VR game need to have a restorative effect
12th, Oct, 2016	<p>Students were divided into groups by supervisors.</p> <p>Our group has Tiia, Lian and me (Zihua)</p>	<ol style="list-style-type: none"> 1. Visiting dragon’s back park 2. Dividing students into groups according to our major 3. Doing group work 4. Watching a 4D movie 	<ol style="list-style-type: none"> 1. Giving a name to the group- Team Transformation 2. Determining the game modes and mechanics of our VR game
13th, Oct, 2016	<ol style="list-style-type: none"> 1. Dividing up the group work : Tiia: Graphic design Lian: 3D model Zihua: Collecting sound and picture materials 	<ol style="list-style-type: none"> 1. Having a class about VR history and common mechanics of VR 2. Doing group work in classroom 	<ol style="list-style-type: none"> 1. Adding more complicate loops to the game 2. Building a vertical forest in our game

14 th , Oct, 2016	<ol style="list-style-type: none"> 1. Doing activities with my group members 2. Understanding and trusting others more 	<ol style="list-style-type: none"> 1. Visiting an island 2. Reading and filling a booklet about nature's effects on emotion change 	<ol style="list-style-type: none"> 1. Adding more nature elements like shells and birds sound to our game
15 th , Oct, 2016	<ol style="list-style-type: none"> 1. Reaching a tacit understanding with teammates 	<ol style="list-style-type: none"> 1. Group discussion 2. Presenting our paper demo 	<ol style="list-style-type: none"> 1. Getting a paper VR game demo 2. Programming how we would promote the paper demo to a real game in next workshop