UNIVERSIDADE FEDERAL DE SANTA CATARINA
PROGRAMA DE PÓS-GRADUAÇÃO EM INGLÊS

Kátia Eliane Muck

CONTRIBUTIONS OF PEER-REVIEW ACTIVITY FOR THE TEACHING-LEARNING PROCESS IN ONLINE EDUCATION: NEW PATHS FOR LANGUAGE TEACHER EDUCATION

Tese submetida ao Programa de Pós-Graduação em Inglês da Universidade Federal de Santa Catarina para a obtenção do Grau de Doutora em Inglês: Estudos Linguísticos e Literários; Área de Concentração: Estudos da Linguagem

Orientadora: Profa. Dra. Viviane Maria Heberle
Coorientador: Prof. Dr. William W. S. Cope

Florianópolis
2016

Ficha de identificação da obra elaborada pelo autor,
através do Programa de Geração Automática da Biblioteca Universitária da UFSC.

Muck, Kátia Eliane
Contributions of peer-review activity for the teaching-learning process in online education : new paths for language teacher education / Kátia Eliane Muck ; orientador, Viviane Maria Heberle, coorientador, William W. S. Cope , 2016.
296 p.

Tese (doutorado) - Universidade Federal de Santa Catarina, Centro de Comunicação e Expressão, Programa de Pós-Graduação em Inglês: Estudos Linguísticos e Literários, Florianópolis, 2016.

Inclui referências.

1. Inglês: Estudos Linguísticos e Literários. 2. Atividade de revisão por pares. 3. Educação online. 4. Formação de professores de línguas. 5. Ensino superior. I. Heberle, Viviane Maria. II. Cope , William W. S. . III. Universidade Federal de Santa Catarina. Programa de Pós-Graduação em Inglês: Estudos Linguísticos e Literários. IV. Título.

Kátia Eliane Muck

CONTRIBUTIONS OF PEER-REVIEW ACTIVITY FOR THE TEACHING-LEARNING PROCESS IN ONLINE EDUCATION: NEW PATHS FOR LANGUAGE TEACHER EDUCATION

Esta Tese foi julgada adequada para obtenção do Título de "Doutora em Inglês: Estudos Linguísticos e Literários", e aprovada em sua forma final pelo Programa de Pós-Graduação em Inglês.

Florianópolis, 29 de setembro de 2016.

_____
Profa. Dra. Anelise Reich Corseuil
Coordenadora do Curso

Banca Examinadora:

_____
Profa. Dra. Viviane Maria Heberle
Orientadora e Presidente
Universidade Federal de Santa Catarina

_____
Prof. Dr. William W. S. Cope
Coorientador
University of Illinois at Urbana-Champaign

_____
Profa. Dra. Christiane Heemann
Universidade do Vale do Itajaí

_____
Profa. Dra. Cristiane Denise Vidal
Instituto Federal Catarinense

_____
Profa. Dra. Denise Cristina Kluge
Universidade Federal do Paraná

_____
Prof. Dr. Vinícius Medina Kern
Universidade Federal de Santa Catarina

_____
Prof. Dr. Celso Henrique Soufen Tumolo
Universidade Federal de Santa Catarina

ACKNOWLEDGMENTS

First of all, I am grateful to God for all the blessings I have received and for having surrounded me with the most amazing people ever during the time I was pursuing this doctorate. Some of the people are my friends from long time ago and who continued supporting me during this path and understanding my absences sometimes on very important moments of their lives. Others were my friends but they have not resisted the pressure that the last years had in my life and decided to leave my life during this project of pursuing a doctorate. Others are new friends who entered my life through the research enterprise, but who decided to continue in my life because our shared principles go beyond the academic life. And there is the other type … the family kind of people! I have been accumulating them. How could I be more blessed? To each one of those people, thank you!

I come from a family that has always believed on the power of education. I remember having the small shelf we had in our living room filled with books (around 20) and one encyclopedia, despite having limited financial resources. It would be a normal scene if it weren't for the fact that my parents were illiterate. Therefore, my deepest gratitude to them! Because buying books having no idea of what they could contain and just blindly believing that the books would be good for my future is an enormous act of love. I wish they were here now. But my siblings are. As I am the youngest, they were the ones who always helped me with the homework when I was a child. Thank you, Elli, Rosane, and Gilberto for all the love, care, and guidance.

My thankfulness to the Ministry of Education of Brazil, through the Coordination for the Improvement of Higher Education Personnel - Capes Foundation, for providing financial support for this study.

My gratitude to the coordinators, the faculty, and the administrative staff from the English Graduate Program (PPGI) at Universidade Federal de Santa Catarina for all the support with paperwork during these years. My special appreciation to Dr. Susana Funck for supporting me at the moment I needed the most. My gratitude to all my professors!

My gratitude to the University of Illinois at Urbana Champaign (UIUC) family for receiving me as child of its own, for waving fees and tuition, and for letting me take all the teaching courses they offered to their faculty. My gratitude to Mary Kalantzis, dean of the College of

Education while I was in the US, for receiving me at the college, at her home, and in her life, and for providing me an example of a true leader, a powerful woman, an extraordinary educator, and a generous human being.

My thankfulness to my advisors. My gratitude to my former advisor Prof. Dr. Adriana C. K. Delagnello for all the learning opportunities she provided me with and for determinedly helping me with the whole 'sandwich' scholarship process. And my gratitude to Prof. Dr. Viviane Heberle, my advisor, for guiding me through the end of my dissertation and for providing me valuable feedback to my work. Thank you both!

My gratefulness to the International Federation of Red Cross and Red Cross Crescent for choosing me to be part of their pilot online course on emergency operations and for letting me to investigate their course as a pilot for my own research. My especial gratitude to Reda Sadki for all the learning he has shared with me. And to all participants of this research for their invaluable contributions.

My appreciation to the Members of the Committee for having accepted the invitation and for providing precious feedback to improve this work.

I would like to express my gratefulness to my peers from PPGI, particularly to Márcia S.Tiago Rosa, Márcia Carazzai, Cyntia, Nayara, Nádia, Caroline, Rafael, and Bruna. And to the peers from the Forensic Linguistics research group, especially to Dr. Malcolm Coulthard. My appreciation to my peers from the US research group, especially to Samaa Hanya, Mark Keitges, Naj Shaik, Justin Olmanson, and Katrina Kennnett.

My deepest love and gratitude to very special friends who were always by my side supporting me: Flávia, Rodrigo, Andréia, Moacir, D'Aversa, Shirley, Viana, Odair, Iris, Rosaria, Taís, Naty, Alexandre, Nika, Sabrina, Liliane, Patrícia, Vanderlei, Neila, Reolina, Janaína, Luana, Cláudio, Callegari, Aline, Thiago, Helem, Ana Maria, Odete, and Carla.

I would like to express my deepest love and gratitude to the families that embraced me as one of their own while I was in the US sharing with me their culture, their home, and their love: the Australian family: Bruce, Rita, Vivienne, Peter, and Claire; the Brazilian family: Guilherme, Cláudia, and Lurdes, Daniel and Linéia; the American family: Jackie, Sharon, Terry, Danielle, Jandee, Jesston, Lynn, Ted, Sandy, and Steve; the Spanish Scagnoli family; the Greek family: Dimitris, Maria, and Kostas; the American family: Mary Anne, David,

Mathew, Andrew, and Lisa. Thank you so much for taking care of me! I will be eternally grateful.

And last but not least, I would like to express my warm gratitude to six people who were essential to the development of my research:

Jason Mock, from the Applied Technologies for Learning in the Arts & Sciences, UIUC: for his technical support with everything I needed to learn from Coursera-UIUC.

Kathleen Santa Ana, from the Applied Technologies for Learning in the Arts & Sciences, UIUC: for her technical support on guiding me on sorting and organizing data, and on employing SPSS. Thanks for her kindness, her patience, and for continuing being part of my life.

Dr. Norma Scagnoli, Director of e-Learning at the College of Business, UIUC: for providing me several learning opportunities, for introducing me to several researchers on the e-learning field, for developing research with me, for being my mentor, and for inviting me into her home and her family.

Rita van-Haren, my unofficial advisor: for guiding me on the elaboration of the surveys, for reviewing my writings, for inspiring me on our daily discussions during my year in the US, and for reminding me, with her beautiful Dutch accent, that "koffie is klaar" (coffee is ready).

Jason Berg, for his kindness, his technical support with Scholar, his friendship, and his guidance with other technological tools.

And Dr. Bill Cope, my co-advisor: for believing on me even when I was not believing on myself anymore. Thank you for teaching me that the real master is humble and gently leads the student through the learning process. Thank you for leading me and for mentoring me. Thank you for your kindness. Thank you for the uncountable learning opportunities you provided me with. Thank you for the technical, intellectual, and theoretical support. Thank for providing all the resources necessary in order to conduct the pilot research and the main research. Thank you and Mary for inviting me into your home and for sharing your family, especially Sophia. I really appreciate that! And thank you for letting me use your bike! Thank you, eternally thank you!

Rita, Bill, and Jason Berg: It was an immense privilege to share office with you!

Finally, my love and gratitude to the creature who took care of my physical and mental health during my master's studies and has been my inseparable companion during my doctorate enterprise. The creature who keeps reminding me to appreciate life in its completeness: Rhea Maria, my sweet and happy golden retriever.

"You cannot hope to build a better world without improving the individuals. To that end each of us must work for his own improvement, and at the same time share a general responsibility for all humanity…"

Marie Sklodowska-Curie

ABSTRACT

CONTRIBUTIONS OF PEER-REVIEW ACTIVITY FOR THE TEACHING-LEARNING PROCESS IN ONLINE EDUCATION: NEW PATHS FOR LANGUAGE TEACHER EDUCATION

This dissertation focuses on developing further understanding of peer-review activity in e-learning contexts by 1) evaluating intervention outcomes, 2) providing an overview of learners' views, 3) postulating a philosophical justification for collaborative learning technologies, and 4) providing pedagogical implications for teacher professional learning and second language academic literacy. It investigates an online peer-review activity among students from two different online learning settings: 1) a Masters program using the Scholar platform, and 2) a MOOC employing the Coursera LMS. Both courses were offered by the University of Illinois at Urbana-Champaign. This study has 43 participants: 12 took the Coursera course and 31 took the Scholar course. They all performed an online activity of writing a case study guided by rubrics, blind peer reviewing around three cases studies of their peers employing a review criteria and providing numeric and descriptive feedback, revising their own case study based on the feedback, and rewriting it. Data were collected from the feedback, and from surveys. Data from the feedback (100 reviews – 74 on Scholar and 26 on Coursera) was analyzed quantitatively and qualitatively. The former measured reviewers' reliability considering intraclass correlations for consistency and agreement and the latter was classified into categories that emerged from the data. Results show that the Medians for reliability for both groups are similar to Median found in the literature for expert raters. The Scholar participants provided more descriptive feedback than those working in Coursera. In addition, the former group provided more qualitative feedback than Coursera participants. Data from the surveys were organized to expose the demographics and to reveal students' views concerning their learning experience on the activity of peer reviewing. Participants reported having a positive view of the experience of receiving and providing feedback. Moreover, they recognized the helpfulness of the rubrics to write their case study and to provide feedback to their peers. Also, students perceived that the peer-review activity fostered the development of skills, metacognition, and high-level cognition. The conclusion is that learning environments such

as Scholar can foster learning opportunities by providing multiple sources of feedback. They also benefit professors by supporting complex managerial procedures of the activity. Finally, environments such as these promote a shift both on the flow of knowledge and on students' and professors' roles by attributing to all participants of the teaching-learning process the responsibility of the co-construction of knowledge.

Keywords: Peer-Review; Online Education; Language Teacher Education; Higher Education; Feedback

Number of pages: 296
Number of words: 50,778

RESUMO

CONTRIBUIÇÕES DA ATIVIDADE DE REVISÃO POR PARES PARA O PROCESSO DE ENSINO-APRENDIZAGEM NA EDUCAÇÃO ONLINE: NOVOS CAMINHOS PARA A FORMAÇÃO DE PROFESSORES DE LÍNGUAS

Esta tese objetiva apresentar uma maior compreensão sobre a atividade de revisão por pares em contextos de aprendizagem online buscando: 1) avaliar os resultados da intervenção, 2) fornecer uma visão geral das apreciações dos alunos, 3) postular uma justificação filosófica para as tecnologias de aprendizagem colaborativa, e 4) fornecer implicações pedagógicas para a formação profissional de professor e desenvolvimento de habilidades acadêmicas em segunda língua. Este estudo investiga uma atividade online de revisão por pares entre alunos de dois programas diferentes: 1) um programa de mestrado usando a plataforma Scholar, e 2) um MOOC empregando o Coursera como LMS. Ambos foram oferecidos pela University of Illinois at Urbana-Champaign. A investigação conta com 43 participantes: 12 do curso Coursera e 31 do curso Scholar. Todos realizaram uma atividade online que consistia em: escrever um trabalho guiado orientações escritas; realizar revisão cega por pares de cerca de três trabalhos de seus colegas utilizando critérios de revisão e oferecendo feedback numérico e descritivo; revisando seu próprio trabalho com base no feedback, e reescrevê-lo. Os dados foram coletados a partir do feedback e através de questionários. Os dados do feedback (100 comentários - 74 no Scholar e 26 no Coursera) foram analisados quantitativamente e qualitativamente. A análise quantitativa mediu a confiabilidade e a concordância entre revisores com o coeficiente de correlação intraclasse e a análise qualitativa foi realizada classificando os dados em categorias que emergiram dos dados. Os resultados mostram que as medianas para a confiabilidade dos dois grupos são semelhantes à mediana encontrada na literatura para avaliadores profissionais. Para o feedback descritivo, os participantes do Scholar forneceram mais feedback descritivo que os alunos do Coursera. Além disso, participantes do forneceram mais quantidade de feedback de boa qualidade que participantes do Coursera. Os dados dos questionários foram organizadas para expor os dados pessoais dos participantes e para revelar a percepção dos mesmo quanto à suas experiência de aprendizagem sobre a atividade de revisão por

pares. Os participantes relataram ter uma visão positiva da experiência de receber e fornecer feedback. Além disso, eles reconhecem a utilidade das instruções ao escreverem seu trabalho e para fornecer feedback aos seus pares. Além disso, os alunos perceberam que a atividade de revisão por pares fomentou o desenvolvimento de habilidades, metacognição e cognição de alto nível. A conclusão é que os ambientes de aprendizagem, tais como Scholar pode fomentar oportunidades de aprendizagem, proporcionando múltiplas fontes de feedback. Tais ambientes também beneficiam professores por cuidarem de todos os procedimentos gerenciais da atividade. Por último, tais atividades promovem uma mudança tanto no fluxo de conhecimentos quanto nos papéis desempenhados por alunos e professores, atribuindo a todos os participantes do processo de ensino-aprendizagem a responsabilidade da coconstrução do conhecimento.

Palavras-chave: Atividade de Revisão por Pares; Educação Online; Formação de Professores de Línguas; Ensino Superior

Número de páginas: 296
Número de palavras: 50.778

LIST OF FIGURES

LIST OF TABLES

TABLE OF CONTENTS

CHAPTER 1 - INTRODUCTION

1.1 PRELIMINARIES

I was an e-tutor for an undergraduate course of English teacher education for almost four years. As this was a new context for me, during that time I read a number of research articles in an attempt to shine some light on my lack of scientific knowledge. I discovered that some articles discuss or just state the importance of avoiding transposition of content and pedagogy from one mode of education into another; in this case, transposition from face-to-face classes into online classes (Akeroyd, 2005; Bele & Rugelj, 2007; Leffa, 2005; Stodel, Thompson, & MacDonald, 2006; S. White, Davis, Dickens, & Fielding, 2013)[1]. Other authors discuss the importance of autonomy in e-learning (Belloni, 2001; Dellagnelo, Muck, & Abreu, 2012; Palloff & Pratt, 2002). I became an advocate of clear answers to both these questions: 'no' for transposition and 'yes' for autonomy.

Then, I realized that something in my discourse was oversimplifying the situation. In my previous work, paraphrasing Johnson (1999), I state that teachers' beliefs

> affect teacher's reasoning, which leads to serious pedagogical implications inasmuch as their practices are determined by their beliefs. In this vein, she encourages the questioning of mechanical behaviors in order to understand what is behind these social practices. And it is only when we adopt a critical reflective stance that we are able to perceive implicit information, usually disguised and hidden in commonsensical behavior or discourse. (K. E. Muck, 2010, p. 3)

My belief was that to make clear responses to the two questions, responses which I repeated frequently to my colleagues and my students, would be enough. However, my social practice was a reproduction of the traditional transmission of knowledge, where professors and tutors are the holders of knowledge. That was the uncanny moment when I realized that, in fact, I did not know how to be a teacher in e-education. How can I contribute to teacher education if I do not know how to behave in this mode of education? And, in Freire's words, the teacher

[1] This dissertation follows the rules of APA style 6th edition for citations and reference list. They were automatically edited employing EndNote X7. The rest of the formatting follows the rules established by the Main Library.

cannot help the student to overcome his or her ignorance if the teacher himself or herself cannot permanently overcome his or hers (Freire, 1996, p. 95, my translation)[2]. Gee (2013, p. 8) has a similar argument stating that we "cannot learn how to get smart if we do not first understand what makes us stupid and how we can reverse it".

Thus, this research is part of the exercise of overcoming my lack of scientific knowledge. It is a search for evidence that demonstrates how I can be a type of knowledge mediator (as opposed to knowledge holder) in e-education.

1.2 STATEMENT OF THE PURPOSE

Since 2006, the Brazilian Open University (UAB[3]) has offered a variety of undergraduate and graduate degree programs via agreements with other universities, with the goal of promoting the following[4]: 1) universal access to college; 2) strengthening of the countryside schools; 3) deconcentration of courses from major centers, thus preventing migration to big cities; 4) teacher education; and 5) (re)qualification of human resources. Given these objectives, the Brazilian Federal Government has increased funding and public policies aiming at expanding online distance education in the country (Universidade_Aberta_do_Brasil).

The Federal University of Santa Catarina (UFSC[5]) may serve to illustrate this expansion. In the first semester of 2013[6], it was offering higher education degree programs in five different Brazilian States: Santa Catarina, Rio Grande do Sul, Paraná, Mato Grosso do Sul and Roraima (e-MEC). Altogether, UFSC was offering 26 courses in distance mode at the mentioned period: nine specializations, four

---

[2] Original text: "Como professor não me é possível ajudar o educando a supercar sua ignorância se não supero permanentemente a minha. Não posso ensinar o que não sei."

[3] It is the acronym for Brazilian Open University in Portuguese: *Universidade Aberta do Brasil*. I will employ the acronym UAB because it is already widely used in Brazil.

[4] http://www.uab.capes.gov.br/index.php?option=com_content&view=article&id=9&Itemid=21. Access in February 20, 2013.

[5] It is the acronym for Federal University of Santa Catarina in Portuguese: *Universidade Federal de Santa Catarina*.

[6] See e-MEC: http://emec.mec.gov.br/ . Access in February 20, 2013.

aperfeiçoamento (usually a one-month training course to promote professional updating), five courses at a B.A. degrees, and eight higher education degree programs in teaching (specifically in Biology, Philosophy, Physics, English, Spanish, Portuguese, Mathematics and Chemistry).

Regarding the goals of UAB listed above, my interest lies in teacher education, as a considerable number of teachers in Brazilian public schools do not have an undergraduate degree or act in areas other than those for which they have been educated. To exemplify, in Brazil, in 2000, 47.3% of the teachers teaching primary or secondary school[7] held an undergraduate degree (Scheibe, 2006). The Brazilian Government, through the CAPES[8] Foundation, has been developing a program for primary and secondary school teacher education[9] since 2009. It seems that this effort has already impacted education as this percentage increased to 79% [10], in 2013. Despite this visible improvement, there is still a long path to be travelled, as we still have to embrace the professional development of 21% of teachers that are already in-service, based on data from 2013. Moreover, we also have to devote special importance to the education of teachers to be and address the quality of these in-service and pre-service programs.

In this scenario, online language teaching undergraduate programs have occupied a privileged position in Brazilian's Government as they are meant to fulfill this gap of lack of professionalization, especially in regions far from industrial centers and state capitals. Concerning specifically English language teaching, in the first semester of 2013, there were 25 undergraduate programs in teaching English offered in Brazil, according to a search conducted in the website of the Ministry of Education and Culture – MEC (Ministério_da_Educação_e_Cultura). Thirteen of these programs form teachers to teach English and Portuguese, i.e., teachers get a degree to teach both languages. The other 12 undergraduate programs focus on the education of English teachers, with a total of six of these being public. It

---

[7] Primary + Middle School is the equivalent to *Ensino Fundamental* in Brazilian's educational system.

[8] CAPES, in Portuguese, is the acronym for *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior* (Coordination for the Improvement of Higher Education Personnel).

[9] "Plano Nacional de Formação de Professores da Educação Básica-PARFOR. http://www.capes.gov.br/educacao-basica/parfor

[10] Source: http://portal.inep.gov.br/indicadores-educacionais

is relevant to highlight that the Brazilian foreign language teaching programs have two objectives: to teach students (prospective teachers) a foreign language (English, in this case) and to teach them how to teach this foreign language.

The reality of this distance education is that it is still at a developmental stage and little has been researched on degree programs using this modality in Brazil. This was revealed by a search[11], with no scope regarding publication year, I conducted in two major Brazilian databases: *Portal de Periódicos* and *Banco de Teses*. The search in the former was conducted using an advanced search employing the following entries: "educação a distância" (distance education) and "formação de professores" (teacher education). Results displayed 43 instances, amongst which 11 were related to undergraduate degrees, scope of this research. Nine of them approach teacher education in distance education focusing on National policies (Barreto, 2003, 2010; Belloni, 2002; Freitas, 2003, 2007; Giolo, 2008; Luca, 2002; Reis, 2003; Velloso, 2012). For the others, one is about distance education teaching degrees on Physics (M. L. R. d. Silva & Mercado, 2010) and the other on Pedagogy courses (Nevado, Carvalho, & Menezes, 2009). As verified, none of them are devoted to foreign language teaching.

With regard to the search conducted in the other database, *Banco de Teses*, I employed the entry "educação a distância" + "formação de professores" ("distance education" + "teacher education"), in Portuguese. It resulted in a total of 34 dissertations and theses, from which 12 were related to undergraduate courses. Six of them approach teacher formation in distance education focusing on National policies (Carvalho, 2009; Lima, 2003; Martelli, 2003; Sá, 2007; E. F. Silva, 2007; Toschi, 1999). One discusses distance education as an alternative to teacher education (Gomes, 2000). Another suggests a proposal for teacher education through distance education (Munhoz, 2000). And the others approach distance education teaching courses on Physics (Fernandes, 2007), Pedagogy (Araújo, 2011; Benevenutti, 2011), and Mathematics (Athias, 2010). Again, none of these are related to foreign language teaching.

Although there is lack of research on the field of foreign language teaching education in distance education, it is important to observe from the above that research focusing on national policies for teacher education in this mode of education date from 2000, i.e., five years

[11] This search was conducted on December 2012.

before UAB started offering teacher education programs. This signals that the practice (the implementation) could be research-lead. The implementation of UAB in a country with the territorial proportions of Brazil is a challenge and, certainly, a work in progress and with continuous change and adaptations to diverse contexts. After ten years in operation, perhaps it is time to start thinking about ways to improve the quality [12] of this mode of education concerning language teacher education programs particularly in public universities.

These public programs have been run through a blended system of education, having most of the interaction conducted online and employing the Modular Object-Oriented Dynamic Learning Environment (Moodle) as Learning Management System (LMS). This online interaction is centered on an e-tutor system, where each e-tutor is responsible for providing assistance and feedback to a certain group of students. This system highlights the practice of having the e-tutor as the holder of knowledge and, therefore, being the person that transmits the knowledge to the students. However, if we conceive knowledge to be co-constructed within society, this one-way process of knowledge flow is in need of revision. With the affordances of the new educational technologies that allow an extensive connection among participants in online educational environments, it is possible to apply a pedagogical approach in which, for instance, formative assessment and recursive feedback, from different sources such as peer-review, can be introduced.

Bearing this in mind, this doctoral dissertation investigates the shift from traditional transmission didactics to increasing peer-to-peer learning. It scrutinizes students taking an online course offered in two different online modes: 1) a Masters program using the Scholar platform, and 2) a MOOC employing the Coursera LMS. Both groups perform the same activity of writing a case study, reviewing case studies from three other peers, reviewing their own case study, and revising it based on the feedback they receive from their peers.

Therefore, the objective of this dissertation is to understand this e-learning context by 1) evaluating intervention outcomes, 2) providing an overview of learners' opinions on the peer-review activity they performed, 3) postulating a philosophical justification for collaborative learning technologies, and 4) providing pedagogical implications for teacher professional learning and second language academic literacy. In

[12] My assumption is that there is always room for improvement.

order to accomplish this objective, the following research questions guide this research:

1- What kind of peer feedback was used for the development of the students' written case studies?
2- What are students' views regarding their learning experience with the peer-review activity? How did the students evaluate their experience of providing and of receiving feedback?
3- What are the implications of peer-to-peer learning in online environments for teacher professional learning and second language academic literacy?

1.3 SIGNIFICANCE OF THE RESEARCH

The gap in research regarding undergraduate programs of English teacher education, or even foreign language in general, in the distance education mode leads to an imperative need to carry out research in this specific field. This lack of research addressing online language teacher education was also reported by England (2012) regarding the general international picture. Therefore, this dissertation intends to be a starting point on the discussion of this issue in Brazil.

Moreover, this research was conducted at the University of Illinois, which, according to the university website, is historically recognized for its innovation in education, where, for example, "the world's first computer learning environment was created"[13]. Researchers in education at the University of Illinois are committed to promote innovation in education, one example being the creation of the Ubiquitous Learning Institute (ULI). According to Nicholas C. Burbules, director of the Department of Education Policy at the College of Education[14], the institute "is a center for research and inquiry into the changing conditions and possibilities of learning, as well as a site for pedagogical redesign and innovation". This educational setting allowed me to investigate the use of different platforms in a multicultural context with students from the entire world and with diverse background. This is relevant because learning how to deal with all these elements is fundamental in e-learning environments.

Another element that enhances the significance of this investigation is the nature of the activity the participants engage in:

[13] Source: http://education.illinois.edu/newlearning/introduction.html Access in March 20, 2013.
[14] Source: http://education.illinois.edu/uli. Access in March 20, 2013.

writing/peer-reviewing/self-reviewing/revising. Besides offering a different system of knowledge production/consumption/distribution, this type of writing process activity is of special importance for teacher education because writing is a way to represent and organize knowledge. Moreover, this research is relevant to provide pedagogical implications for the language teacher education field, inasmuch as it understands writing as an opportunity to mediate prospective language teachers' cognition and metacognition. In this sense, this study intends to shine light on the scenario of e-tutors' social practice by proposing that they become knowledge mediators as opposed to their current social position of knowledge holders and transmitters.

Despite directing the findings in order to analyze them in a way to find answers that would benefit the Brazilian context of foreign language teacher education, the conclusions of my research while at the University of Illinois may subsidize other learning contexts including Brazilian online professional learning for teachers. Conclusions, then, from the research will have particular relevance for: (1) the design of future online teaching and learning strategies, (2) the design of future online teaching training programs, and (3) the understanding of the application of Scholar and Coursera platforms in a global, multilingual context of the teaching-learning process.

1.4 ORGANIZATION OF THE DISSERTATION

In order to report this research process, this dissertation is organized in the following fashion. Following this introductory chapter (Chapter I), Chapter II and III present the review of the literature. The former approaches the teacher education literature and the latter provides an introduction to the distance education literature, the theories of education that have guided the MOOCs, and the New Learning paradigm. In the sequence, Chapter IV describes de pilot study that guided this investigation. Chapter V explains the method under which this investigation was conducted. Subsequently, Chapter VI answers the research questions by presenting the results and discussing the findings. Finally, Chapter VII provides the concluding remarks by summarizing the findings, indicating the theoretical, methodological and pedagogical implications, and presenting the limitations and suggestions for further research.

CHAPTER 2 – REVIEW OF THE LITERATURE: TEACHER EDUCATION

This study investigates ways to mediate knowledge in two e-learning contexts in order to provide a form of knowledge mediation that meets the requirement of mediation in foreign language teacher education program in e-education. In this context, this chapter provides an overview of the subject, organized in the following sections: Section 2.1, sociocultural perspective within L2 teacher education; Section 2.2, teachers' beliefs; and Section 2.3, mediation in the sociocultural perspective.

2.1 SOCIOCULTURAL PERSPECTIVE WITHIN L2 TEACHER EDUCATION

The point of view through which researchers have seen teacher learning, according to Johnson (2009), has shifted from a positivist epistemological perspective to an interpretative perspective. The main difference between them is in how they place teachers (either in-service or in pre-service) and knowledge in society. The positivist epistemological perspective perceives teachers as isolated objects of scientific investigation, studying their psychological self and not taking into account their relation with society. Knowledge, in this view, is external to the individual and can be captured in isolation. The interpretative epistemological perspective, on the other hand, observes what teachers do and how and why they do it. This perspective sees the teacher as part of society and, consequently, knowledge as something that is socially built.

It is possible to state that perspectives on language teacher education have shifted from one extreme to the other. There is the positivist epistemological perspective, which is based on knowledge-transmission, on the one hand, and the interpretive epistemological perspective, which is socially-situated, on the other hand. The former defines "learning as an internal psychological process isolated in the mind of the learner and largely free from the social and physical contexts within which it occurs" (Lenneberg, 1967, in Johnson, 2009, p. 7). In this line of reasoning, learning is considered as an individual and isolated process in which context, culture and social interactions are irrelevant.

In this perspective, Johnson (2009, p. 8) states that knowledge about teaching and learning can be transmitted, for instance, through

lectures and books, and can be transported to other settings as something static. She states that knowledge "is considered to be objective and identifiable, and represents generalizable truths. In other words, knowledge is out there and can be captured through the use of scientific methods" (Johnson, 2009, p. 7). These scientific methods, as stated by the author, encompass replicable methods that take into account issues of validity and reliability as well as a random selection of participants so as to be representative of a population. Based on that, results are generalizable and this knowledge (result of research) is transported to other contexts. Considering this epistemological view of knowledge, Freeman and Johnson (1998, p. 399) claim that

> teacher education programs generally operated under the assumption that teachers needed discrete amounts of knowledge, usually in the form of general theories and methods that were assumed to be applicable to any teaching context. Learning to teach was viewed as learning about teaching in context (the teacher education program), observing and practicing teaching in another (the practicum), and, eventually, developing effective teaching behaviors in yet a third context (usually in the first years of teaching).

In the 1970s, as Johnson (2009) states, in reaction to this epistemological perspective, realizing that classrooms are complex settings embedded with context and culture, researchers realized that it was insufficient to know what teachers do. There was a need to have access and to disclose why teachers do what they do. The central question for researchers became, in Johnson (2009, p. 9) words, "How do teachers participate in and constitute their professional world?".

These investigations of teacher cognition lead to a reconceptualization of the knowledge-base of L2 teacher education moving the epistemological perspective from knowledge-transmission to cultural and socially-situated. What should, then, language teachers know in order to teach language? The knowledge-base in L2 teacher education, according to Johnson (2009, p. 11),

> informs three broad areas: (1) the content of L2 teacher education programs: *What L2 teachers need to know*; (2) the pedagogies that are taught in L2 teacher education programs: *How L2 teachers should teach*; and (3) the institutional forms of delivery through which both the content and the pedagogies are learned: *How L2 teachers learn to teach*.

The focus of the present research is on how to develop and implement effective pedagogy in online settings of teacher education, specially the two last areas, which demand mediation. In the sociocultural perspective, learning to teach, in Johnson's words, "is based on the assumption that knowing, thinking, and understanding come from participating in the social practices of learning and teaching in specific classroom and school situations" (Johnson, 2009, p. 13). From this perspective, context, culture and social interactions are essential.

For that reason, the sociocultural perspective embraces several issues inherent to L2 teacher education, namely: 1) it provides explanations for teacher learning cognitive processes; 2) it understands teacher education as a continuum process of reformulation and reconstruction; 3) it provides both "the content and the processes of L2 teacher education" (p. 13) interrelating everyday knowledge to scientific knowledge; and 4) it involves teacher educators in utilizing mediational tools integral to the context (Johnson, 2009). These concerns will be briefly addressed in this order.

As listed in the previous paragraph, drawing on Johnson (2009), the first of the issues inherent to L2 teacher education, in a sociocultural viewpoint, is that it provides explanations for the cognitive processes taking place in teacher learning. The sociocultural perspective "provides us with a theory of mind that recognizes the inherent interconnectedness of the cognitive and the social" (Johnson, 2009, p. 13). According to the author, it allows the understanding of teachers' reasoning and transformation, and the effect of this process on themselves, on the students, and on the activities they engage.

A second issue is that a sociocultural perspective understands teacher education as a continuum of processes of reformulation and reconstruction. Johnson (2009, p. 13) asserts that "a sociocultural perspective on L2 teacher education involves changing, and not simply reproducing, L2 teachers and their instructional activities". According to this line of thought, the author states that this perspective recognizes teacher education as a process through which reformulation takes place in order to meet "both individual and local needs" (*idem*). Information and communications technologies (ICTs) can be helpful in this process. Alonso (2008), when discussing the relation between ICTs and teacher education in the Brazilian context, states that it is expected that the ICTs

would "catalyze transformations in the modes of teaching and learning, in the way of being a professor" (p. 748, my translation)[15].

A third issue is the fact that a sociocultural perspective provides the content and the processes of L2 teacher education (Johnson, 2009, p. 13), as well as interconnecting everyday knowledge to scientific knowledge. According to Johnson (2009), students arrive to L2 teacher education programs with their own assumptions concerning language and language learning and teaching. These assumptions come from the experiences they have faced in their lives as students and as teachers. This knowledge, in the sociocultural perspective, is regarded as everyday knowledge. The other type of knowledge, the scientific – which is produced on a theoretical realm – offers prospective teachers the opportunity to go beyond their everyday concepts. It is an opportunity to reevaluate, reformulate, and resignify beliefs as well as to change behaviors. It is important to state that these two types of knowledge have a dialogic relationship. The relevance of this rests on the fact that it "positions teachers not as passive recipients of theory but as active users and producers of theory on their own right, for their own means, and as appropriate for their own instructional contexts" (Cochran-Smith & Lytle, 1993, in Johnson, 2009, p. 15).

A last concern is that a sociocultural perspective involves teacher educators in utilizing mediational tools and creating new tools so as to promote opportunities for teachers to externalize their everyday concepts – their beliefs. Once these concepts on a certain issue are externalized, through mediation, scientific concepts are introduced. Beliefs, then, are reconceptualized. Moreover, this reconceptualization is a process that results on a different outcome for each individual due to his or her own everyday concepts and the specific social and cultural context s/he is inserted in (Johnson, 2009).

In sum, while the positivist epistemological perspective to language teacher education is based on knowledge-transmission, the sociocultural perspective is a cultural and socially situated perspective. The former understands teachers as passive receivers and deliverers of a package of static knowledge that is already complete and can be delivered in and applied to different contexts. The latter, on the other hand, comprehends teachers as life-long activists in their own process of

[15] Original text: "catalisar transformações nos modos de ensinar e aprender, no modo de ser professor."

learning and teaching as knowledge is socially co-constructed and mediated.

2.2 TEACHERS' BELIEFS

Eisenhart, Shrum, Harding, and Cuthbert (1988) conducted a review of literature on teacher beliefs from the early 1960s to mid 1980s. They went to the cognitive anthropology field to build their working definition of teacher beliefs, which is the definition adopted by the present investigation. They state that "to accept a proposition as true is to value it in some way for logical, empirical, social, or emotional reasons. That is, a belief is a way to describe a relationship between a task, an action, an event, or another person and an attitude of a person toward it" (p. 53).

Teachers' beliefs are personal judgments regarding the process of teaching and learning, derived from their experiences as learners (of languages and other subjects), as learners of teaching, and as teachers. These personal judgments are characterized as knowledge developed in and with our social activities. In sociocultural theory, this knowledge is called *spontaneous concept* (Vygotsky, 1986) or *everyday concept* (Johnson, 2009). In addition to this knowledge is the *scientific concept* (Johnson, 2009; Vygotsky, 1986) which embraces the knowledge that is produced on theoretical grounds. The challenge of teacher education, according to Johnson (2009), is to introduce scientific concepts in a way that they can connect to everyday concepts establishing a dialectic relationship.

These concepts are all constructed in specific contexts. Human cognition, as Golombek and Doran (2014, p. 104) state, "is conceptualized as originating in and being shaped by engagement in social activities, emerging on the inter-psychological plane and gradually transforming to the intra-psychological plane". Cognition, in Kalantzis and Cope (2012, p. 211)'s words, "happens as much outside of the brain as it does inside. It finds fertile ground in the open potentialities of the brain, and so shapes the brain. The transformative task of education is to support this learning process". Context, therefore, in line with sociocultural theory, shapes teachers' conceptualization of teaching inasmuch as these experiences (as learners and teachers) happen in specific cultural and socially grounded spaces. In other words, teachers' social interactions in their cultural environment lead them to build their own set of truths about what to teach and the best way of

performing it. It is a process from the external interactions to an internal personal mediation.

From a sociocultural perspective, this process of transformation from inter to intra-psychological planes is called internalization (Golombek & Doran, 2014; Johnson, 2009). It is when "a person's activity is initially mediated by other people or cultural artifacts but later comes to be controlled by him/herself as he or she appropriates and reconstructs resources to regulate his or her own activities" (Johnson, 2009, p. 18). Golombek and Doran (2014) argue that the mind is mediated as "humans understand and act on the world by means of psychological tools that are appropriated in the context of specific goal-oriented sociocultural activities" (p. 104). This mediation, according to Johnson (2009, p. 18) occurs through three types of tools: 1) cultural artifacts and activities, which, as an example, can be the "textbooks and the instructional activities they engender"; 2) concepts, such as the idea of teaching as the act of simply delivering knowledge; and 3) social relations, as the "differential power relations between teachers and students".

A sociocultural perspective on education perceives teaching, learning, and development as interrelated (Johnson, 2009). In this line of thought, instead of being teacher-centered or student-centered, education is centered on the activities and resources that students and teachers engage in together with the purpose of leading student's cognitive development.

This cognitive development is achieved through instruction. According to the author's definition of instruction through a sociocultural lens, cognitive development is the ultimate goal and one that is reached through a cyclical process of dialogic mediation. Students need to be aware of the everyday concepts they are dealing with, so that the scientific concepts can be introduced and through meaningful activities they would be able to re-conceptualize those concepts and solve problems by themselves (Johnson, 2009, p. 63). Instruction, in this sense, as Johnson points out, "can be characterized as a dialogic mediation process of reconceptualizing and recontextualizing knowledge" (*idem* p. 62). It is precisely the dialogic mediation process of reconceptualizing and recontextualizing knowledge that relates concept development to teachers' beliefs. This conceptual thinking, according to Vygotsky (1998, in Johnson 2009, p. 64) is "a new form of intellectual activity".

Moreover, Johnson (2009) argues for the notion of a dialectic relationship between the everyday concepts and the scientific concepts.

One is built and/or developed upon the other. To illustrate this mediation process I will provide the three examples she offers in order to (i) demonstrate the reconceptualization of concepts of methodology, language, and teaching; (ii) the reconceptualization of reading comprehension instruction; and (iii) the scaffolded learning and assisted performance.

In order to illustrate the reconceptualization of concepts of methodology, language, and teaching, Johnson describes, for example, the activities she engaged in with her Master's students when she observed their everyday concepts on methodology, in which they believed in the idea that there is a best method of teaching; on language, which they conceived, for example as being a static entity; and on teaching, which they comprehended as the act of delivering content. Johnson then introduced scientific concepts and, through activities involving verbalization, she promoted dialogic mediation.

In the last two instances, the author illustrates the reconceptualization of reading comprehension instruction and the scaffolded learning and assisted performance. The former describes how a teacher engages in a dialogic relation with the researcher: the teacher verbalizing her thinking and the researcher influencing it. The latter provides extracts of classroom interaction – examples of how the quality of both teachers' questioning patterns and their mediation of classroom interaction can lead to cognitive development.

2.3 MEDIATION IN THE SOCIOCULTURAL PERSPECTIVE

According to Kohl (1997), Vygotsky studied the higher mental processes, which are those that are more complex, such as imagining something we are not seeing or thinking in a future event. These higher mental processes are different from the elementary mechanisms, which are reflexive actions, automatized actions and simple associative process between events. A central conception to understand the psychological functioning of these higher mental processes is the concept of mediation. Vygotsky (1981) states that human beings can have a direct relation to the world or they can have a mediated relation to it. In his words,

> [i]f we turn our attention to types of social connection, we discover that even relations among people are of two types. It is possible to have direct and mediated relations among people. Direct relations are those based on instinctive forms of expressive movement and action. […] At a higher level of development, however, mediated relations among people

> emerge. The essential feature of these relations is the sign, which aids in establishing this social interaction (Vygotsky, 1981, pp. 159-160).

This mediation can be through instruments or signs. Drawing on Kohl (1997), the instruments are objects that exist between someone and his/her objective. For example, when one wants to turn on the television employing a remote control, the remote control is the instrument. As for signs, they are psychological instruments. The author states, they work as symbolic instruments. They are the representation of objects, situations or events. Moreover, they are collectively built in society by interaction; their meaning is shared in society.

Mediation, however, is a broad term in Vygotsky's thinking, according to Wertsch (2007). The author outlined Vygotsky's mediation in two general types: explicit mediation and implicit mediation. He summarizes the differences between them in the following:

> Explicit mediation involves the intentional introduction of signs into an ongoing flow of activity. In this case, the sign tends to be designed and introduced by an external agent, such as a tutor, who can help reorganize an activity in some way. In contrast, implicit mediation typically involves signs in the form of natural language that have evolved in the service of communication and are then harnessed in other forms of activity. (Wertsch, 2007, p. 185)

In Lantolf and Thorne (2006, p. 63)'s view, everything is mediated. For them, the difference is that in some cases the mediation is external (that can be actually seen) and in other cases the mediation is internal (it happens in our minds).

In any case, external/internal or implicit/explicit, mediation is what leads someone from A to B, being A and B everything: a thought, a place, an object, an action, and so on. Sometimes we can accomplish the task of achieving B by ourselves employing just our own mind as mediator. Other times, however, we need guidance from someone or something with more knowledge to go from A to B. To exemplify the two situations, imagine that a group of students receives the task of writing a play. Some of them may have the knowledge of the literary elements that comprise the genre drama (context, dialogue, plot, characters, symbolism); they will perform the task employing this knowledge. Other students, on the other hand, might be completely unaware of the requirements of the genre drama, and other students may know that the genre requires separate dialogues for each character but

they are still unable to grasp the complexity of the task. Therefore, they need a guided help to write the play. Some possible help sources could be: their peers who know what the literary elements are; the teacher who assigned the task; books and/or online texts on the subject; and so on.

Vygotsky (1978) calls *actual developmental level* the stage where students accomplish moving from A to B by themselves, and *potential developmental level* the stage where students need more expert guidance to arrive at B. From the example above, it is already possible to visualize that each student may have a different level of knowledge about the elements of drama at the moment they received the task. This means that the students who are in the potential developmental level will need more or less guidance on the subject in order to accomplish the task. The theorist named this amount of needed guidance the *zone of proximal development* (ZPD), which is "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 33). Still employing the example, each student then would be in a different ZPD.

It is important to note that Vygotsky restricts the guidance to adults, supposedly because he is referring to child development. Therefore, as this study was conducted having adult participants, the working definition of ZPD for this purpose includes rubrics as a type of guidance along with peer review, which are the two main characters in the mediation process approached in this research. They will be presented in the next chapter.

This chapter provided an overview of the literature that is essential to understand the role of knowledge reconceptualization in teacher education and the function of mediation in this process. This is relevant for this research because mediation is the core resource of the present investigation on online peer-review process, which can foster prospective teachers' metacognition. Inasmuch as knowledge is mediated and co-constructed during peer-review, knowledge is being reconceptualized and recontextualized. In this sense, it demonstrates that it is created and recreated in sociocultural relations, which are subverted with peer-review activities, as they require self-regulation.

> Self regulation creates a learner and assessment centered focus where the teacher becomes a facilitator as opposed to an expert, and learners assume a more active role. This can foster shared purpose and responsibilities among learners and the teacher in ongoing monitoring,

> assessment and provision of feedback to their peers. These are critical requirements particularly in online learning environments where learners are expected to assume primary responsibility for their learning. (Gikandi, Morrow, & Davis, 2011, p. 2346)

However, "these enactments which are core to online pedagogy will essentially depend on teachers' beliefs" (Gikandi et al., 2011, p. 2347). Therefore, online peer-review activities in teacher education programs are activities by which prospective teachers can start perceiving their beliefs and acting upon them and, consequently, changing pedagogical decisions.

The next chapter provides an overview of distance education and online education. This is relevant because is explains the context, more specifically both the context of this investigation (online environments) and the specific position of online education in the Brazilian context, which is essential to further understanding the implications of peer-to-peer learning in online environments for teacher professional learning and second language academic literacy. Moreover, as this research investigates a Massive Open Online Course, the next chapter offers a review on Massive Open Online Courses and the teaching pedagogy developed with them. Lastly, it provides an overview of the New Learning theory and peer-review because 1) the investigated courses follow the principles of this theory, 2) the online environment Scholar was developed according to the fundamentals of this theory, and 3) this research adopts it as the theory that can provide social change in educational environments, such as these in the present investigation.

CHAPTER 3 – REVIEW OF THE LITERATURE: DISTANCE EDUCATION

Bearing in mind that this research is contextualized in online learning environments, this chapter compromises a concise overview on the educational theories behind distance education. Therefore, Section 3.1 tackles a selected introductory literature on distance education; Section 3.2 outlines the origin and development of Massive Open Online Courses (MOOCs) and explores the pedagogy that have been employed to develop them; and Section 3.3 presents the theory under which the courses subject of this investigation were developed, the New Learning.

3.1 DISTANCE EDUCATION: AN INTRODUCTION

To start with, it is imperative to provide the definition of two terms that will be employed in this study: distance education and e-learning. Carr-Chellman and Duchastel (2000, p. 231) state that distance education

> has quite naturally had a tradition of delivery of instruction at a distance. However, given today's emphasis on access to information via the web, that tradition is likely to be uprooted. We are essentially headed towards a paradigm of 'learning without distance'. […] The new online paradigm calls not so much for providing instruction at a distance, as for making available learning resources and instructional activities to students.

It is true that the social practice of e-learning has changed the very definition of distance education. For instance, when learning without distance, the participants of an Internet based course are all at the same psychological distance from each other, which provides all the participants with the same learning opportunities regarding access to content, interaction among peers and interaction with the instructor. On the other hand, the face-to-face education scenario is now seen as distance education. The number of students in each classroom is increasing and so is the distance between students and teachers. In e-learning workshops, it is common to listen to the sentence: "distance education starts on the third row". In this sense, there is a need to redefine the concept of distance, which is beyond the scope of this study.

Distance education is an umbrella term that is considered in this investigation as the education that takes place in synchronous or

asynchronous forms with interactants being in different geographic location. This research explores a specific form of distance education: e-learning. Here it is defined as "distributed learning environment[16] that utilizes pedagogical tools, enabled by Internet and Web-based technologies, to facilitate learning and knowledge building through meaningful action and interaction" (Dabbasgh, 2005, p. 31). E-learning is the environment where:

> (1) globalization and learning as a social process are inherent and enabled through telecommunications technology; (2) the concept of a learning group is fundamental in achieving and sustaining learning; (3) the concept of distance is relatively unimportant or blurred, and is not limited to the physical separation of the learner and the instructor; (4) teaching and learning events are distributed over time and place occurring synchronously and/or asynchronously; (5) learners are engaged in multiple forms of interaction: learner-learner, learner-group, learner-content, and learner-instructor; and (6) internet and Web-based technologies are utilized to support the teaching and learning process and to facilitate learning and knowledge building through meaningful action and interaction. (Dabbasgh, 2005, p. 31)

In the Brazilian scenario, the law *Decreto 5622* from December 19, 2005 (which regulates the Article 80 of the law *Lei 9394/96*) defines distance education as "the educational modality in which pedagogical-didactic mediation in teaching and learning occurs with the use of media and information technologies and communication with students and teachers developing educational activities in different places or time" (my translation)[17].

Despite the law dating back to 2005, distance education has been a reality in Brazil since 1904, when distance education was basically characterized by correspondence courses (Formiga, 2011). This first cycle lasted almost half a century. According to the author, the second

---

[16] Dabbasgh (2005) includes open environments in his definition. By excluding the word "open" I decided for a broader definition that doesn't restrict the definition to this environment as the programs of teacher education in Brazil are held in closed environments.

[17] Original text: "…a modalidade educacional na qual a mediação didático-pedagógica nos processos de ensino e aprendizagem ocorre com a utilização de meios e tecnologias de informação e comunicação, com estudantes e professores desenvolvendo atividades educativas em lugares ou tempos diversos."
Source: http://portal.mec.gov.br/sesu/arquivos/pdf/portarias/dec5.622.pdf

cycle began in the 1960s, lasting until nowadays, and being characterized by telecourses. The largest Brazilian project of this cycle, *Telecurso*, from *Rede Globo* (Brazilian largest television broadcasting company), according to its website[18], has received more than 6 million students since 1978 (GloboEducação). Students participate in this program in two ways. They can attend lessons in a classroom, guided by a trained teacher or they can study by means of watching video-lessons over the television or Internet. Evaluation, in this latter case, is held at the Department of Education through exams. The third cycle, in vogue since the mid 1990s, is based on Internet and computer- mediated courses (Formiga, 2011). Rodriguez (2012) mentions a fourth and fifth generations of learning technologies, which he states that "are less defined" and that they "introduce the concepts of intelligent databases, web 2.0 or semantic web concepts" (p. 3).

According to Warschauer and Meskill (2000), at the beginning of that third cycle, much was researched about the impact of computer in language teaching, comparative studies between the teaching of languages with and without computers included. The authors criticize these studies by arguing that the computer is a machine, not a method. Furthermore, the authors state that the use of technology is already part of the ecology of our lives and the question to be addressed is not how to make use of this technology for language teaching, but rather what kinds of language we need to use so that communication becomes efficient.

Following the same line of thought, C. White (2003, p. 2) addresses the fact that the focus of distance education has been on the use of technology. According to her, experts in distance education "argue repeatedly that technology *per se* is not as important as other factors such as learner motivation, an understanding of the distance language learning context and the demands it places on participants, the responsiveness of the teacher, the accessibility of the learning context, and the overall context of delivery" (C. White, 2003, p. 2).

That said, it is pivotal to state that, following Morgado (2001), this research assumes that technology should be used as a means and not as a "defining principle of learning" (p.15 – my translation)[19], i.e., the underlying pedagogy is what is going to be highlighted in this investigation. In this line of thought, the author defends the idea that

---

[18] Source: http://redeglobo.globo.com/globoeducacao/noticia/2012/09/telecurso-ha-mais-de-30-anos-investindo- em-educacao-distancia.html. Access in March 20, 2013.

[19] Original text: "princípio definidor de aprendizagem"

"the key to success of online learning is on teacher performance" (Morgado, 2001, p. 10 - my translation)[20].

This point of view brings into discussion the need for a teacher, from now on called *facilitator*, vested with authority as opposed to an authoritarian teacher. This facilitator would have the role of regulating interpersonal relationships and directing the instructional discourse in the learning process. K. E. Muck (2010), in an investigation on how face-to-face foreign language classes are taught, demonstrated that "control[21] and a powerful regulative discourse[22] may lead to a more effective instructional discourse. […] And this may be helpful on mediating situations, on enhancing communication in class, and on maximizing students' learning opportunities" (p. 70). These pedagogical implications could be applied to e-classes as the range of performance of a facilitator in online education, according to Morgado (2001), comprises pedagogical, social, technical, and managerial aspects.

The importance of facilitators' role in the success of online learning is undeniable. However, facilitators will only be the key to success of online learning if they are open to modify or adapt their conceptions of teaching and learning to this new modality. And such changes do not occur only with the appearance of technology, but also with a constant process of rethinking forms of education and learning.

On that account, it is necessary that the successful facilitators be aware and accessible to "the change of interactional forms between learners and teachers and the change of the way they impact the nature of knowledge" (Morgado, 2001, p. 2 – my translation)[23]. This new

---

[20] Original text: "a chave do sucesso do ensino *online* se centra na atuação do professor"

[21] Bernstein (2000, p. 5) states that control, within Pedagogic Discourse (see footnote 22) "establishes legitimate forms of communication appropriate to the different categories. Control carries the boundary relations of power and socialises individuals into these relations."

[22] Bernstein (1990, 2000) outlined "a framework named Pedagogic Discourse to investigate discourse between social actors such as doctor and patient, teacher and students, and so on. This frame is divided into Instructional Discourse and Regulative Discourse. According to the author, while the Instructional Discourse is employed in order to negotiate knowledge, the Regulative Discourse is employed to establish collective behavior. Both discourses, however, are rather one unique discourse as the former is embedded in the latter" (K. E. Muck, 2010, p. 1).

[23] "à mudança das formas de interacção entre quem aprende e quem ensina e à mudança do modo como se reflecte sobre a natureza do conhecimento"

setting of multidirectional communication "allows individual and collective interactions between all involved in the educational project" (Maciel, 2006, p. 6 – my translation)[24].

Dabbasgh (2005) proposes a theory-based design framework for e-learning identifying three key components that should operate together in order to promote "meaningful learning and interaction" (p. 32): pedagogical models or constructs, instructional and learning strategies, and pedagogical tools or online learning technologies. He defines pedagogical models or constructs as "cognitive models or theoretical constructs derived from knowledge acquisition models or views about cognition and knowledge, which form the basis for learning theory. In other words, they are the mechanism by which we link theory to practice" (p. 32). As examples of pedagogical models for e-learning, the author discusses (i) open learning, (ii) distributed learning, (iii) learning communities, (iv) communities of practices, and (v) knowledge building communities, which are briefly defined in Table 1, below.

Table 1. Pedagogical models for e-learning

Model	**Definition**	**Examples**
Open Learning	"new approach to describing distance education where the emphasis shifts from delivering a pre-established curriculum to focusing on individual and local needs and requirements, and creating open learning places based on the here and now (Edwards, 1995)."	knowledge networks, knowledge portals, asynchronous learning networks, virtual classrooms, telelearning
Distributed learning	"education delivered anytime, anywhere, to multiple locations, using one or more technologies or none at all (Jones Knowledge, 2000). When telecommunications media is utilized, distributed learning refers to off-site learning environments where learners complete courses and programs at home or work by communicating with faculty and other students"	e-mail, electronic forums, videoconferences, other forms of computer-mediated communication and Internet and Web-based technologies.
Learning Communities	"Learning communities are groups of people who support each other in their learning agendas, working together on projects, learning from one another as well as from their environment and	communities

[24] "permite interações individuais e coletivas entre todos os envolvidos no projeto educativo"

	engaging in a collective socio-cultural experience where participation is transformed into a new experience or new learning (Rogoff, 1994; Wilson & Ryder, 1998)."	
Communities of practice	"groups of people informally bound together by shared expertise and passion for a joint enterprise (Wenger & Snyder, 2000, p. 139)."	communities
Knowledge building communities	"learning communities in which communication is perceived as transformative (resulting in a new experience or learning) through knowledge sharing and generation. Participants in a knowledge building community 'share a common goal of building meaningful knowledge representations through activities, projects and discussion' and the instructor or tutor 'is an active, learning participant in the community' (Selinger & Pearson, 1999, p. 41). A common goal of knowledge building communities is to advance and share the knowledge of the collective."	communities

Source: Information taken from Dabbasgh (2005, pp. 29-31)

Regarding the other two key components, according to the author, the pedagogical models or constructs will determine the instructional strategies that will be employed to reach objectives. These strategies, in turn, will determine the learning technologies to fulfill the pedagogical goal. **Figure 1** displays the relationship among these key components, which "implies a transformative interaction affecting E-Learning. Educators and instructional designers can think of this model as a theory-based or grounded design framework that guides the design of E-Learning" (Dabbasgh, 2005, p. 32). Moreover, with the enhancement of new technologies, new possibilities emerge and "pedagogical practices and social structures are transformed" (Dabbasgh, 2005, p. 32).

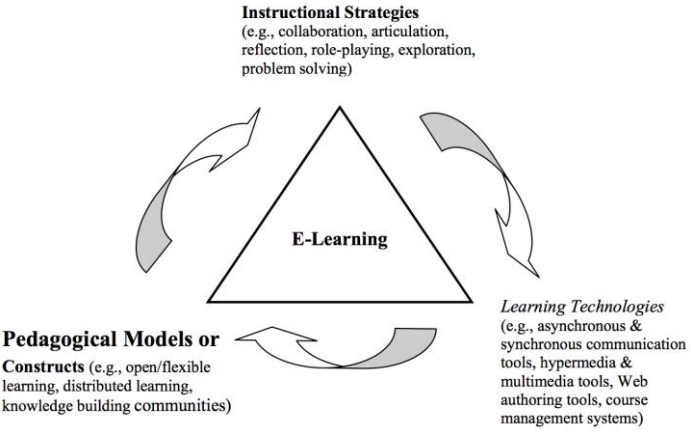


Figure 1. Dabbagh's Theory-Based Design Framework for E-Learning
Source: Retrieved from Dabbasgh (2005, p. 32). *Figure 1. A Theory-Based Design Framework for E-Learning.*

3.2 MOOC AND EDUCATIONAL THEORIES

This section presents the definition of a MOOC, its origin and development, and its introduction in the Brazilian context. Additionally, it reviews the literature regarding some educational theories that have been employed in this form of courses, and presents the theory employed to design the courses that are context of this investigation.

3.2.1 Definition and Development of MOOCs

Massive Open Online Courses (MOOCs) are described by McAuley, Stewart, Siemens, and Cormier (2010, p. 55) as being

> a first generation testing ground for knowledge growth in a distributed, global, digital world. They use digital tools to serve the learning needs of both individuals and groups on an iterative basis, and also contribute to the advancement and distribution of knowledge across a variety of fields.

MOOCs, in Tschofen and Mackness (2012)'s words, are "courses in that they provide a structured curriculum around a given theme or topic, but learners are expected to be autonomous and manage their own learning by making their own social and conceptual connections to suit their own needs" (p. 126).

The literature presents some controversy on the origin of the term MOOC. Flew (2013) states that the term MOOC was coined by Dave Cormier and Bryan Alexander, in 2008, for the online course 'Connectivism and Connective Knowledge' (CCK08) they offered at the University of Manitoba. Liyanagunawardena, Adams, and Williams (2013) state that this course was offered by George Siemens and Stephen Downes. Downes (2008) himself declares that he and Siemens offered this course and that it was the first course developed employing connectivist theory. In the same way, Cormier (2008) himself states that, to his knowledge, he dropped the term "MOOC" in a Skype conversation he was having with Siemens when discussing how to name this type of course Siemens and Downes were offering.

Having the problem of the term's origin being addressed, the acronym MOOC stands for Massive Open Online Course for the followings reasons, which are also subject of discussion among educational thinkers: 1) It is Massive because of the large number of participants that enroll a MOOC (Rodriguez, 2012; Tschofen & Mackness, 2012). To my knowledge, however, it has not been established a minimum number of participants in order to consider a course as being massive; usually, courses have from hundreds to thousands participants. 2) It is Open due to the fact that its content is freely available to everyone, enrollment is open to everyone (Rodriguez, 2012), knowledge can be created by everyone in the network (Tschofen & Mackness, 2012), and everyone can receive certification of completion of a course. 3) And it is Online because everyone with access to the Internet can access it.

The availability of MOOCs has become massive as well. The so-called "big three" MOOCs providers in the world are Coursera, edX, and Udacy (McGuire, 2014). Coursera is far the largest MOOC provider. In October/2014, it was offering more than 840 courses (contrasting with the second largest, edX, with 328 courses) from 114 partners, and reached ten million Courserians – the way people who sign up to take courses are called (Shah, 2014). These numbers continue increasing. To illustrate, in early June/2015, Coursera was offering 1,045 courses, from 121 partners to more than 13 million Courserians (https://www.coursera.org/). The number of Courserians increases uninterruptedly, as can be seen in Figure 2, which displays two screen shots taken from Coursera's website within one-hour window: an enrollment of 3,773 people.

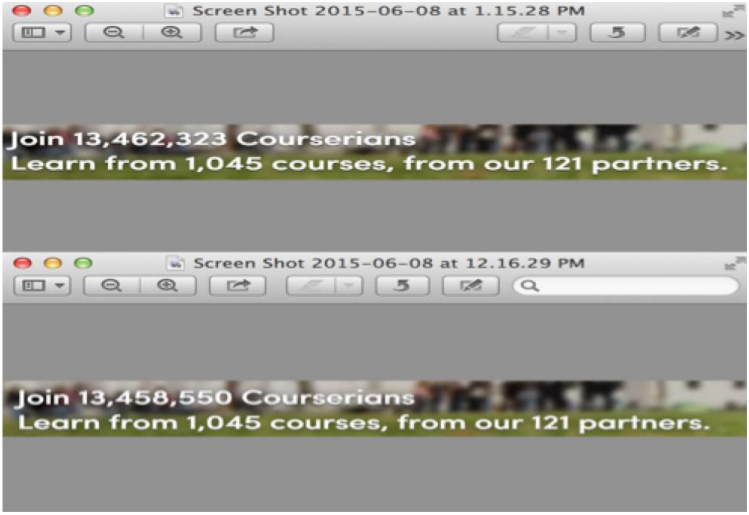


Figure 2. Number of Courserians within one-hour window
Source: Two screen shots taken from Coursera's website (https://www.coursera.org/), on June 8th, 2015, within one-hour window

Regarding the Brazilian context, in June/2013, the startup Veduca was the first Brazilian organization to offer MOOCs in Brazil and in Latin America (http://g1.globo.com/educacao/noticia/2013/06/parceria-da-usp-cria-1-site-de-cursos-line-gratuitos-da-america-latina.html). Carlos Souza, a co-founder, believes that technology will empower people; in his words, "in every industry when technology comes in, it shifts the power from the producer to the consumer. It has happened in many industries and it will happen in education" (https://www.timeshighereducation.co.uk/news/brazils-home-grown-mooc-veduca-has-high-hopes/2010440.article).

According to their website, more than 560,000 students have signed up to take courses. Moreover, in June/2015, Veduca was offering 13 MOOCs from the following partners: USP (University of São Paulo), UnB (University of Brasilia), Google, ONUDI (United Nations Industrial Development Organization), BM&FBOVESPA (a stock exchange), and UNISINOS (University of Vale do Rio dos Sinos). (http://www2.veduca.com.br/about).

The term MOOC, however, has been used even for courses that are not completely open. A recent example is the MOOC based Online MS Degree in Computer Science at Georgia Institute of Technology.

While the content of individual courses of this program are open without any cost to everyone, accreditation will be given only to students who were admitted into Georgia Tech and pay the fees and tuition, which is around seven thousand dollars for the entire MS course (Schaffhauser, 2014). Another example is the undergraduate courses offered by the Brazilian Open University (UAB). Although, to the best of my knowledge, they have not been referred as MOOCs, the courses are massive and have to be delivered 70% online, which means that students have one face-to-face class with the professor of the course and some interaction with a tutor for the rest of the 30% of the course. Except for that, all the interaction with the professors and tutors are online. The content is only available to students who pass an entrance examination and the number of vacancies is fixed. Differently from Georgia Tech, students here get accreditations for free. Having in mind these uses of the term MOOC, this research employs this terminology to refer to all massive online courses, being open or not, as the pedagogy is differentiated due to the fact that they are massive and online.

3.2.2 MOOCs and Educational Theories

This new and growing reality demands a different pedagogic approach. Bell (2010a, p. 100), when referring to theories such as behaviourism, cognitivism, and (social) constructivism, argues that "theories of learning based solely on assumptions of students being taught by teachers, usually in a classroom, do not provide an adequate framework for us to think and act in the digitally saturated and connected world in which we live". Connectivism is one of the theories that have been employed in this new scenario. In this theory, learning and knowledge are products of social connections. Learning is "a network phenomenon, influenced, aided, and enhanced by socialization, technology, diversity, strength of ties, and context of occurrence" (Tschofen & Mackness, 2012, p. 125). And knowledge is

> the set of connections formed by actions and experience. […] [T]here is no real concept of transferring knowledge, making knowledge, or building knowledge. Rather, the activities we undertake when we conduct practices in order to learn are more like growing or developing ourselves and our community in certain (connected) ways.
>
> This implies a pedagogy that (a) seeks to describe 'successful' networks (as identified by their properties, which I have characterized as diversity, autonomy, openness, and connectivity) and (b) seeks to

> describe the practices that lead to such networks, both in the individual and in society (which I have characterized as modeling and demonstration (on the part of a teacher) and practice and reflection (on the part of a learner). (Downes, 2007, p. pages are not numbered)

Liyanagunawardena et al. (2013) conducted a systematic study of the published literature in MOOCs from 2008 (when MOOCs started) to 2012. They categorized all the articles into eight groups: 1) Introductory, 2) Concept, 3) Case studies, 4) Educational theory, 5) Technology, 6) Participant focused, 7) Provider focused, and 8) Other. Considering that this dissertation focus on pedagogy, I reviewed all the articles from the Educational Theory category, as they contemplate pedagogic approaches in MOOCs. The objective of this review is merely to acknowledge the current discussion of theories that permeate the MOOCs world without deeply exploring them, due to space constrain.

To start with, Downes (2008) presents how the first MOOC, afore mentioned, was developed. Figure 3 summarizes the ways participants engaged in connections in the course, such as GoogleGroups, Wiki, Moodle, PageFlakes, and Twitter, among others.

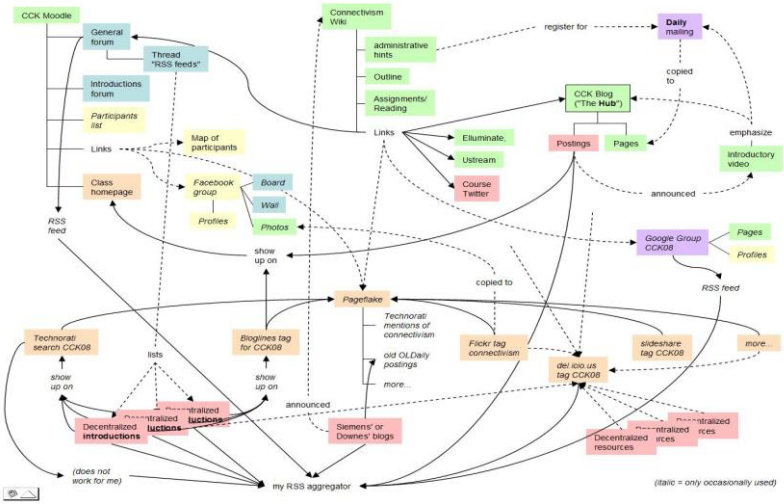


Figure 3. A connectivist course structure

Source: Downes, 2008, Figure 1. CCK08: A connectivist course structure

As already mentioned, this course was entirely designed employing connectivism theory, which is characterized by the presence diversity, autonomy, openness, and connectivity.

This first MOOC was subject of several investigations. Mackness, Mak, and Williams (2010) scrutinized participants' learning experiences regarding the mentioned characteristics of connectivism. They concluded that "the dynamics of connectivism are perceived as both enablers and inhibitors for learning in a massive open online course designed on the basis of these principles alone" (Mackness et al., 2010, p. 271). According to the researchers, *diversity* was guaranteed by the number of enrollment (more than 2,000). However, participants reported difficulties in participating due to issues like dyslexia and speaking a foreign language, for example. Although most of respondents acknowledge the importance of *autonomy*, novice MOOC learners prefer a structured and guided experience. The concept of *openness* received different interpretations from the participants, such as free access, liberty and transparency, and free access and liberty. Though *connectivity* was afforded by the use of diverse media, interaction was not ensured due to barriers such as quality of personal connections and levels of expertise (p. 271).

The same researchers, Mak, Williams, and Mackness (2010), also examined the use of blogs and forums as communication and learning tools in that same MOOC, the CCK08, specifically the reasons participants chose one learning tool over the other and the factors that affected their choice. Results showed that most of the participants employed both, blog and forum, at a certain moment, not necessarily at the same time. Most of the participants of the research reported they shifted from forum to blog because of unacceptable behavior in forums, such as "forceful intellectual debates, feeling of forced participation, and rude behavior" (p. 278), which was the same reason most participants decided to move to blogs without completely abandoning forums. The second reason for this latter movement was the advantages offered by blogs, such as "including topics only available in blogs, own space and pace, ease of use, and attempts to find a better alternative" (p. 278).

Another research on that same CCK08 MOOC was conducted by Bell (2010b). The author collected data based on her participation in the course, through Google and Google-Scholar search, and from the course archives. She compared connectivism to actor network theory and concluded that the former was the adequate theory for the CCK08 course. However, the author questions connectivism's lasting effect as a learning theory, which I will approach later in this subsection.

Kop and Fournier (2010, p. 4) point out four challenges to connectivism: 1) The nature of the network as a place: to learn; with the presence of power relations and its consequences in learning; and where

commerce can influence learning. 2) The need of literacies besides reading and writing, such as: media literacies, critical analysis of resources and information, creativity, flexibility, and so on. 3) The emergence of cloud computing, Web 2.0, and social media "have created a new demand on human agency in the form of creativity, innovation and self-expression". And 4) The semantic web and learning analytics, which allowed the use of big data to improve learning.

They conducted a study to investigate whether these four dimensions match participants' experiences and perceptions on a MOOC developed through ten months. Quantitative data was gathered though questionnaires and qualitative data from course observations, interviews, and focus group, although the researchers do not explain how they have arrived at the results. Kop and Fournier (2010) concluded that some of the dimensions "clearly influenced the level of participation and types of activities learners engaged in" (p. 15). Participants found it difficult to manage with the enormous amount of information. Also, participants who had taken a MOOC before were more active in the course than novices.

It seems that experience in social media interactions enhances learning opportunities inasmuch as students get confidence in exposing themselves and in exploring the learning possibilities. Stewart (2010) conducted a pilot study on a MOOC to reveal how much prior social media literacies assist participants' in achieving value from a MOOC (p. 6). The researcher applied a five point Likert scale questionnaire investigating prior engagement in social media (being 1=not engaged and 5=highly engaged) and level of comfort sharing their own draft and interacting with others' draft work (being 1=not comfortable and 5=very comfortable). The results showed that most participants are in the scale 3 and 4 for prior engagement in social media, while most of the participants are in the scale 4 and 5 regarding level of comfort with both sharing their own draft and interacting with others' draft. Although the relation between social media literacies and perceived value on taking that MOOC was not statistically significant, "participants who had low levels of prior engagement did report lower value from the MOOC experience" (Stewart, 2010, p. 17).

Similar conclusions were reported by McAuley et al. (2010) and Kop, Fournier, and Mak (2011). According to McAuley et al. (2010, pp. 47-48), results from an informal poll conducted with MOOC participants suggested that participants profit more from courses when they have basic digital literacies and are within Vygotsky's ZPD. Kop et al. (2011, p. 88) also argue that "the more experience in networked

learning and through MOOCs, the higher the level of participation".

Cabiria (2012) also emphasizes the importance of the role of the learner in a MOOC. He recognizes the significance of connectivism inasmuch as it shifts the power from the teacher to the autonomous learner. However, he highlights the importance of the presence of three features in a participant for a MOOC to be successful: critical literacy, learner autonomy, and send of presence (Cabiria, 2012), i.e., the sense of belonging to a learning community.

Rodriguez (2012) analyzed six MOOCs to draw a distinction between the pedagogical models of two specific formats of MOOCs: the AI-Stanford like courses and the c-MOOCs (connectivist MOOCs). He investigated four c-MOOCs and two AI-Stanford like courses. For the analysis, the author observed that these two types are very different in a number of features, such as the tools used, the profile of the participants, the percentage of lurkers and dropouts, the accreditation, and the role of tutors and facilitators. Regarding this last feature, important for this dissertation, Rodriguez (2012, p. 11) states that, in the AI-Stanford like courses, teachers or tutors perform "a very similar role close to that in conventional classes", i.e., preparing exams, giving lectures via video, explaining the exercises, and so on. In the case of the c-MOOCs, employing the author's words, facilitators or organizers "adjust their role with respect to access to new content and engagement tools which is now under the control of the learner" (Rodriguez, 2012, p. 11). The author concluded that while AI-Stanford like courses employ a cognitive-behaviourist pedagogy with a contribution from social constructivism, the c-MOOCs use a connectivist pedagogy.

Tschofen and Mackness (2012), in a theoretical discussion about the use of connectivism in MOOCs, depart from the four key learning elements that characterize connectivist pedagogy (autonomy, connectedness, diversity, and openness) to introduce two other theories that they claim would expand the definitions of these elements in order to embrace the diversity existent in MOOCs: personality theory and self-determination theory. The former, according to the authors, approaches the five human personality traits explored by contemporary psychology (openness, conscientiousness, extraversion, agreeableness, and neuroticism) as well as the environmental factors and the role of biology, evolution, and neuroscience to the understanding of these traits (Tschofen & Mackness, 2012, p. 127). The authors associate these traits to the four key connectivist learning elements. The latter, self-determination theory, "examines human growth and initiative as a form of dynamic potential and is closely linked to understandings of

psychology and motivation" (Tschofen & Mackness, 2012, p. 128).

The authors conclude that a "potential strength of connectivism as a learning theory lies in the potential ability (and perhaps need) for (healthy) networks to accommodate the psychological diversity of participating individuals" (Tschofen & Mackness, 2012, p. 137). They highlight the relevance of this psychological diversity because:

> Understanding the psychological dimensions or interpretations of connectivist principles also suggests that participation variables in testing environments such as MOOCs and distance learning courses might not in all cases be the result of the ability or inability to cope with the diverse learning environments and choice and control requirements of autonomous learning, but, rather, forms of individual self-expression. (Tschofen & Mackness, 2012, p. 138)

Bell (2010a) shares the idea that connectivism alone is insufficient to support and understand the dynamic and diverse e-learning universe. As afore mentioned and anticipated in her other work, the author claims that connectivism is not a learning theory per se; it is rather a phenomenon, which is present in the CCK08 course and in the subsequent CCK09 course, and that will need substantial research in order to become a learning theory. She advocates for the need of looking beyond traditional learning theories as "the paradigm shift in learning associated with emerging technologies increases the scope of change beyond individuals, classrooms, and institutions and provokes shifts in roles and power relations" (Bell, 2010a, p. 107).

The author considers five imaginary learning scenarios with the use of technology and proposes other theories, different from connectivism, to conduct and evaluate them. Table 2 explains the key features of her proposal for the scenarios. She concludes that the purpose and the intervention will determine what the most appropriate theory to employ.

Butin (2012) criticizes MIT's (Massachusetts Institute of Technology) pedagogy in the course "6.002x Circuits and Eletronics". He affirms that they deliver a "Learning 1.0 product in a Web 2.0 world", and if they continue to teach courses that are teaching-focused (with massive lectures, for instance) instead of learning-centered, "the only transformation will be that students online will fall asleep from boredom much faster than those sitting in the cramped lecture-hall sets" (pages are not numbered). Furthermore, he advocates for the need of a model of formative feedback instead of summative feedback. He argues

that this course indicates the limits of this type of education showing the possibilities for actions in higher education. In his words, "such systems are immensely powerful for teaching very specific kinds of content knowledge – knowledge that is stable, solvable, and singular" (Butin, 2012, p. pages are not numbered).

Table 2. Bell (2010)'s five imaginary learning scenarios with the proposed learning theory

Scenario	**Scope of intervention**	**Research/ evaluation approach**	**Intention/ purpose**	**Theories used/ related work**
(1) Teacher adopting Web 2.0 in the classroom	Local, within the freedom of choice exercised by teacher	Reflective practice without funding.	To improve teacher's practice and support and to encourage effective networked learning in students.	Connectivism and other theories explored by teacher Example: Networked student (Drexler, 2008)
(2) Different interpretations of open educational resources	Global at institutional level	Rich, qualitative study funded by charity organization.	To increase understanding of how knowledge is co-created and dissolved through the development and use of OERs.	Actor-network theory (Latour, 2005) Example: Flexible learning (Bigum & Rowan, 2004)
(3) Implementation of information literacy strategy in a German university	Institutional/ local	Managed change informed by evidence captured through institutional processes. Small studies can adopt a variety of research/ evaluation approaches. Funded by institution.	To make effective and evidenced change at institutional and curriculum level.	Theories of change management (Scott, 2003) and information literacy (Beetham, 2009). Various theories to inform the small interventions. Example: Learning literacies in a digital age (Beetham, 2009)
(4) Study of young people's use of the Internet and social media for informal learning	Study of networked individuals in domestic settings	Rich, qualitative study funded by a research council.	Generate rich understanding of young people's experiences of informal learning online.	Social learning (Stewart & Williams, 2005; Williams, Stewart, & Slack, 2005) and Vygotsky's ZPD (Chaiklin, 2003) Example: (Griffiths & Light, 2010)
(5) Investigation into the use	Institutional/ community	Action research, informed by activity theory	Explore use of ICTs to improve the quality of life for	Action research (Reason & Bradbury, 2008)

of ICT in a sheltered housing scheme in a deprived area	and funded by regional development agency.	residents, employees, and the integration of the housing scheme within the local community.	Third generation activity theory (Engeström, 2001). Example: (Engeström & Kerosuo, 2007)

Source: Bell (2010a, pp. 111-112), Table 2-Summary of Key Features of Alternative Research/Evaluations Scenarios

This, however, was the reasoning and the practice in 2012. Advances in educational technology have afforded a substantial improvement. In 2014 we were already beyond the simple delivery of what Butin (2012) calls *stable knowledge*, as demonstrated in the following chapter by the pilot research. Furthermore, in 2015, a group of researchers, led by Prof. William Cope, at the University of Illinois at Urbana-Champaign, were already investigating how to employ big data to allow facilitators to make simultaneous informed pedagogical decisions in online educational environments, as will be indicated in the Suggestions for Further Research subchapter.

3.3 THE NEW LEARNING PARADIGM

B. Cope and Kalantzis (2013) illuminate this e-learning scenario both in the theoretical and in the practical dimensions. In the former they indicate a new direction for education: the *New Learning*. In this paradigm, education is seen as a constant co-construction of knowledge that takes place everywhere at any time. Moreover, it places the teacher as a facilitator and the students as autonomous agents responsible for their own construction/consumption of knowledge. This new relation with knowledge asked for new ways of developing the teaching-learning social practice in online and blended learning environments.

In order to obviate this need, B. Cope and Kalantzis (2013) coordinated a project assembling a multidisciplinary team of professionals (educational researchers, software engineers, computer scientists, computational linguists, and psychometricians) that has been developing a learning platform named *Scholar*[25]. As stated by the authors (2013, p. 333), "the *Scholar* intervention is an attempt to reframe the relations of knowledge and learning, recalibrating traditional

[25] Access this link for Dr. Cope's presentation of some of the *Scholar*'s features. As it is a platform that attempts to follow an agenda for new learning, it is in constant improvement and much has been added and/or modified since this presentation. This agenda will be described in the sequence.

modes of pedagogy in order to create learning ecologies which are more appropriately attuned to our times".

In this line of reasoning, B. Cope and Kalantzis (2013) present an agenda for new learning and assessment. As illustrated in Figure 4, this agenda proposes seven openings for educational transformation: ubiquitous learning, active knowledge production, multimodal knowledge representation, recursive feedback, collaborative intelligence, and differentiated learning. Although these openings are already known in the educational theories or practices, the authors' research on the subject "has attempted to explore ways in which what [they] have termed 'social knowledge' technologies[26] might make each of these ideas easier to realize" (p. 354). Each of them will be briefly approached subsequently.

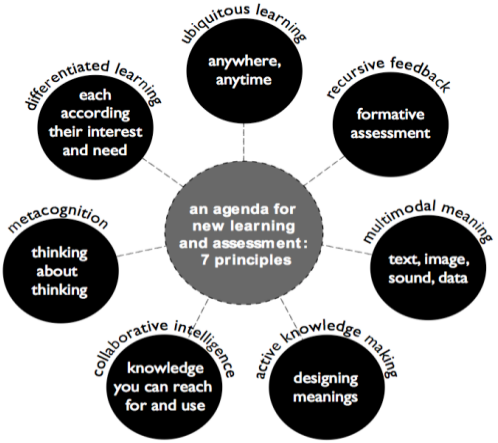


Figure 4. Seven practical openings for educational transformation
Source: Retrieved from B. Cope and Kalantzis (2013, p. 333), *Figure 1. Seven openings, seven affordances.*

The first opening is ubiquitous learning, a concept that captures the opportunity to learn anywhere and anytime. Drawing on B. Cope and Kalantzis (2008), this paradigm breaks the idea of separation between

[26] 'social knowledge' technologies: as opposed to "social media, which implies the transmission of information" (p. 335)

formal and informal learning: learning is considered to be omnipresent. Thus, according to the authors, it is necessary to investigate other forms of knowledge construction that generate the demand for new technologies as opposed to a teaching-learning process that aims at just adapting to the existing technologies. In other words, technology should not be the agent that sets the limits of the teaching-learning process, but this process is the one that should generate demand for new technologies that envisage a new way of thinking and acting in education.

The second opening is active knowledge production. The authors suggest a change in the knowledge architecture repositioning students as producers of knowledge and not just knowledge consumers. This means that the teacher is not the exclusive holder of knowledge. Students work collaboratively in peers providing feedback to each other. In order to avoid the terminology "teacher" and "student" because of the established social relation, *Scholar* platform employs "the terminology of the social relations of knowledge production" (p. 340) having: 'contributors' to review and annotate works; 'publishers' to co-ordinate groups; and 'community' space where works are published and discussed (p. 340).

B. Cope and Kalantzis (2013, p. 340), arguing about the models of knowledge they present in *Scholar*, state that their focus is in knowledge representation rather than in cognition. Moreover, they claim that they are

> harnessing the varied agencies of students by positioning them as responsible knowledge producers. This makes for engagement. It recruits their identities as every work brings the timbre of each student's voice and the weight of their life experience to their representation of knowledge. It prompts critical thinking and creativity. It positions them as 'makers'.

The third opening, multimodal knowledge representation, offers to the students the opportunity to transform writing into a multimedia process. *Creators* can insert images, videos and sounds in their productions, thus expanding the way they can represent knowledge.

Recursive feedback, the fourth opening, focuses on formative assessment; it provides the learner with the opportunity of having continuous improvement. It shifts the focal point of assessment from the learner's final product to the learner's in-progress product. One of the goals is to

> reframe the assessment question from 'how did we do?' to 'how are we doing?' – 'we' being the learner, the class, the teacher. Assessment's primary reference point should not be managerial focus on results (framing our assessment question in the past perfect tense), but a formative focus on progress and improvement (framing our assessment question in the present continuous tense). (B. Cope & Kalantzis, 2013, p. 347)

The fifth opening, collaborative intelligence, focuses on how students and facilitators interact which each other in order to build knowledge. In a traditional face-to-face environment the facilitator would have to coordinate activities so that students would not talk all at the same time as shown in Figure 5.

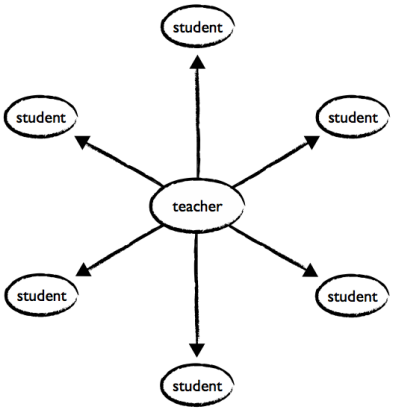


Figure 5. Classroom discourse, didactic pedagogy.
Source: Retrieved from B. Cope and Kalantzis (2013, p. 350), *Figure 13.*

Moreover, according to my aforementioned claim about the distance between the interactants in traditional face-to-face setting, the facilitator would have to coordinate the interaction among participants that are distant from each other in the classroom in order to provide the same learning opportunities to everyone. Figure 6 exemplifies this setting, a traditional face-to-face classroom, with the teacher trying to organize the conversation among students (S). This means that the teacher chooses who talks and when this happens. As the unidirectional arrows show, all the power is centered on the teacher. Therefore, the psychological distance between teacher and students and among students themselves is longer than their physical distance, which reveals

unequal learning opportunities among interactants.

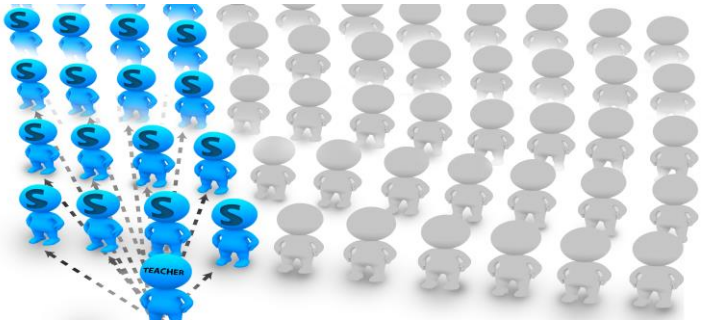


Figure 6. Mediation in a traditional face-to-face classroom
Source: Figure created[27] for this dissertation.

On the other hand, in *Scholar*, everybody can interact at the same time maintaining order and silence and facing the same learning opportunities, as demonstrated in Figure 7. The physical distance among participants in this online environment is irrelevant, as the psychological distance is the same between everybody. The Method chapter in this dissertation explores this environment in depth.

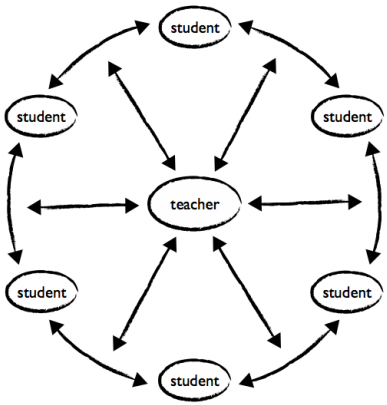


Figure 7. Scaffolding classroom discourse in *Scholar*.
Source: Retrieved from B. Cope and Kalantzis (2013, p. 350), *Figure 13.*

[27] The form of the avatar was taken from a figure in: http://blog.chron.com/careerrescue/2011/09/handle-your-linkedin-status-with-care/

The sixth opening, metacognitive reflection, emphasizes a number of features such as rubrics, criteria for peer reviewing, and self-reviewing. Figure 8 demonstrates the developing of metacognition, in the following order: the student produces his/her writing using the embedded rubric, gives feedback to other students using the rubric, revise his/her own writing based on the rubric and on the feedback received from his/her peers, self reviews his/her work using the feedback and the rubric, and, finally, reads the works that his/her peers produced.

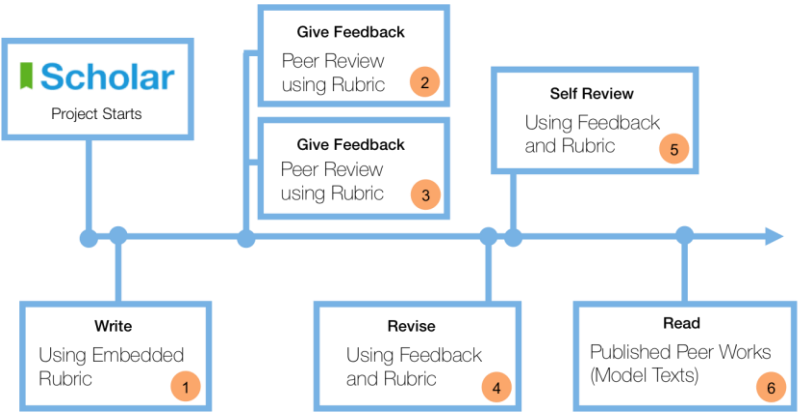


Figure 8. Developing metacognition in *Scholar*
Source: Berg and van_Haren (2014), PowerPoint presentation

The last opening, differentiated learning, focuses on learners individual differences. It allows everyone to explore different ways to express knowledge and to do it in each student's own pace. Therefore, in Cope's and Kalantzis' (2013, p. 354) words,

> assessment becomes a somewhat different process than in the past, not measuring capacities to remember identical things or correctly deduce the same answers, but measuring higher order comparabilities and equivalences between knowledge artifacts which may in substance be different. In this assessment regime, you don't have to be the same to be equal. And at this point, managing learner differences may become easier than one-size-fits-all teaching.

Attention here is directed to the process rather than to the product. "Assessment is at the heart of formal higher education"

(Gikandi et al., 2011, p. 2234). Therefore, more consideration should be given to formative assessment rather than summative assessment. The former supports learning and the latter provides validation and accreditation (Kollar & Fischer, 2010).

Gikandi et al. (2011) define online formative assessment as "the application of formative assessment within learning online and blended settings where the teacher and learners are separated by time and/or space and where a substantial proportion of learning/teaching activities are conducted through web-based ICT" (p. 2337). These authors conducted a systematic qualitative review of literature to understand: 1) "how formative assessment support learners in developing domain content knowledge and professional skills in an online environment", and "core assessment concepts of validity and reliability as they occur in online contexts" (Gikandi et al., 2011, p. 2334). They reviewed 91 articles published until 2010 that were revealed by electronic databases by employing the following search terms: "online assessment, online formative assessment, innovative assessment, assessing online learning, assessment in higher education, online formative assessment in higher education and alternative assessment" (Gikandi et al., 2011, p. 2334). Eighteen key studies were selected to be reviewed.

According to the authors, fundamental issues of assessment in online contexts are validity, reliability, and dishonesty. They define validity within the context of online formative assessment as "the degree to which the assessment activities and processes promote further learning" (Gikandi et al., 2011, p. 2338). They identified that characteristics such as authenticity of assessment activities, effective formative feedback, multidimensional perspectives, and learner support are associated to the mentioned validity. In turn, the authors define reliability within the context of online formative assessment as the "degree to which what is assessed is dependable or sufficient to measure the level of knowledge structure being developed (the desired learning outcomes)" (Gikandi et al., 2011, p. 2339). They identified that the following characteristics relate to reliability: opportunities for documenting and monitoring evidence of learning, (2) multiple sources of evidence of learning and (3) explicit clarity of learning goals and shared meaning of rubrics. Finally, according to the authors, dishonesty in this context "relates to students truly owning their work, depends on the degree of inherent validity and reliability. This implies that dishonesty can be minimized through enhancing the identified aspects of validity and reliability" (Gikandi et al., 2011, p. 2341).

The online activities investigated for this dissertation, both from

the pilot and from the main research, address these mentioned issues of validity and reliability. Gikandi et al. (2011) state that by addressing these issues of validity, reliability and dishonesty "online formative assessment can function as an innovative pedagogical strategy through facilitating the following opportunities: (1) formative and immediate feedback, (2) engagement with critical learning processes, and (3) promoting equitable education" (p. 2344) by attending students' individual differences.

Regarding formative assessment by peers, the authors concluded that "online formative assessment can provide learners with authentic, collaborative, and reflective learning environments to share learning experiences and dissonance of practice. These experiences emulate real professional communities of practice; thus, promoting learner ability to apply knowledge to their own practice" (Gikandi et al., 2011, p. 2344). Moreover, "online settings can offer enhanced opportunities to provide more detailed and clearly written feedback that is integrated within student work" (Wolsey, 2008, in Gikandi et al., 2011, p. 2345). And effective formative feedback, according to Nicol & Macfarlane (2006, in Gikandi et al., 2011, p. 2346), attend the following principles:

1. helps clarify what good performance is (goals, criteria, expected standards);
2. facilitates the development of self-assessment (reflection) in learning;
3. delivers high quality information to students about their learning;
4. encourages teacher and peer dialog around learning;
5. encourages positive motivational beliefs and self-esteem;
6. provides opportunities to close the gap between current and desired performance;
7. provides information to teachers that can be used to help shape teaching.

Kollar and Fischer (2010) defend the idea that peer assessment is still in its "adolescent" stage, and, as inherent to this stage, it is in search of its identity and its place in research fields. The authors describe the typical structure of peer assessment as the following: task performance, feedback provision, feedback reception, and revision. They state that simply engagement in this process does not guarantee that learning takes place. According to them, "when learning is seen as high-level change in an individual's knowledge base, then, to make peer assessment a

successful enterprise, it is necessary that high-level cognitive processing occurs" (Kollar & Fischer, 2010, p. 6).

They provide examples of actions that might facilitate high-level cognitive and discursive processing during each step of peer feedback activities. For instance, planning, reviewing, explaining, arguing, and questioning are examples of high-level cognitive processes developed during task performance, which is the step of the writing of the case study in this dissertation. Understanding, planning, and monitoring are examples of high-level cognitive processes developed during feedback provision. "For B's feedback to facilitate A's learning, B not only needs to deeply process A's first product, but also show planning and monitoring concerning how to formulate feedback in a way that A can benefit from it" (Kollar & Fischer, 2010, p. 6). Regarding the high-level processes students engage in during feedback reception, according to the authors, A will examine the received feedback, compare the comments with the original performed task (case study), and decide whether to employ the suggestions on the writing of the next version. This process is successful, according to the authors, when the feedback presents good quality by providing good arguments. Finally, comparison processes are fostered during revision inasmuch as students compare the first version, the feedback and the prospective revised version.

Similarly, Yu and Wu (2013) explain the cognitive processes that are mobilized during peer-assessment activities.

> Assessing the relative quality and merits of the examined work encourages students to engage in critical thinking. In addition, both social and argumentation skills as well as substantial knowledge in the applied area are required to enable comments to be accepted by peers. Also, when observing peers' work, students are likely to be alerted to problems that may exist in their own work and be prompted to make necessary modifications. On the other hand, when students receive feedback from assessors, the comments provided may cause cognitive conflict and direct students to deal with their existing cognitive defects. Knowledge structuring and re-structuring are cultivated through various cognitive and discursive processes (such as deeper elaboration of materials, self-reflection, comparison, clarification, adjustment, and so on). (Yu & Wu, 2013, p. 333)

The authors also observe that as students tend "to be within or near each other's zone of proximal developments, peers' comments may be more easily understood by learners than instructors'" (Ammer, 1998; Fallows & Chandramoham, 2001; in Yu & Wu, 2013, p. 333).

Noroozi, Biemans, and Mulder (2016) came to analogous conclusions after analyzing the results of a research they conducted with 189 undergraduate BSc students in the Netherlands. The authors investigated the relations between peer feedback learning processes and outcomes during a peer-feedback activity that aimed at improving students' performance on writing essays. Results demonstrated that students provided high-quality feedback performed better on their final essay than students that provided poor feedback. The same relation happened with students that received high-quality feedback versus students that received poor quality feedback. According to the authors, this is due to the fact that constructing and supporting arguments along with considering multiple perspectives demand deep cognitive processes. The same deep processes occur when students analyze and evaluate writings from their peers (Noroozi et al., 2016, p. 29).

A similar relation was identified by Pol, Berg, Admiraal, and Simons (2008), although investigating students' views. They investigated "the relationships between the nature of feedback, its reception by the receiver, and its consecutive use in the revision of students' texts" (Pol et al., 2008, p. 1805). Data were collected during six months on peer feedback activities on several assignments from a group of 27 college students in the Netherlands. No significant results were found on the relationship between the nature of feedback and revision of products. However, results on the relationship between the reception of feedback and the use of feedback demonstrated that the more valuable students considered the feedback the more they employed it on the revision of their writing product.

On another study on writing, Cheng, Liang, and Tsai (2015) conducted a research on online peer assessment with 47 undergraduate students of Biology, in Taiwan, to investigate the role of feedback on students' writings. Their objective was to understand what and how peer-review may influence learning. Students went through three rounds of peer-review, reviewing five reports in each round. The students and the teacher had to provide descriptive feedback in five dimensions (knowledge, suitability, correctness, creativity, and overall) as well as a score from 1 to 7 for each dimension. In all rounds, the correlation coefficient *r* between the peer and teacher scores was significant, except for two dimensions in round one. The 705 messages of descriptive feedback were categorized into: Affective (Supporting; Opposing); Cognitive (Direct correction; Personal opinion; Guidance); Metacognitive (Evaluating; Reflecting); and Irrelevant comments. Results show that while the number of Affective feedback increased

across the three rounds, the number of Cognitive and Metacognitive feedback, in general, decreased. However, "cognitive feedback messages were more helpful for these students' writing learning gains as compared with affective feedback (either positive or negative comments) and metacognitive feedback" (Cheng et al., 2015, p. 82).

Yang (2016) investigated 24 graduate English as foreign language (EFL) students of a master's program of EFL teaching and business communication in Taiwan. The objective of the study was to scrutinize academic knowledge transformation and construction during peer feedback activity on writing summary by using a computer-supported collaborative learning (CSCL) system. Students were separated into two groups: one experimental group and one control group. The former provided online peer feedback and the latter provided paper based peer feedback. Students' perceptions on the matter were also investigated through surveys with open-ended questions.

The results show that students from the experimental group outperformed students from the control regarding the final text density. Moreover, the results suggest that

> transforming and constructing academic knowledge through online summary writing and peer feedback helps graduate students raise their language awareness and critical thinking. By providing and receiving useful summary revisions from peers, the graduate students were able to recognize the key elements in well-organized academic texts, as well as, clarify illogical sentences and text misunderstanding" (Yang, 2016, p. 697).

Concerning students' perceptions towards academic knowledge transformation and construction with the peer-review activity, most of them responded that they like to provide feedback to peers because they can learn from each other online (12 out of 13 respondents), and that by giving feedback they are able to view other peers' summaries and compare them with their own (10 out of 13 respondents) (Yang, 2016, p. 696).

In a Brazilian learning context, Denisczwicz and Kern (2013) conducted a research on peer-review activity with 12 master students from the Information Science field to provide indicators of reliability. The students had to anonymously review each other's masters research proposals based on seven review criteria with a Likert-6 scale for each criterion. The researchers employed the Intraclass Correlation Coefficient ICC (agreement) and ICC (consistency) to demonstrate the

reliability among reviewers. The results show ICC (agreement) values between -0.500 and 0.202, and ICC (consistency) values between -0.062 and 0.261. The Median values for ICC (agreement) and ICC (consistency) are 0.058 and 0.097, respectively.

It is important to highlight that, as noted by Kollar and Fischer (2010), authors employ different terminology to describe the same activity, such as peer assessment, peer revision, and peer feedback. Other terms such as peer marking, peer correction, peer rating, peer review, and peer appraisal are also in the literature (Topping, 1998). This dissertation employs predominantly the terms peer-review, peer feedback, and peer assessment, interchangeably.

This chapter delivered an overview of distance and online education, as online learning environments comprise the context of this investigation. Moreover, considering that one of the investigated courses was a MOOC, it also provided a review on MOOCs and on the learning pedagogy that this mode of education has developed. Finally, it offered an overview on peer-review and on the New Learning theory for the following reasons aforementioned: 1) the investigated courses follow the principles of this theory, 2) the online environment Scholar was developed according to the fundamentals of this theory, and 3) this research adopts it as the theory that can provide social change through educational environments such as the peer-review activity developed in the present investigation. The following chapter summarizes the pilot study conducted with the use of Scholar, which is the learning environment that contemplates the seven openings for educational transformation, the New Learning theory.

CHAPTER 4 – THE PILOT STUDY[28]

As soon as I arrived at the University of Illinois at Urbana-Champaign, I was offered the opportunity to conduct a research on a pilot course called Learning on Emergency Operations, which is an e-learning course organized by the International Federation of Red Cross and Red Crescent Societies (IFRC) specially to provide further training for two particular types of affiliates: Field Assessment Coordination Teams (FACT) and Emergency Response Units (ERU). The importance of these two kinds of groups lies in the fact that they are comprised by highly specialized professionals that are ready to be deployed at any time and to everywhere in the world. They are the teams that first arrive at the areas that need help and provide the first relief measures by recognizing the situation, planning the immediate actions needed, and acting on them.

Collecting data in a real environment and to conduct a research that will be taken into consideration for future decisions on IFRC online training courses propelled me into this enterprise. This pilot course offered the appropriate scenario to conduct my pilot investigation on utilizing an online learning platform to develop self-reflection employing writing process activity, or the reflective process through which pre-service teachers should engage in so as to develop their cognition and metacognition. "Due to both the specificity of the work of emergency operations teams and their diversity of contexts, educational technology that supports the exchange of experiences among team members could increase effectiveness before, during and after such operations, to enhance the organization's capacity for making use of both lessons learned and the mechanisms for their learning" (Gikandi et al., 2011, p. 2344). The central objective of this pilot investigation was to understand to which extent an online activity developed in a learning environment could promote reflective thinking and knowledge

[28] Some of the content of this chapter as well as some content of the Method Chapter that describe Scholar were published in Katia Muck (2015).

production. The method under which this pilot was conducted and its results are briefly described below[29].

4.1 METHOD

This subsection concisely describes the course, the participants, the materials and the procedures for data collection and analyses, consecutively. Additionally, it provides a more extensive picture of the site of investigation inasmuch as it is essential for the understanding of the investigated course.

To start with, the course was developed entirely online during four weeks employing *Scholar* for asynchronous activities and *WebEx* for the synchronous encounters. The latter were held once a week, for one hour, and had the objective of clarifying doubts on the use of *Scholar,* and presenting and discussing some case studies. *Scholar* was employed to develop the written assigned activity and the asynchronous communication.

4.1.1 Participants

Regarding the participants of the course, according to the data from the IFRC enrollment records, there were 267 participants (98 female and 169 male) with different IFRC affiliations and from 83 countries. Moreover, 43.4% of them intended to spend more than four hours per week on the course. They were between 19 and 72 years old, being more than half of them (52.4%) between 25 and 54 years old.

Considering the participants of this pilot investigation, from these 267 who engaged in the course, 162 agreed to be part on this research (60% are male and 40% female), being 57% of them between 30 and 45 years old. Considering their use of online media, most participants interact with technology “every day”, “frequently”, and “occasionally”. On the other hand, there is a significant number of participants that had never employed any of the cited online media, as displayed in Figure 9.

[29] For a complete report on this study, please access the White Paper at https://www.academia.edu/18639879/Learning_in_emergency_operations_A_case_study_of_a_cross_sector_distance_learning_course_organized_by_the_International_Federation_of_Red_Cross_and_Red_Crescent_S_ocieties_I_FRC_

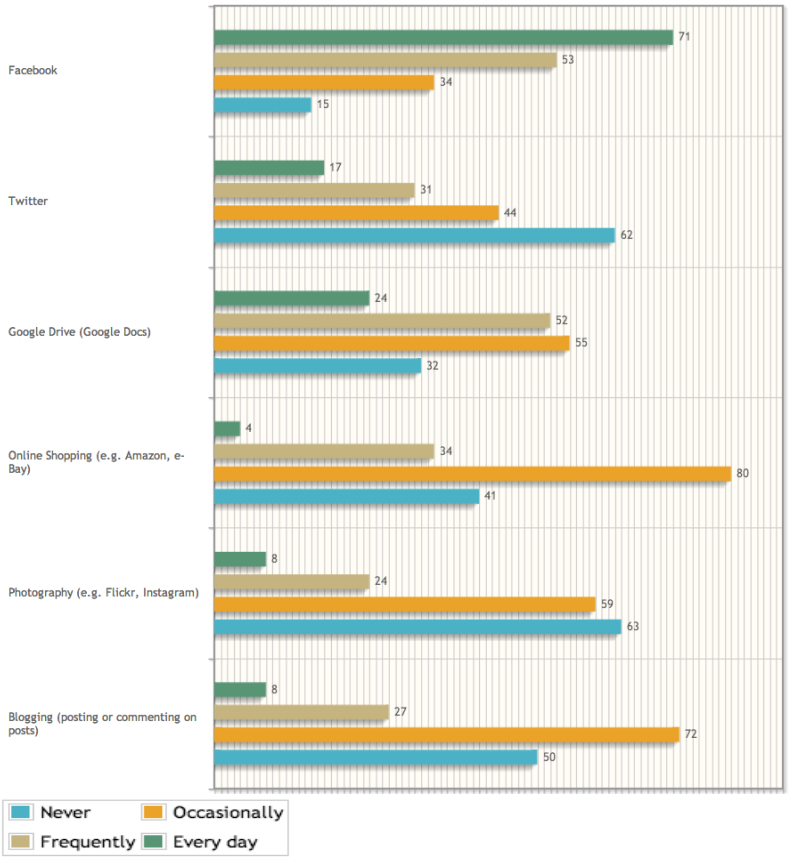


Figure 9. Frequency of use of online media (participants in numbers)
Source: Survey results generated with CGScholar

As demonstrated in Figure 10, most of participants expressed that they are comfortable with e-learning environments: 56 have considerable experience while 69 have some experience. Nonetheless, 33 have limited experience and 15 participants are new to this setting.

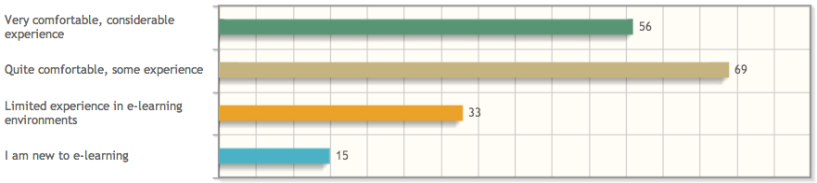


Figure 10. Level of experience and comfort with e-Learning environments (participants in numbers)
Source: Survey results generated with CGScholar

4.1.2 Materials

Concerning the materials of this pilot investigation, they comprised: 1) comments participants posted in the Community space (public space in Scholar for knowledge sharing), 2) two online surveys (one pre-course and one post-course), 3) the first and second versions of the case study, and 4) the feedback the reviewers provided on the case studies.

For the online surveys, from the 162 that agreed to take part in this research and completed the pre-course survey, 39 (13.7%) of them completed the post-course survey. The pre-course survey (Appendix A) revealed the demographics while the post-course survey (Appendix B), with closed and open-ended questions, offering data regarding participants' experiences with the course.

Regarding the case studies and the feedback, the participants engaged in a writing process developed in three stages: 1) developing a short case study "describing how they prepared for an operation they were in, what the gaps were in their knowledge, skills and competencies, and how they learned during the operation"; 2) peer reviewing the case studies of three other participants based on rubrics provided by the course (Appendix C); 3) revising (and rewriting) their case study employing the feedback they received from their peers (Kátia Muck & Sadki, 2015, p. 5).

4.1.3 Procedures for Data Collection and Analyses

Finally, as for the procedures for data collection and analyses, the first action was to submit a research project to the Institutional Review Board of the University of Illinois at Urbana-Champaign. The process was approved under IRB #13.775. The procedures for data collection

through the surveys, the comments in the Community space, and the case studies and the feedback are tackled in the sequence.

The surveys were applied at the first week of course (pre-course survey) and the week that followed the last week of course (post-course survey). They were shared with participants of the course employing the survey tool available in *Scholar*. *Scholar* provides the output of the results with graphs, which group the answers for each closed question, and with a list of answers for each open-ended question, which I further classified into categories that emerged from the answers. In the same way, letting the categories emerge from the data, I organized the posts from the Community space.

In the sequence, in order to pursue a richer understanding of the source of knowledge and its development during the writing activity fostered in the course, I compared the first and the last versions of the case studies of all participants that answered the two surveys and that were part of ERUs. The first criterion is due to the fact that it would be fundamental to have all the participants' data: demographics and experiences with the course. The second criterion is because the IFRC was specifically interested in unveiling ERU affiliates' learning experiences. Six participants fulfilled these criteria. The *Scholar* Analytics area already provides a comparison between each version and highlights all the changes the writer made (adding and/or deleting words). It also informs the percentage of change from one version to the other. A complete description of *Scholar'*s tools will be provided in the Method chapter.

4.1.4 Context of Investigation

This section will provide an outline of this space, which is organized in subspaces named *Community*, *Creator*, *Publisher*, and *Analytics*. Further description, although not exhaustive, will be given in the Method chapter.

Creator is a multimodal working space that allows, for example, the insertion of videos, sounds, figures, and links. Figure 11 provides a general view of this space where a case study named "Drought in Ethiopia" is being developed. The innovation of this space, among others, is having a design where the rubrics (right side) are displayed side-by-side with the writing area (left side). This Figure also shows the tab *Feedback* extended, revealing a segment of one of its dimensions (*Rubric>> Review Criteria*).

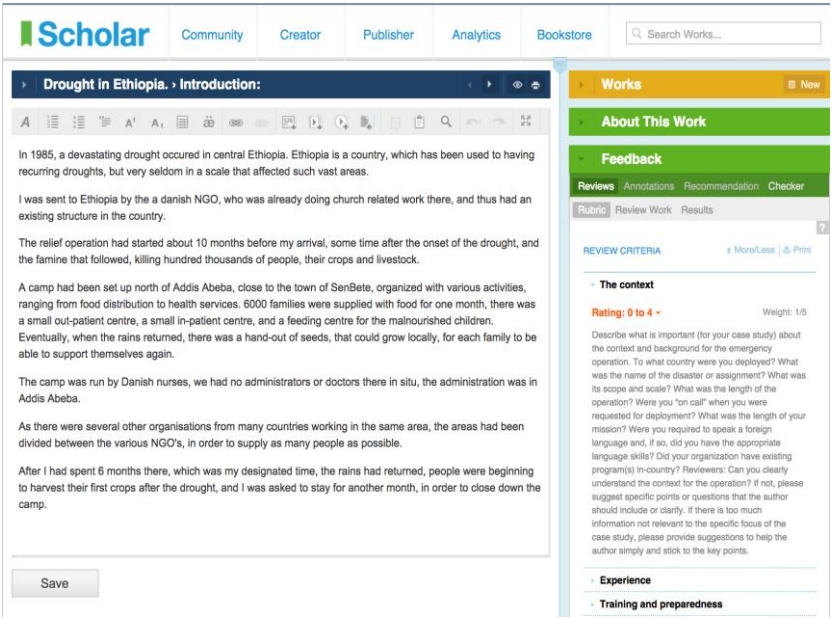


Figure 11. General view of the Creator space
Source: Partial screenshot of CGScholar, Community: FACT/ERU Learning, manipulated with Skitch

Each tab (*Works*, *About This Work,* and *Feedback*) will be further illustrated and explained in Chapter Five, which comprises the Method of this dissertation.

4.2 RESULTS, DISCUSSION, AND IMPLICATIONS FOR FURTHER RESEARCH

This subsection will summarize the results of the investigation and its implications for further research. As the main objective here was to identify and understand reflective thinking and knowledge production, here are the results and discussion for each research question.

4.2.1 RQ1- How effective was peer feedback for the development of the participants' written case studies?

Regarding the close analysis of the case studies and the influence of the feedback on the reflection and writing processes, it revealed that the feedback received from the peers had a positive impact on these processes. Five from the six participants, whose case studies were analyzed, edited their case study taking into account the feedback from their peers.

Moreover, as recursive feedback enhances learning opportunities, it was already expected that participants would profit from providing feedback to their peers, which is confirmed in the following subsection. However, participants went further; they reported that they have learned from the lessons the author of some case studies learned. To exemplify, four reviewers clearly stated in their feedback that they have learned by reading the case study they were reviewing; they have learned with the experience that their peers described they had been through. Important to note that there were four different reviewers and four different case studies. One of these reviewers was Matheus. On his feedback to Raniel, he states that he has learned from Raniel's mistakes on field. Matheus also let the following message to Raniel:

> Your case study was the best I have read. I have learned from the beginning until the end. I like your sense of humor in showing all kind of difficulties and unexpected problems on the field. – I will save a copy of your case study so I can read before any humanitarian job I would be deployed in.

Jenifer had a similar experience when providing feedback to Breno. She let the following message to him: "WOW!! What an experience. And really significant key issues you had to work through. I learned from your descriptions. Thank you."

4.2.2 RQ2- What are participants' perceptions regarding their learning experience with the writing/peer-review activity? How was the experience of providing feedback? How was the experience of receiving feedback? How did these experiences influence the elaboration of the final version of their writing?

The post-course survey revealed that most of the participants enjoyed and profited from the activity of writing/providing feedback/revising/rewriting a case study, as demonstrated in Figures 12, 13, 14, and 15, which reveal participants' level of agreement with the following statements, respectively:

- I enjoyed the experience of writing the case study.
- I enjoyed the experience of providing feedback through peer reviews to my colleagues.
- Providing feedback to my colleagues through peer reviews helped me to think about my own case study.
- The feedback I received from my reviewers were helpful.

All respondents enjoyed the experience of writing the case study, as represented in Figure 12.

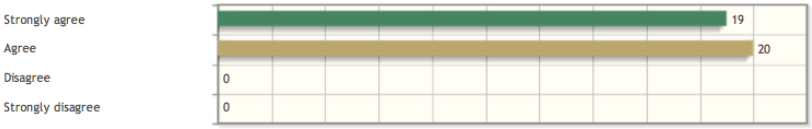


Figure 12. Level of agreement with the sentence: "I enjoyed the experience of writing the case study" (participants in numbers)
Source: Survey results generated with CGScholar

Additionally, in an open-ended question, participants were invited to describe their experience with the case study activity developed in the course. Five main issues emerged from their answers: opportunity for reflection, importance of the rubrics, value of informal knowledge, the uniqueness of this case study activity (writing / peer reviewing / self revising / rewriting), and the relevance of the reviewing process.

These issues are interrelated. This opportunity for reflection and their perception of the importance of informal knowledge may have been fostered by the rubrics. The rubrics question what and how participants learned, formal and informally, both before and during field operations. Once they were confronted to reflect about their learning regarding emergency operations, they started to value the informal knowledge. Amie "discovered that disaster response was not a rocket science. Most participants were not previously trained and yet had informal learnings to share". Amanda stated that for her it was "challenging sometimes to separate the 'what' I learned from the 'how' I learned - good to use this opportunity to think through what things had been truly learned (as opposed to things I might have noted or identified but not really 'learned')".

Rubrics also allowed participants to organize their thoughts and "to examine the events in an orderly manner" (Alice, a participant), which seems to be fostered a range of cognitive processes. Noa, for

example, “was happy to be able to recollect [his] thoughts, articulate them in an organized manner, identify issues and challenges, and provide a set of recommendations for future course correction”. Katrina observed that “the break-out of sections and the guiding questions to help in deciding which information to include was incredibly helpful and made it easier than if I were to just outline it on my own”, and the rubric “forces you to re-think and structure your knowledge and experience” (Hannah, a participant). These cognitive processes promoted a metacognitive process: participants became aware of what they know and reflected on how they developed the knowledge of what they know.

Regarding the feedback experience, from 39 respondents, 37 enjoyed the experience of providing feedback through peer reviews (Figure 13). And 34 respondents, out of 38, agree that providing feedback to their peers through peer reviews helped them to think about their own case study (Figure 14).

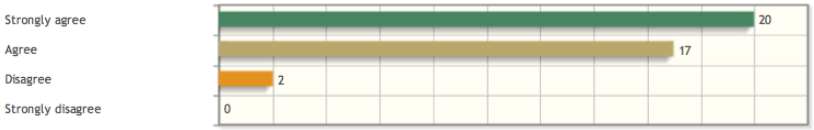


Figure 13. Level of agreement with the sentence: "I enjoyed the experience of providing feedback through peer reviews to my colleagues" (participants in numbers)
Source: Survey results generated with CGScholar

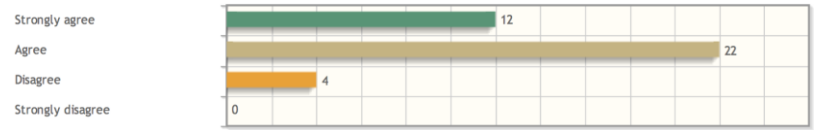


Figure 14. Level of agreement with the sentence: "Providing feedback to my colleagues through peer reviews helped me to think about my own case study" (participants in numbers)
Source: Survey results generated with CGScholar

Participants pointed to the relevance of the reviewing process to expose missing information that is important for the reader. As Eduardo said, the reviewing process “enabled to factor in issues I may have thought were not important. I realized their importance when pointed out

by reviewers". Briana profited from the process also to have a better understanding of the activity; in her words: "I first wrote a draft, reviewed the content and waited for comments. This was when I understood more what had been expected of the case study and how I was to make it clearer".

The feedback process was one of the uniqueness of the case study activity. Samaa summarized her experience as wonderful. She stated that "it was a wonderful experience; I never had this type of experience. I have submitted several assignments […] but only this time I had to review [the case studies of others]. It is also a great experience of strong learning". A similar experience was reported by Sue, referring to self-review: "I have been writing reports and case studies but this was one of it's kind as I had to assess myself and my work, my mistakes and my learning. In general what we do is, we just pick a subject and start writing about that but in this case study I was a subject due to which I discovered a lot of things which were not in consideration before".

As demonstrated in Figure 15, most of the participants (33 from 39) agree or strongly agree that the feedback they received from the reviewers were helpful.

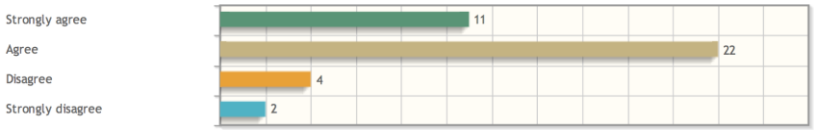


Figure 15. Level of agreement with the sentence: "The feedback I received from my reviewers were helpful" (participants in numbers)
Source: Survey results generated with CGScholar

Furthermore, participants were also encouraged to depict what features of the learning environment were useful when revising their own case study based on the feedback they received. According to the data, having the case study and the rubrics/review spaces side by side is a distinctive feature of *Scholar*. Sue's words could summarize participants' contentment on that: it "was very user friendly. While revising the case study I easily got the reviews feedback and managed to revise my case study in light of those comments".

4.2.3 RQ3- What are the implications of peer-to-peer learning in online environments for participants professional development?

The analysis of the case studies demonstrated that most participants took into consideration the feedback they received from their peers. Additionally, the analysis of participants' perceptions regarding the writing/peer-reviewing/self-reviewing/rewriting activity they engaged in revealed that most of them considered the feedback they received from their peers helpful to rewrite and improve their case study. They also acknowledged that by providing feedback to their peers they expanded their understanding of their own case study. This means that feedback had a central role to promote reflective thinking.

Therefore, one implication of peer-to-peer learning in this environment for participants' professional development is the possibility to profit from recursive feedback. Recursive feedback, as shown in the instances so far, was essential to foster participants' metacognition process. Participants learned from: providing feedback to three different peers, receiving feedback from three different peers, self-revising their own case study, and just reading the case study of their peers. Moreover, as the objective was to promote reflective thinking, a distinctive feature of the design of activity developed in this course is the constructive feedback, which is the feedback provided on a work in progress, on a knowledge that is being built.

Another implication for professional development is providing several opportunities for cognitive development. *Scholar* provides multiopportunities of social interaction; participants were involved in intense online activity of knowledge sharing, production, and consumption during the course. *Scholar* also allows the development of: 1) activities where all participants can interact openly, simultaneously, and continuously; and 2) activities where participants can have a one-to-one interaction in a more private way. This democratic approach respects participants' individual differences, which have an impact on individual learning. Also, this context, created by the environment and activities, created on participants a sense of belonging to a community of learning, where they can support each other and realize that they are not alone neither in the learning process nor in field operations. Alice testified her experience: "The case study writing experience allowed me to critique the issues encountered and compare to other case studies; thus allowing me to realize my experience was not unique". This feeling of belonging seems to be important in online environments because, according to Kátia Muck and Sadki (2015, p. 24), the feeling of isolation is a challenge to be addressed in this scenario.

Regarding the open, simultaneous, and continuous involvement, participants posted 695 comments in the Community space with the

following purposes being identified: sharing managerial information, establishing a knowledge profile, and sharing experiences in specific emergency operations. Employing Aly's words, "the discussion forum was the center of gravity of *Scholar*. It helped to cultivate ideas, experiences and knowledge sharing. It helped me to find resources, generate knowledge and motivated my self-reflection" (Aly, a participant). This same space was also employed to discuss the situation in Philippines, as the Typhoon Haiyan (Yolanda) happened during this Learning on Emergency Operations course. This sharing allowed participants to "gain new insights from the experience of other colleagues in the field" (Joy, a participant). However, at the same time that most participants (16) reported they profited from this interaction, four reported that besides profiting they found it overwhelming due to the large amount of information and the reduced quality of some updates. Important to highlight that being selective is an important skill that has to be developed both to be able to act with precision during emergency operations and for humans' everyday life in this new widely accessible information era. Marcia, a participant, summarized an appropriate way of approaching loads of information nowadays: "Some topics are more interesting than others, according to who you are, and what you know and need to learn about. Good idea to have the possibility". Having the possibility of consuming the information does not mean that you have to do it. Moreover, participants shared 53 files such as reports, presentations, and so on, all related to emergency operations.

Concerning the private interaction, 105 participants wrote a case study and read and reviewed three cases from their peers. Sixty-five of them were published, i.e., made available so that everyone in the course could read them. These 65 cases covered 13 different subjects on emergency operations. The three subjects with the higher number of cases were earthquake (17), floods (14), and conflicts (11).

The importance of all these activities (open or private) lies in the fact that learning does not occur in a vacuum; "human learning is social" (Berge, 2013) and it is situation and culturally inserted. Cognition "happens as much outside of the brain as it does inside. It finds fertile ground in the open potentialities of the brain, and so shapes the brain. The transformative task of education is to support this learning process" (Kalantzis & Cope, 2012, p. 206). And cognition "is conceptualized as originating in and being shaped by engagement in social activities, emerging on the inter-psychological plane and gradually transforming to the intra-psychological plane" (Kalantzis & Cope, 2012, p. 211). This

means that the context is the ground for interaction and, therefore, cognitive development.

This implication leads to a final implication: participants were embedded with agency in this course. The value of participants' informal knowledge and its relation with formal knowledge and, yet, the combination of these two types of knowledge applied to a specific field experience was the central objective of this course. Different from most of the courses, which value what researchers and renowned authors have published on a subject, this course emphasized individual and contextualized field experiences. Amie said that she "discovered that disaster response was not a 'rocket science'. Most participants were not previously trained and yet had informal learnings to share". As already pointed out, this informal knowledge, based on our experience and beliefs, in sociocultural theory, is termed *spontaneous concept* (Golombek & Doran, 2014, p. 104) or *everyday concept* (Vygotsky, 1986), as opposed to the *scientific concept* (Johnson, 2009), which is the knowledge generated by scientific means. A sociocultural perspective on education understands that education is arranged on the activities and resources that participants engage in together with the purpose of promoting their cognitive development, which is achieved through instruction (Johnson, 2009; Vygotsky, 1986). Instruction "can be characterized as a dialogic mediation process of reconceptualizing and recontextualizing knowledge" (Johnson, 2009). In this cyclical process of dialogic mediation, the first step is to become aware of the everyday concept that is being faced in order to introduce the adequate scientific concept. The second step is to engage in meaning activities so that those concepts could be re-conceptualized to solve the problem that is being faced (Johnson, 2009, p. 62). This cyclical process is essential to a professional of emergency operations inasmuch as the disasters are different, in nature and in extent, and they occur in different contexts, where delicate issues, such as culture, have to be wisely considered. Therefore, this exercise of reconceptualizing and recontextualizing knowledge has to be constant for members of emergency response units.

This pilot study revealed that the main investigation of this dissertation would be better developed if it could address at least three matters in a different and/or other method. Firstly, the results from the pilot study show that *Scholar* is a learning environment that can both promote reflective thinking and allow knowledge production, consumption, and sharing. It this sense, comparing Scholar to another learning platform that allows this type writing/peer reviewing activity would inform whether these findings were due to the nature of peer

activities per se or because of a distinctive feature present in *Scholar*, as the participants found the environment innovative. Secondly, besides having participants' views on the writing and reviewing processes, the study would profit with analyses of the data from the feedback by running reliability tests on reviewers' ratings and by categorizing the qualitative feedback in order to have a broader understanding on the quality of the feedback. And, thirdly, it is expected that the possibilities of getting more participants increase with the research design of applying only one survey instead of two surveys (pre-course survey and post-course survey) as a high number of participants took just the pre-course survey. Therefore, whenever possible, applying only post-course survey could increase the number of respondents or at least avoid dropouts.

This chapter presented a summary of the study conducted to pilot the main objective of this doctoral dissertation, and to enlighten the specific questions that will guide the research. It also provided some limitations, in regards to both the scope and the method of the pilot study, which can be overcome with a better-developed method design for the main investigation. The next chapter will systematically describe the method under which this doctoral research was conducted in order to answer those research questions.

CHAPTER 5 – METHOD

This is a mixed methods research that conducts quantitative and qualitative analyses to unveil the peer review process among students from two groups: 1) a MOOC employing the Coursera LMS, and 2) a Masters program using the Scholar platform. This investigation is guided by the following Research Questions:

1- What kind of peer feedback was used for the development of the students' written case studies?
2- What are students' views regarding their learning experience with the peer-review activity? How did the students evaluate their experience of providing and of receiving feedback?
3- What are the implications of peer-to-peer learning in online environments for teacher professional learning and second language academic literacy?

This chapter starts by presenting the context of investigation of both online learning platforms. In the sequence, describes the procedures for data collection and, finally, the procedures for data analyses.

5.1 CONTEXT OF INVESTIGATION

The following sections describe the context in which this research is situated. First it will present the Coursera course, its participants and the online environment where the course was developed. In the sequence, it will present the same elements for the Scholar course.

5.1.1 The Coursera Course

This section describes the course developed in Coursera, approaching the following features, in sequence: an overview of the course, the participants of the course, the criteria to selecting the participants of this investigation, the demographics of the participants of this research, and important aspects of the online environment.

5.1.1.1 The Course

"e-Learning Ecologies: An Introduction" was a MOOC offered by the University of Illinois Urbana-Champaign (UIUC) through a partnership with Coursesa. The objective of the course was to introduce innovative approaches to learning and teaching, focusing on the use of e-learning and social web technologies, according to the Syllabus

(Appendix D). It was an eight-week course that started on June 30th, 2014. The course comprised the following schedule: Week 1: Conceptualizing Learning; Week 2: Spatio-Temporal Dimensions of Learning; Week 3: Epistemic Dimensions of Learning; Week 4: Discursive Dimensions of Learning; Week 5: Evaluative Dimensions of Learning; Week 6: Social Dimensions of Learning; Week 7: Cognitive Dimensions of Learning; Week 8: Diversity Dimensions of Learning (see Appendix D for full descriptions). Appendix E is a printed version of what students encountered on the online environment on Week 1; all other weeks had a similar structure.

The course was comprised with the following activities: lecture videos, in-lecture questions (questions that automatically appear while watching the video), weekly discussions (forums), and case study (that will be further explained in the Materials section). One innovation of this MOOC was that participants could select one of the three participation levels to engage in the course depending on their available time. Figure 16 describes the weekly activities expected for each level of participation: Overview (1 hour per week), Intermediate (3 hours per week), and Advanced (8-10 hours per week). Another innovation of the course was that all participants that engaged the Advance level and reached 70 points out of 100 were eligible to obtain an "Illinois Participation Badge" issued by the instructor of the course (see Appendix D for list of points). Usually, the only form to gain a certificate of completion is joining with "Signature Track", which means paying for this service.

	Participation Level	Time Estimate	Tasks
	**e-Learning Ecologies Overview (O)**	1 hour per week	• Watch the videos and view the material marked (O) • Comment on each week's post, made by the course admin
	**e-Learning Ecologies Intermediate (I)**	3 hours per week	• Watch the videos and view the material marked (O) and (I) • Comment on each week's post, made by the course admin • Make a post of your own
	**e-Learning Ecologies Advanced (A)**	8–10 hours per week	• Watch the videos and view the material marked (O), (I), and (A) • Comment on each week's post, made by the course admin • Make a post of your own • Create a Case Study; peer review 3 others' Case Studies; revise your Case Study for web publication • If you are working in Scholar, you can choose to make your personal profile page and published Case Study public and permanently visible on the web.

Figure 16. Estimate time and tasks for each level of participation in the Coursera course
Source: Print screen from the Syllabus (Appendix D).

I engaged in the course as a Teaching Assistant (TA) performing tasks such as: editing content, releasing weekly modules, verifying badge eligibility, and monitoring activities in the forums. Additionally, I received online training from Coursera-UIUC to assist students with technical troubleshooting and on how to act with students' possible inadequate behaviors in forums.

5.1.1.2 The participants

As expected in a MOOC, the numbers in Coursera are massive. With learners from 149 countries (3% of the learners from Brazil), Figure 17 displays some of these numbers and the form of participation: 7,530 learners joined the course; 5,239 visited the course; 3,576 watched at least one lecture video; 1,155 submitted an exercise (in-lecture questions and/or case study); 2,142 browsed the forums; and 83 joined the course with Signature Track.

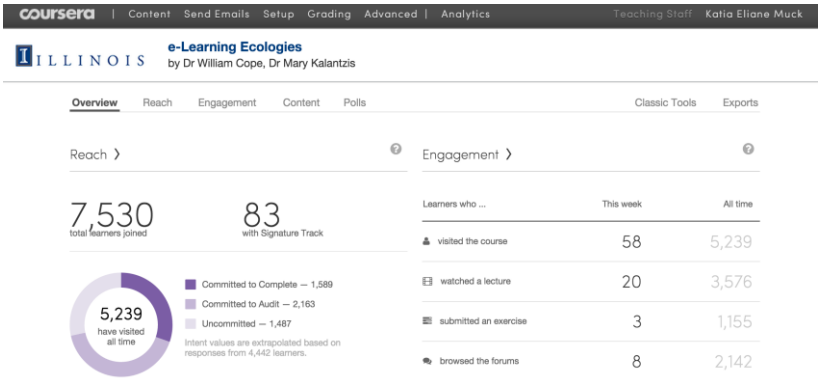


Figure 17. Number of participants of the Coursera course and their engagement
Source: Print screen from "e-Learning Ecologies: An Introduction" course – Coursera.

Despite these impressive numbers, only 12 learners met all the selection criteria as follows. However, a large number of enrollments

and an inexpressive participation is a characteristic of MOOCs. Firstly, they had to have responded the two surveys (pre-course survey + post-course survey). This criterion was necessary because the pre-course survey reveals the demographics and the post-course survey answers Research Question 2. A total of 703 learners responded the surveys. From those, 537 responded only the pre-course survey, 48 responded only the post-course survey, and 118 responded both surveys. Secondly, learners had to have joined the course with Signature Track. This was important in order to reach learners with a level of commitment similar to the students from Scholar. Also, for this research, it was imperative that learners had successfully completed the Case Study activity (write a case study + review case studies from their peers + self-review and rewrite their own case study), which was a requirement for Signature Track learners. A total of 13 learners met these two criteria. Thirdly, each learner had to have received at least one feedback for his/her case study. According to Table 3, 12 learners met this criterion; learners # C9 was excluded.

Table 3. Length of Coursera learners' Case Studies and amount of feedback they received

ID	First Drafts (# words)	Final Drafts (# words)	Difference between drafts (%)	# Reviews Received
C1	797	1879	135.75	1
C2	813	1327	63.22	3
C3	785	1523	94.01	3
C4	1216	2111	73.6	3
C5	4134	4399	6.41	1
C6	1770	1825	3.11	2
C7	928	2688	189.65	2
C8	513	2585	403.9	2
C9	3286	3490	6.21	0
C10	595	934	56.97	3
C11	559	1028	83.9	2
C12	3686	4440	20.45	3
C13	3100	3750	20.97	1

Source: Table built by comparing first drafts with final drafts using Microsof Word, and calculating the percentages of differences between them.

Fourthly, in order to meet the last criterion, learners had to have produced a final draft different from the first draft. This is relevant

because learners were expected to take into consideration the feedback they received in order to write the final draft. All 12 learners met this criterion.

Seven participants of this investigation are male and 5 are female (Table 4). According to Table 5, 75% of the participants were from 25 to 49 years while the other 25% were above 50 years old at the time of the data collection.

Table 4. Participants' gender - Coursera

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	7	58.3	58.3	58.3
	Female	5	41.7	41.7	100.0
	Total	12	100.0	100.0	

Source: Survey data; table generated with SPSS 24.0.0.0

Table 5. Participants' age group - Coursera

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	25 – 29	3	25.0	25.0	25.0
	30 – 39	3	25.0	25.0	50.0
	40 – 49	3	25.0	25.0	75.0
	50 – 59	1	8.3	8.3	83.3
	60+	2	16.7	16.7	100.0
	Total	12	100.0	100.0	

Source: Survey data; table generated with SPSS 24.0.0.0

Regarding their level of formal education, three hold a bachelor's degree, eight hold a master's degree, and one holds a doctorate degree, as demonstrated in Table 6.

Table 6. Participants' highest degree - Coursera

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelor's degree	3	25.0	25.0	25.0
	Master's degree	8	66.7	66.7	91.7
	Doctoral degree	1	8.3	8.3	100.0
	Total	12	100.0	100.0	

Source: Survey data; table generated with SPSS 24.0.0.0

As for their language background, Table 7 shows that 4 participants are native speakers of English, 3 of Spanish, 2 of French, 1 of Igbo (a Niger-Congo language), and 1 of Portuguese.

Table 7. Participants' native language

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	English	4	33.3	36.4	36.4
	French	2	16.7	18.2	54.5
	Igbo	1	8.3	9.1	63.6
	Portuguese	1	8.3	9.1	72.7
	Spanish; Castilian	3	25.0	27.3	100.0
	Total	11	91.7	100.0	
Missing	Uncodeable	1	8.3		
Total		12	100.0		

Source: Survey data; table generated with SPSS 24.0.0.0

5.1.1.3 Coursera's online environment

Coursera's three main spaces for this course are the Homepage, the Forum space, and the Assignment submission/Evaluation/Feedback space. The Homepage, as illustrated in Figure 18, is a static space where all the content of the course is organized week by week, as well as other documents such as the syllabus. Moreover, this space holds the links to other spaces such as the forums.

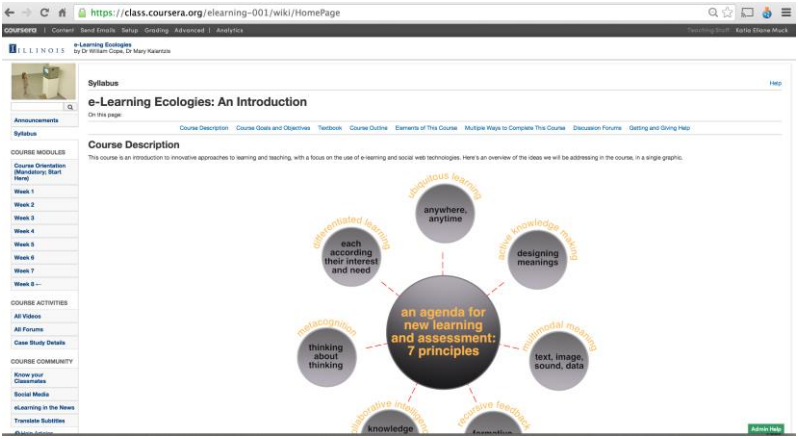


Figure 18. Screen shot of the Coursera's "e-Learning Ecologies: An Introduction" course homepage.

The Forum space is comprised of a list with hundreds of forums as the ones exemplified in Figure 19. Participants can also subscribe to specific threads to follow a specific activity. Figure 19 shows three of the threads I had subscribed. The students' names were redacted to maintain their confidentiality. Moreover, participants can mark a thread as being important (giving one point to that thread).

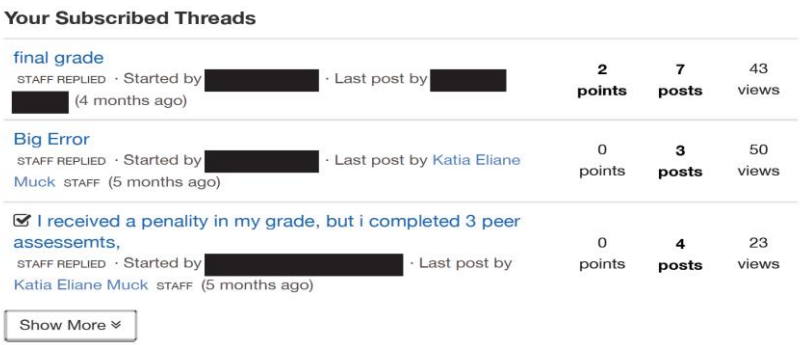


Figure 19. Screen shot of the Coursera's "e-Learning Ecologies: An Introduction" Forum page

Regarding one of the requirements for the advanced level of the course, the Case Study, participants developed it employing their own text editor and uploaded the file to the Submission space, which is in the bottom of Figure 20.

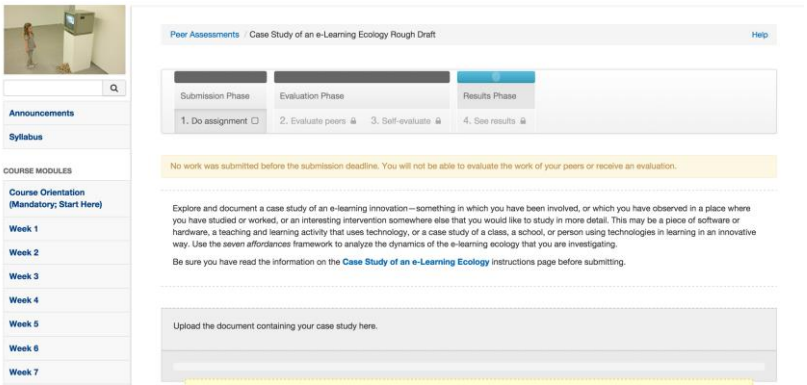


Figure 20. Screen shot of the Coursera's "e-Learning Ecologies: An Introduction": Assignment submission page

Figure 21 is the sequence of the website page of Figure 20. It pictures the place where participants evaluate and provide descriptive feedback to their peers. Numeric feedback is attributed in that box with little arrows in the center of the Figure, and descriptive feedback is offered in that box in the lowest part of the figure. This numeric and descriptive feedback students provided will be the data for this research.

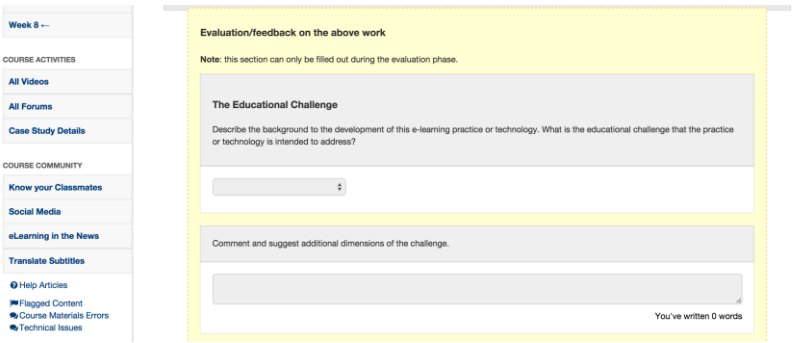


Figure 21. Screen shot of the Coursera's "e-Learning Ecologies: An Introduction": Evaluation/Feedback space

5.1.2 The Scholar Course

This section introduces the course facilitated in Coursera approaching the following aspects, in sequence: an overview of the

course, the participants of the course, the criteria to selecting the participants of this investigation, the demographics of the participants of this research, and important aspects of the online environment.

5.1.2.1 The Course

"EPSY 408 – Learning and Human Development with Technologies" is a course for the Master degree program in Education offered completely online by the University of Illinois Urbana-Champaign. The objective of the course was "to provide an understanding of theories of learning and development and how these theories relate to educational technology, according to the Syllabus (Appendix F). The course was taught in a period of eight weeks and started on January 27, 2014. The course had the following shedule: Week 1: Introduction; Week 2: Behaviorism and Conditioned Response; Week 3: Notions of Innate Intelligence; Week 4: Constructivism; Week 5: Neuroscience; Week 6: The Social Mind; Week 7: Distributed Cognition; Week 8: Communities of Practice (see Appendix F for full descriptions).

According to the Syllabus (Appendix F), the workload of the course was the following: 1) Writing of Work 1 and Work 2 in the Creator space of Scholar; 2) Peer reviewing three other participants' works (in each work: 1 and 2). Revising their work considering the peer review comments and writing a self review; 4) Commenting on the weekly discussion topic updates; 4) Posting at least seven weekly updates to the Community space, reading others' updates, and commenting on three of them; 5) Participating in the weekly online synchronous encounters. These sessions occurred every Monday from 7:00-8:30PM (US Central time) with the use of Adobe Connect. I participated as a TA in this course as well.

5.1.2.2 The participants

Seventy learners joined the course learning community (Scholar environment), but only 56 fully engaged in the course by writing the required Works. A total of 31 learners met all the required criteria to being participants in this investigation. The first prerequisite to be part in this research was to respond the post-course survey, as it feeds Research Question 2 and provides the demographics. Thirty-six learners completed the survey. However, four of them were excluded because they refused to identify themselves. This was mandatory because it was

the only way to collect their consent form and knowing whose data I could collect from Scholar. The second requirement was the successful completion of the Work 2 activity of writing a case study + reviewing case studies from their peers + self-reviewing and rewriting their own work. One learner has not met this criterion. The third requirement demands that the learners had to have received at least one feedback for his/her work. Finally, the last criterion demanded that learners had to have produced a final draft different from the first draft. These two last criteria were easily verified conducting an overview on Scholar Analytics page (Appendix G). A total of 31 learners met all the required selection criteria.

Therefore, 31 participants comprise the pool for this study. Nineteen of them are female and 12 are male, as shown on Table 8. According to Table 9, 92.9% of the participants were from 23 to 49 years while the other 7.1% were above 50 years old at the time of the data collection, and 3 participants have not provided this piece of information.

Table 8. Participants' gender - Scholar

		Frequency	Percent
Valid	Female	19	61.3
	Male	12	38.7
Total		31	100.0

Source: Survey data; table generated with SPSS 24.0.0.0

Table 9. Participants'age group – Scholar

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	23-29	8	25.8	28.6	28.6
	30-39	8	25.8	28.6	57.2
	41-49	10	32.2	35.7	92.9
	50-59	2	6.5	7.1	100.0
	Total	28	90.3	100.0	
Missing	System	3	9.7		
Total		31	100.0		

Source: Survey data; table generated with SPSS 24.0.0.0

In relation to participants' formal education background, as can be seen on Table 10, one holds a doctorate's degree, eight hold a master's

degree, and 19 hold bachelor's degree. Three have not responded this question. Additionally, from 28 respondents, 26 reported having teaching experience. From these, six participants have between 5-10 years of teaching experience and other six have between 15-23 years of years of teaching experience.

Table 10. Participants' highest degree

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Doctorate's degree (PhD)	1	3.2	3.6	3.6
	Master's degree	8	25.8	28.6	32.1
	Bachelor's degree	19	61.3	67.9	100.0
	Total	28	90.3	100.0	
Missing	System	3	9.7		
Total		31	100.0		

Source: Survey data; table generated with SPSS 24.0.0.0

In regard to participants' native language, as can be visualized in Table 11, 28 participants have responded this question, but only 26 provided the complete information. From these, 24 have English as their native language and 2 have Chinese.

Table 11. Participants' native language

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	English	24	77.4	85.7	85.7
	Chinese	2	6.5	7.1	92.9
	Other	2	6.5	7.1	100.0
	Total	28	90.3	100.0	
Missing	System	3	9.7		
Total		31	100.0		

Source: Survey data; table generated with SPSS 24.0.0.0

5.1.2.3 Scholar's online environment

This section will provide an overview of Scholar, which is organized in subspaces named *Community*, *Creator*, *Publisher*, and *Analytics*. Further description, although not exhaustive, will be given

about *Creator* because it is the subspace where the main activity of this study happed.

Community is the place where the social interactions between participants take place. Figure 22 illustrates a fragment of this scenario. Members of a community (course), who are the enrolled participants and facilitators, are listed on the left side of the page; and the recent activities and the files shared are listed on the right side of the page. The intense activity occurs in the middle of the page, in the *Activity Stream*. Here, the members can initiate new updates (posts) or comment on other members' updates. Updates are displayed consecutively in the *Activity Stream*, with the newest update being always the one at the top. Moreover, the very top of the page is the place for the private communication such as *Message* and *Notifications*. As already mentioned, this is meant to be just an overview of *Scholar* learning space; it is far from exploring all its features.

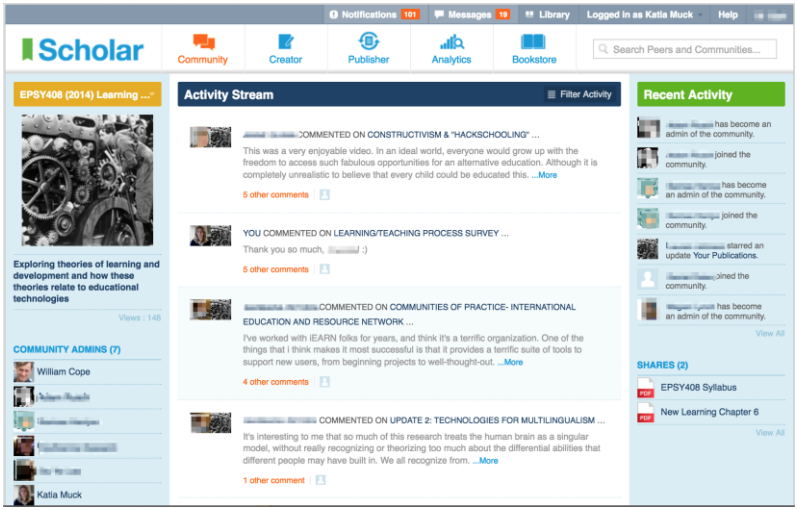


Figure 22. A fragment of the Community space
Source: Partial screenshot of CGScholar, Community: EPSY408 course, manipulated with Skitch for redactions.

Creator is a multimodal working space that allows, for example, the insertion of videos, sounds, figures, and links. This is the space where students developed their case study, provided feedback to peers, received feedback from peers, reviewed their own case study, and

revised their own case study. Figure 23 provides a general view of this space where a case study named “The Learning Designer” is being developed. The icons to insert the multimodal features are right under the title of the case study. The innovation of this space, among others, is having a design where the rubrics (right side) are displayed side-by-side with the writing area (left side).

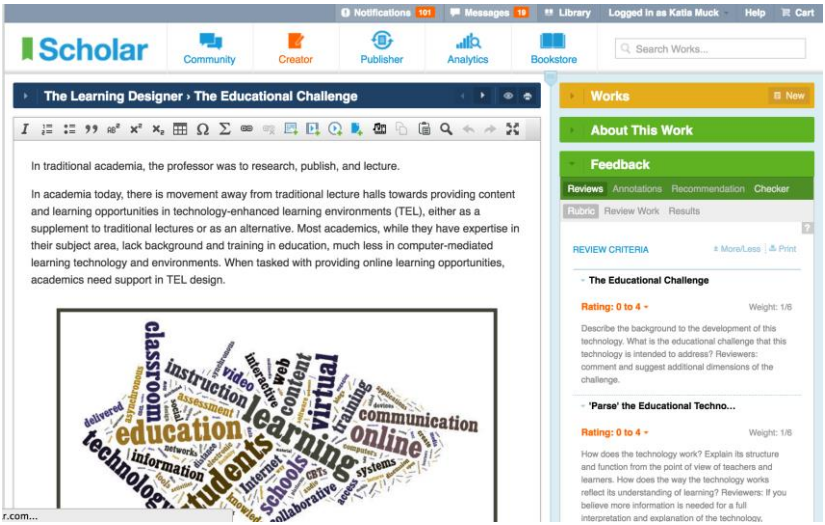


Figure 23. General view of the Creator space
Source: Partial screenshot of CGScholar, Creator: EPSY408 course

This Figure also shows the tab *Feedback* extended, revealing a segment of one of its dimensions (*Rubric>> Review Criteria*) where the rubrics and instructions for the reviewers are described. Each tab (*Works*, *About This Work*, and *Feedback*) will be further illustrated and explained below. To start with, Figure 24 provides the general organization of the *Creator* space revealing the extensions of each tab and their functions.

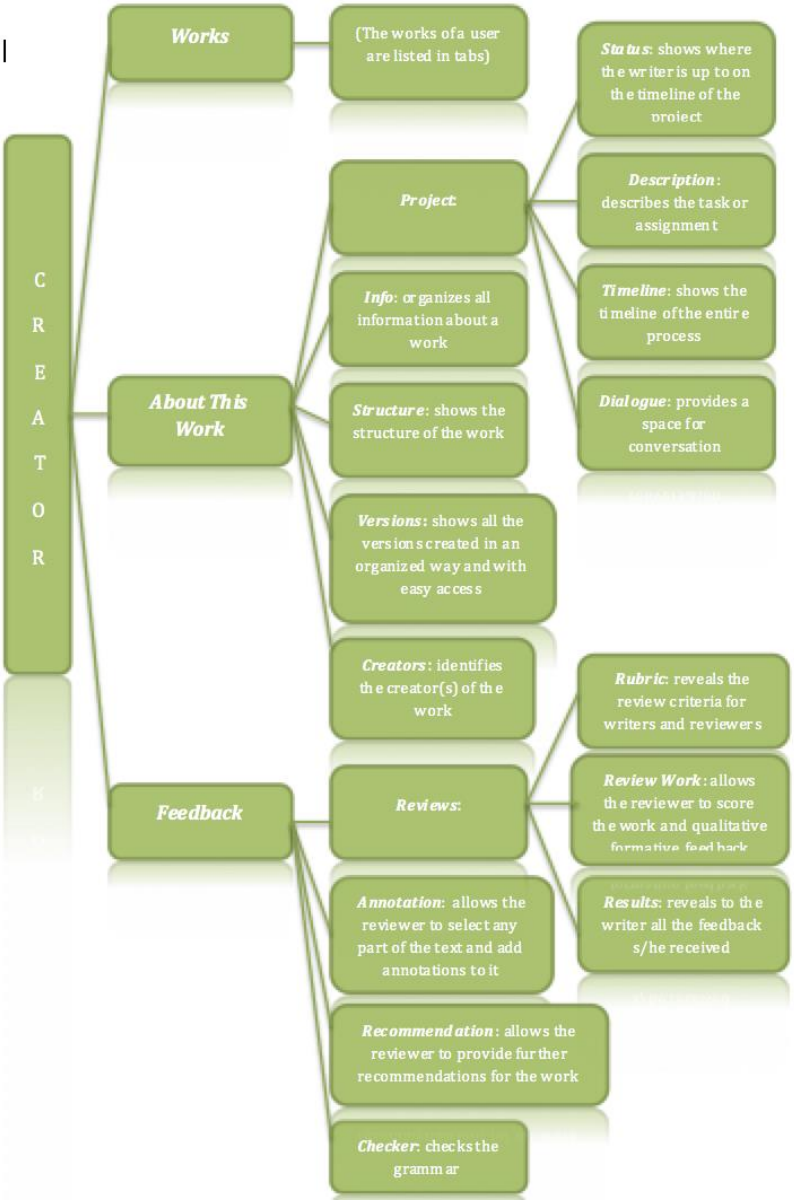


Figure 24. General organization of the tabs in Creator space and their functions

As defined by a student during a synchronous moment, "Scholar is an easy tool that does complex things". From the organization on Figure 24, it is possible to observe the number of layers each tab has and the type of information and/or function each one carries showing the complexity of this writing and reviewing space. The first tab on the right side of *Creator* is *Works*. It offers a list with all the works (case studies, projects, etc.) the writer is working on, as can be seen in Figure 25.

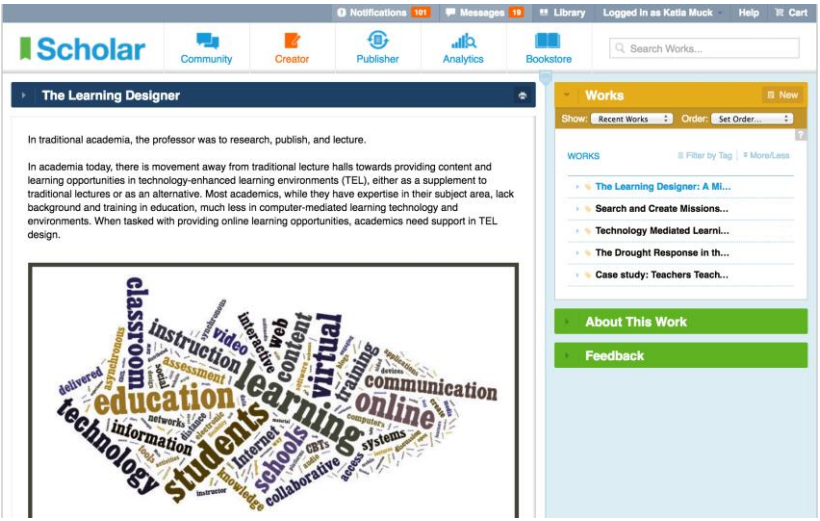


Figure 25. The Creator space with the Works tab extended
Source: Partial screenshot of CGScholar, Creator: EPSY408 course.

The *About This Work* tab, illustrated in Figure 26, offers a series of features such as: *Project*, *Info*, *Structure*, *Versions*, and *Creators*. Furthermore, the tab *Project* is subdivided into the following features: *Status*, *Description*, *Timeline*, and *Dialogue*, which are also explained in the same Figure.

Figure 26. The creator space: About this Work tab
Source: Multiple screenshots of CGScholar, Creator: FACT/ERU Learning, manipulated in Skitch to include explanation of each tab

The following features are presented under the *Feedback*[30] tab (Figure 27): *Reviews*, *Annotation*, *Recommendation*, and *Checker*.

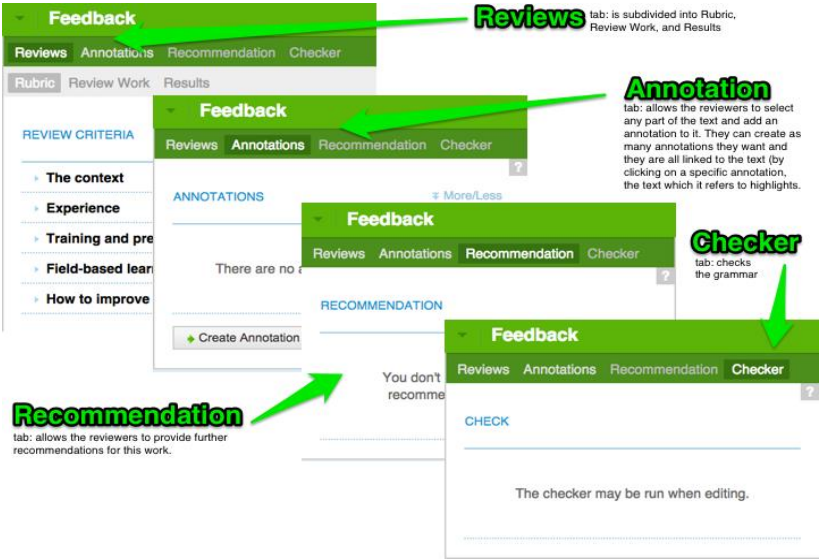


Figure 27. The Creator space: Feedback tab
Source: Multiple screenshots of CGScholar, Creator: FACT/ERU Learning; manipulated in Skitch to include explanation of each tab

In the sequence, in Figure 28, the focus is on the *Feedback>Reviews* path. The *Reviews* tab is subdivided into *Rubric*, *Review Work*, and *Results* tabs. It also shows that each item of the *Rubric* can be extended revealing the complete rubric of that item, its review criteria, and its rating categories (the right side of the Figure exhibits the item *The Context* extended). As a result, the writer finds the rubrics as well as the review criteria and the rating categories that will be employed by the reviewer, side by side with the text.

[30] For a video on recursive feedback in *Scholar*, access: http://info.cgscholar.com/tutorials/scholars-affordances/recursive-feedback

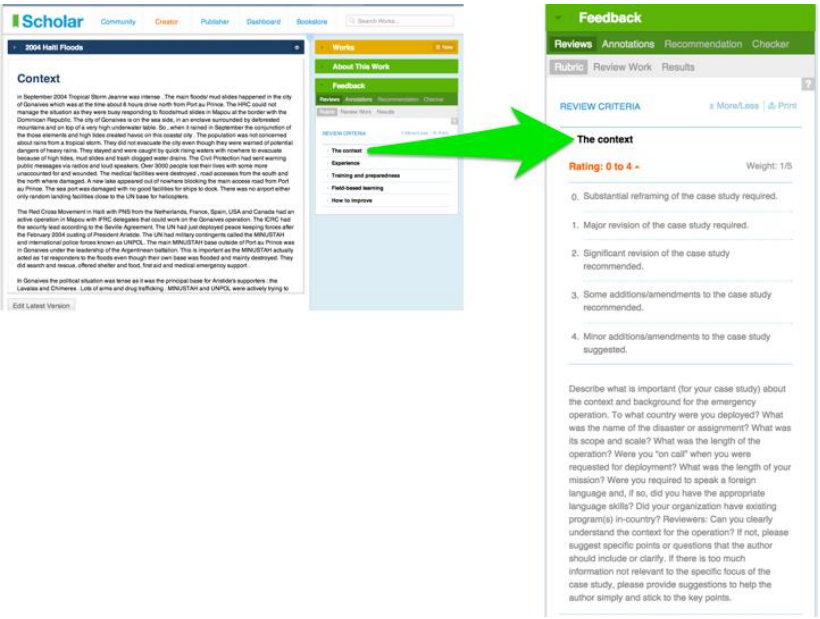


Figure 28. The Creator space: Feedback>Reviews>Rubric tab with one criterion expanded
Source: Partial screenshots of CGScholar, Creator: FACT/ERU Learning; manipulated in Skitch to include explanation

The same alongside arrangement is provided for the reviewer of the work. Moreover, as displayed in Figure 29, the reviewer finds a track bar to rate each segment of the text (related to a review criterion) and a space to offer qualitative feedback. The screen shot on the left part of the Figure shows the list of review criteria, and the right side of the Figure displays the first review criterion extended, demonstrating the space for feedback. This same *Review Work* space is employed by the writer to self review his/her work.

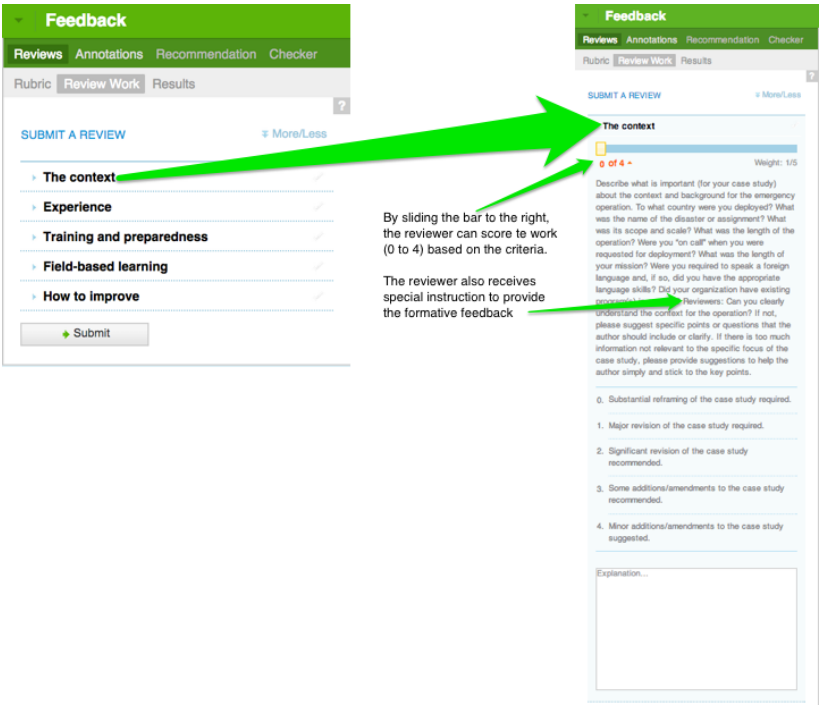


Figure 29. The Creator space: Feedback>Review>Review Work tab
Source: Partial screenshots of CGScholar, Creator: FACT/ERU Learning; manipulated in Skitch to include explanation

Finally, the *Feedback>Reviews>Results* tab reveals the feedback provided by the reviewers, as shown Figure 30. In this example, the learner can see the summary of the results for his/her work, with the Mean of the reviewers' ratings for each part of the text (left side of Figure 30). In the same tab, by clicking on the indicated arrows, the learner can access the ratings and the qualitative feedback provided by each reviewer. In this case, it is a blind review process and the reviewers' identities are only disclosed to the instructor. For each project, the instructor can decide whether it is appropriate to employ blind review process and establish the number of reviewers.

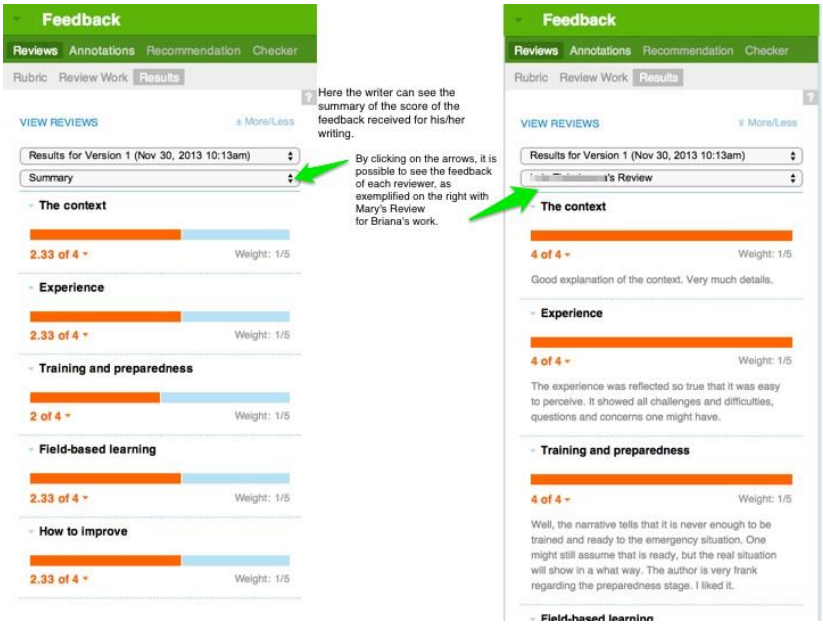


Figure 30. The Creator space: Feedback>Reviews>Results tab
Source: Partial screenshot of CGScholar, Creator: FACT/ERU Learning; manipulated in Skitch for redaction and to include explanation

It is essential to remember that *Creator* always displays the case study side by side with important information located on the right side of the page: *Works*, *About This Work*, and *Feedback.*

Scholar's *Publisher* and *Analytics* tools are for facilitators to manage the course[31]. The former allows the facilitator to share the final version of the case studies with all participants of the course. The latter tool allows the facilitator to track the entire process of the case study. The facilitator can access, for instance: all the different versions that the participant wrote, the version that s/he submitted to the review process, the reviewing criteria, the reviewer's feedback, and the final version (after the revision).

Moreover, the facilitator can access a marked up version indicating all the difference between the versions, as shown in Figure

[31] As previously mentioned, this is just a foretaste of the deep analytics that this tool performs. For further information on *Scholar*, please go to http://info.cgscholar.com/ .

31. This Figure shows an excerpt of what the learner edited. In total, s/he edited 23.56% of her case study by including information, as indicated by the green color in the excerpt, or by excluding information, as illustrated by the light pink color with the strikethrough effect in the same extract.

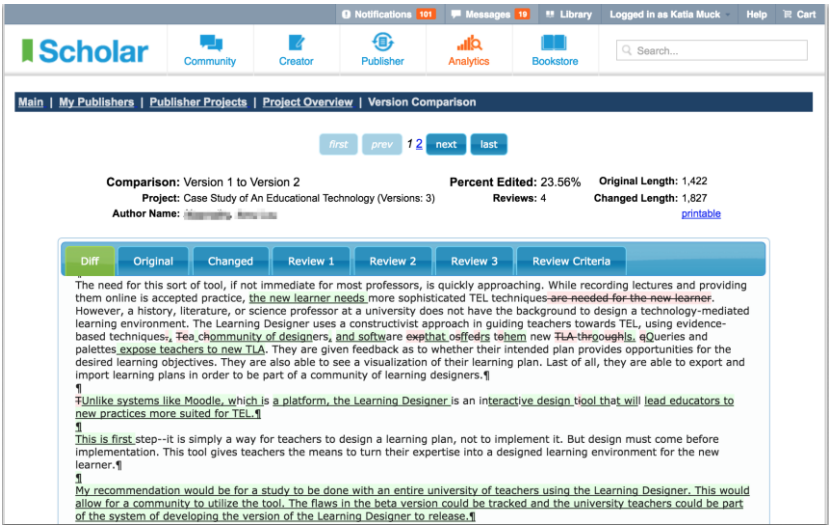


Figure 31. The Analytics space: Diff tab
Source: Partial screenshot of CGScholar, Analytics: EPSY408 course, manipulated in Skitch for redactions

Besides this marked up version, revealed by the first tab ("Diff", in green) in Figure 31, the adjacent tab "Original" shows the writer's original work, the tab "Changed" shows the revised work (without mark ups), the tab "Reviewer 1" shows the numeric feedback and the qualitative feedback that Reviewer 1 provided and the same as the tabs of the other reviewers. The "Review Criteria" tab displays the review criteria. Furthermore, the facilitator can have an overview of the students' achievements such as average number of words that each student wrote in the writing assignment, the percentage of editing each student did on their works, number of reviews s/he received and average grade, just to cite some features. Appendix G displays Scholar Analytics with the names of the students redacted. Figure 32 demonstrates the content of the "Review 1" tab.

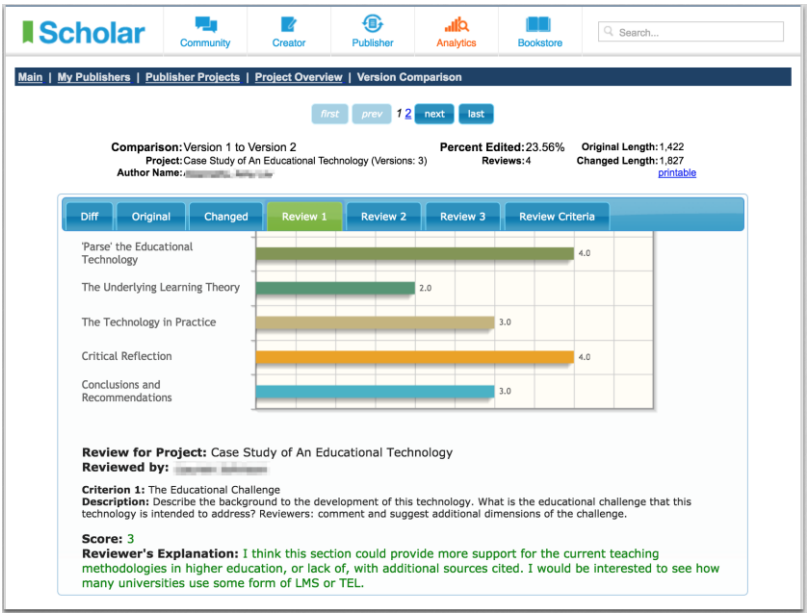


Figure 32. The Analytics space: Review 1 tab
Source: Partial screenshot of CGScholar, Analytics: EPSY408 course, manipulated in Skitch for redactions

Figure 32 exposes a part of the bar chart with the summary of the numeric feedback that Reviewer 1 gave to this work. In the sequence, it shows an excerpt of the descriptive feedback. It displays the criterion 1, the reviewer's score and the reviewer's explanation. The same sequence is available for the rest of the criteria.

5.2 MATERIALS AND ACTIVITY

The data to answer Research Questions 1 and 2 originated from surveys and from writing and peer-reviewing activities developed during Coursera's and Scholar's courses. The survey applied to participants from Scholar (Appendix H) has three groups of questions:

The first of group investigates participants' demographics, with multiple-choice question such as age (where they move a slide bar to their age), gender (where they choose between Female and Male), native

language (they choose the right options from a drop down box), highest educational qualification (also a drop down box with options), and experience in teaching (with yes or no options). Moreover, it encompasses two open-ended questions investigating field of work and teaching experience.

The second group of questions scrutinizes students' experiences with the peer review activity with two types of questions: multiple-choice questions using a Likert-5 scale and open-ended questions. Regarding the multiple-choice questions, they investigate: 1) Level of satisfaction on: writing the case study, providing feedback through peer reviews to other participants of the course, receiving feedback through peer reviews from other participants of the course, achieving their goals with the online course. Scale: Very Satisfied; Satisfied; Neither Satisfied nor Dissatisfied; Dissatisfied; Very Dissatisfied. 2) Receiving and providing feedback: Employing the scale Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, and Strongly Disagree, the students had to react to the following statements:

- The feedback I received from my reviewers was helpful;
- Providing feedback to other participants of the course through peer reviews helped me to think about my own case study;
- The rubrics were helpful to: Write my works; Provide feedback to other participants' works, Revise my own work;
- I would like to take additional course which include a process of peer review.

In relation to the open-ended questions, they ask the following: Identify 3 things you learned through giving feedback to other participants of the course; Identify 3 things that you learned through receiving feedback from other participants of the course; How did the rubrics support your case writing? What aspects of the online environment helped you when revising your own works?

The third group of questions investigates students' views in relation to the Scholar environment, the course, the peers and the instructor. There are multiple-choice questions using a Likert-5 scale and open-ended questions in this group. The multiple-choice questions that investigate perceived ease of use, perceived usefulness, academic performance, and course satisfaction were adapted from Lee and Lee (2008). The multiple-choice questions that explore experiences concerning the interaction with the instructor, experiences concerning the interaction with peer students, experiences concerning individual learning processes, and experiences concerning course outcomes were

adapted from Paechter, Maier, and Macher (2010). Moreover, the following open-ended questions belong to this group:

- What was challenging in using Scholar?;
- What was useful in the community discussion and how could it be improved?;
- How would you like to improve this course in the future?;
- How many online courses have you participated in Scholar?;
- Tell us about your experience using e-Learning platforms; name specific platforms in which you have worked;
- What is the difference between using these platforms and using Scholar?

Concerning the Coursera Pre and Post course surveys[32], due to reasons explained in the procedures for data selection section, the survey contains questions that feed a larger research enterprise. Thus, only the questions that are similar to those described in this section are employed in this dissertation.

In regard to the courses main activity[33], learners had to write a case study following the minimum established criteria, review case studies from three other peers also following the criteria, reviewing their own case study having in mind the criteria, and revising it based on the feedback they received from their peers, as criteria displayed in Figure 33.[34]

[32] See Appendix I for Coursera Pre-course survey and Appendix J for the Post-course survey.

[33] Coursera course peer review activity instructions are completely detailed on Appendix K. Scholar course specifics on this activity are explained in the Syllabus (Appendix F).

[34] See Appendix L for the full description of the Rubrics.

Figure 33. Description of the qualitative review criteria
Source: Figure built with data from the Course Plan.

Besides providing descriptive feedback for each of the criteria, reviewers had to numerically rate each section from zero to four, with these numbers having specific values for criteria. Attachment L describes all the criteria with the meaning attributed to each value within each criterion.

Important to highlight that the terms "Case Study", "Work", and "Article" are employed interchangeably to refer to the product of the writing activity. This is due to the fact that the Syllabi of the courses refer to this product with different names (one names it as Work and the other as Case Study) and several reviewers named it as "Article".

5.3 PROCEDURES FOR DATA COLLECTION

With regard to the procedures for data collection and analyses, the first action was to submit a research project to the Institutional Review Board of the University of Illinois at Urbana-Champaign. The process was approved under IRB# 14.439[35]. Afterwards, for the Scholar pool, interested participants were recruited by e-mail (Appendix O). This e-mail provided a link to participants to take the survey. Before taking the

[35] See Appendix M for IRB for Scholar and Appendix N for IRB for Coursera.

survey, subjects had to accept the terms established on the Consent Form (Appendix P), which provides detailed information explaining that the Research Principal Investigator – RPI (who is the instructor of both courses) would not take part on the recruiting or any other procedure such as data collection. Furthermore, it explains that the RPI would have access to the data only after the two courses had ended and the grades were all assigned, and that he would not know who participated on the investigation. It also informs that the other Investigator (myself) would be a participant observer and would be responsible for the procedures and analyses. Only data of participants who gave consent was used in the data collection and analyses.

Moreover, before being asked to participate, students were informed that they would not receive points, credits or any compensation for participation in this study. Participation was voluntary. All the questions of the survey were edited with the "optional response" command (instead of mandatory response), as participants should not feel coerced to respond anything they do not wish. The consent form also offers a short clarification on the survey's research purposes, confidentiality matters, storage of data and possible risks.

Principal data collection, the post-course survey, started in the last week of the course and the survey continued active for two weeks after the course ended. Survey was designed, distributed and organized employing SurveyMonkey, an online survey tool, for the Coursera course students. As this tool is expensive, I decided to use Qualtrics for the Scholar course students because of its widely known quality among online survey tools and due to the fact that it is accessible for free for UIUC staff and faculty.

After the completion of the data collection from the Scholar survey, all the data were exported to SPSS, a computer program to run statistics. In the sequence, the survey was linked to the classroom data, i.e., the answers a respondent provided for the survey may be helpful to the understanding of his/her classroom data and also to collect data from the peer feedback activity. Therefore, I assigned each participant with an ID that is used to keep connected all data of that participant. Participant work products (drafts of works and peer review comments) that are analyzed and survey had their identities (names, e-mails, or other identifiable marks) removed.

Still on data security, all data are kept confidential and stored in online password secured files with ID key stored in a different online password secured file. Only the Investigators know the passwords. Also, all participant work entered will be stored in Scholar and it is not

publically accessible.

Besides participation on the survey, research subject participation was primarily through work conducted in Scholar. These activities do not require more time from the learner other than what is normally expected in the course. Additionally, it does not involve any risk other than the one involved in the learning process. By taking part in this research, participants could benefit from the peer feedback activity. Therefore, this study had an extremely favorable risk-benefit ratio.

The data collected from this participation, which is the peer feedback, was the final data collection procedure for the Scholar pool.

In relation to the Coursera pool, data collection was different due to the fact that the UIUC already conducts a large longitudinal research with all UIUC courses developed in Coursera. This means that researchers who develop that investigation already apply standardized surveys to participants of those courses. Besides, those researchers have a rigorous agreement with Coursera regarding confidentiality of learners and use of data.

Therefore, with appropriate approval from the UIUC Institutional Review Board, the researchers allowed us (Professor Bill Cope, me and another investigator) to include in their surveys the most important questions for the development of our research. Consequently, the UIUC researchers conducted all the data collection procedures for pre and post-course surveys employing the Survey Monkey tool. I received the data from the surveys and the data from the peer review activity from the IDs I requested. I received the data already with IDs numbers assigned.

All the other considerations with the survey takers[36] are similar to the ones described for Scholar. The only exception is that the Coursera learners were offered a compensation if they completed both surveys. They participated in a raffle of the book "New Learning: Elements of a Science of Education", 2nd Edition, autographed by the authors. This measure was an attempt to diminish the losses of having the research design of pre-course survey and post-course survey.

5.4 PROCEDURES FOR DATA ANALYSES

One of the strengths of the mixed method research is that it reaches multiple audiences (Dornyei, 2007, p. 46). Moreover, "quantitative researchers follow a 'meaning in the general' strategy,

[36] See Appendix Q and Appendix R for pre-course survey and post-course survey, respectively.

whereas qualitative researchers concentrate on an in-depth understanding of the 'meaning in the particular'" (Dornyei, 2007, p. 27). Having this in mind, this research was designed to conduct quantitative and qualitative analyses. The former was carried out in order to show the occurrence of a phenomenon, and the latter, a descriptive research, is an attempt to demonstrate how it occurred and find possible explanations for the occurrence. Descriptive research "plays an important role in science by identifying and describing phenomena so that later explanations of these phenomena may be proposed" (Schweigert, 1994, p. 13). Besides this type of qualitative research, this investigation also conducted a critical research.

To start with, quantitative analysis was employed to measure Reliability among reviewers to answer Research Question 1. "The main defining characteristic of rater reliability is that scores by two or more raters […] are consistent" (Dornyei, 2007, p. 128) . Reliability, according to Silverman (p. 224, in: Dornyei, 2007, p. 57) "refers to the 'degree of consistency with which instances are assigned to the same category by different observers or by the same observer on different occasions". The more adequate test to measure Reliability between reviewers, according to Denisczwicz and Kern (2013), are the Intraclass Correlation Coefficient ICC (agreement) and the ICC (consistency), being the former more suitable than the latter. As they reveal Reliability from different perspectives, I have run the statistics for both types employing the statistics program SPSS. Firstly, a new SPSS Data set was created for each case study. Then, the scores each reviewer gave to the six criteria were typed in this Data set. Afterwards, statistics was run twice for each set of data (one for each type). It was employed the ICCs Alpha for Consistency and Absolute Agreement Types, with confidence interval of 95%.[37]

Furthermore, quantitative data from the survey was employed to answer Research Question 2. Tables with Frequencies were generated employing SPSS. Responses from the open-ended questions were employed as secondary to answer this research question, as explained in the sequence.

With regard to the qualitative analysis, data was organized in categories that emerged from the data to answer Research Question 1. The descriptive feedback provided by the reviewers was organized into each review criterion and, further, into the scores for each review

[37] See Appendix S for all detailed statistic analyses output.

criterion, in the following categories: 1) Additional Comments/Suggestions (AC/S): This category contemplates the feedback that provides additional comments and suggestions related to the established criterion. For example: “Good discussion of engagement and gamification--I'd go beyond that here to also mention that this technology also allows students to help create learning” (Data from reviewer’s feedback). 2) Additional Comments/Suggestions (AC/S-N): This category encompasses the feedback that provides additional comments and suggestions. However this feedback is not related to the established criterion; it is a feedback that if implemented could improve the work. For instance: “Were your findings based off a case study? If not, are there any case studies to back up this section?” (Data from reviewer’s feedback). This was in the category where the reviewer was supposed to “comment and suggest possible additional theoretical perspectives”. 3) Just Comments (JC): This category comprises the feedback that does not have potential to improve the writing. To exemplify, “Seems pretty good, explained clearly with a mix of theories” (Data from reviewer’s feedback). 4) Unclear (U): This last category contains the feedback that was impossible to understand, such as: “Succinct!” (Data from reviewer’s feedback). It is a feedback for a Score 3.

The open-ended questions of the survey were employed as secondary data for Research Question 2 and to support some finding of Research Question 1. Results were grouped into categories that emerged from the data, having the question as guide. For example, one of the open- ended questions asked respondents to reveal the most and the least valuable feedback they received. Answers were grouped into these two categories.

Regarding the critical research, Locke, Silverman, and Spirduso (1998, p. 142), referring to the reasoning of most critical investigators, state that research “either must help us understand the sources of inequity (and the social processes that sustain it) or must go beyond that to serve as an agent for remedial change by helping to empower members of an oppressed group (usually as a consequence of being participants in a study)”. Therefore, Research Question 3 was answered with the insights from Research Questions 1 and 2 with the objective of discussing students’ empowerment and social change.

To summarize, this chapter described the methods the present research followed to answer the posed research questions. It revealed that this study aims to provide two perspectives of the peer-review process by analyzing: 1) data that come from the numeric and

descriptive feedback, which was employed to answer Research Question #1; and 2) data that come from the surveys, revealing students' perspectives on the process, which was employed to answer Research Question #2. Research Question #3 was answered with the conclusions drawn from the other research questions applying them to the Brazilian context of online teacher education.

This research has a total of 43 participants. Twelve participants are from the Coursera course. They are from 25 to 60+ years old, being 50% of them between 25 and 39 years old, and 58.3% male. All of them have a high formal educational background (3 holding Bachelor's degree, 8 holding Master's degree, and 1 holding doctoral degree). They developed their Work in a text editor of their choice and uploaded it in the Coursera environment. In order to provide feedback to their peers, they had to download their peer's file and offer numeric and descriptive feedback online. Thirty-one participants are from the Scholar course. They are from 23 to 59 years old, being 57.2% between 23 and 39 years old, and 57.2% female. In relation to their formal educational background, those who provided this information have a high formal educational background (19 holding Bachelor's degree, 8 holding Master's degree, and 1 holding doctoral degree). They developed their Work online in Scholar and provided feedback to their peers in the same space having the rubrics alongside with the Work being reviewed.

The following chapter, Chapter 6, presents the results of this investigation and discusses the findings.

CHAPTER 6 – RESULTS AND DISCUSSSION

This chapter presents the results and discusses them in view of the selected theories. It intends to shine some light in this new worldwide current scenario of e-Learning that fosters the shift from traditional transmission didactics to increasing peer-to-peer learning. In order to achieve this objective, it provides analyses of participants' written feedback and delivers an overview of learners' perceptions on this process by scrutinizing students taking online courses with the same professor at two different online platforms: 1) a Masters program using the Scholar platform, and 2) a MOOC employing the Coursera LMS. Moreover, this chapter discusses a philosophical justification for collaborative learning technologies and indicates pedagogical implications for teacher professional learning and second language academic literacy. This endeavor is guided by the following Research Questions, which are answered in this same order in this chapter.

1- What kind of peer feedback was used for the development of the students' written case studies?
2- What are students' views regarding their learning experience with the peer-review activity? How did the students evaluate their experience of providing and of receiving feedback?
3- What are the implications of peer-to-peer learning in online environments for teacher professional learning and second language academic literacy?

6.1 RESEARCH QUESTION 1: WHAT KIND OF PEER FEEDBACK WAS USED FOR THE DEVELOPMENT OF THE STUDENTS' WRITTEN CASE STUDIES?

As detailed in the Method Chapter, students' engaged in an activity of blind peer reviewing each other's case studies. This Case Study, also called Paper in this dissertation, is comprised by six sections and each one of them should receive a numeric feedback, which is a grade from zero to four as well as a descriptive feedback. Both types of feedback had to be based on the provided rubrics (Appendix L). Bearing these two types of feedback in mind, this section is organized as follows: Firstly, it presents the data from the numeric feedback and a statistic analysis regarding the reliability of the reviewers from Scholar and Coursera, respectively. Next, it provides a qualitative analysis of the descriptive feedback from reviewers in the mentioned platforms.

Regarding the reliability of the reviewers from Scholar, Table 12 shows the results of the statistic analyses on reliability of the 72 reviews to the 29 papers developed in the Scholar course. According to the same table, each paper received two or three valid reviews. Two other papers received only one review each and were excluded from these analyses. As demonstrated in Table 12, for both ICC (*agreement*) and ICC (*consistency*), four cases present negative ICCs (S13, S7, S29, and S12) and all the others present positive ICCs, having two cases with ICCs equal to zero (S21 and S27).

Table 12. Intra Class Correlation results - ICC (agreement) and ICC (consistency) - for reviews in Scholar

ID	S13	S7	S29	S12	S21	S27	S16	S32	S8	S5	S30	S4	S9
Valid Reviews	2	2	3	3	2	2	3	2	3	3	3	3	3
ICC (agreement)	-2.723	-.667	-.176	-.122	.000	.000	.014	.048	.094	.096	.156	.286	.296
ICC (consistency)	-2.246	-1.500	-.207	-.105	.000	.000	.125	.143	.129	.277	.174	.441	.372

ID	S22	S26	S1	S28	S3	S25	S19	S6	S31	S10	S20	S18	S17	S23	S2	S15
Valid Reviews	3	2	3	2	3	2	3	2	2	3	2	3	2	2	2	2
ICC (agreement)	.310	.348	.435	.444	.545	.561	.585	.615	.646	.706	.713	.730	.783	.783	.800	.928
ICC (consistency)	.375	.471	.415	.429	.571	.604	.860	.769	.790	.800	.689	.758	.844	.750	.833	.928

Source: Table built with the individual results of the statistic analyses on reliability obtained with SPSS.

The ICC (*agreement*), which estimates the level of agreement among reviewers, varies from -2.723 to .928. Except for the first case (S13), the subsequent 12 cases (in the upper part of Table 12) exhibit ICC (*agreement*) (-.667 to .296) very similar to Denisczwicz and Kern (2013)'s study (-.500 to .202, with three negative results and nine positive) with 12 graduate students engaging a similar peer review activity. Highly significant is the fact that the last 12 papers from the lower part of Table 12 (S3, S25, S19, S6, S31, S10, S20, S18, S17, S23, S2, and S15) present values for ICC (*agreement*) between .545 and .928, which is very near to the ideal level of agreement (that is 1). In other words, they present more than 54% of agreement for each paper. It means, for example, that the reviewers of the paper S15 agree on 92.8% of the scores they gave for this paper.

In an analogous manner, the ICC (*consistency*) for reviews in Scholar varies from -2.246 to .928, according to Table 12. These are impressive results when compared with Denisczwicz and Kern (2013)'s

results (-.062 to .261). The ICC (*consistency*) reveals the level of consistency among reviewers. For example, if Reviewer A rates 3 items with numbers 0, 3, and 6, and Reviewer B rates the same items, subsequently, with numbers 1, 4, and 7, they are very consistent because the difference of ratings between the each item is the same: 1 (0-1; 3-4; 6-7). It means that even if the reviewers don't completely agree on the ratings, they might present consistency in their ratings. To exemplify, Case S19 (Table 12) present an ICC (*agreement*) of .585 and an ICC (*consistency*) of .860. The reviewers of this case agree on 58.5% of the ratings, which is already a high value, and they present consistency on 86% of their ratings.

Considering the reliability of the reviewers from Coursera, Table 13 shows the results of the statistic analyses on reliability of the 21 reviews to the 8 papers developed in the Coursera course. Each paper received two or three valid reviews. Three other papers received only one review each and were excluded from these analyses as well as another paper that received the highest scores in all criteria presenting, consequently, zero variance. As demonstrated in Table 13, for both ICC (*agreement*) and ICC (*consistency*), one case presents negative ICCs (C2), one presents ICCs zero (C8), and the other six cases present ICCs higher than zero. The ICC (*agreement*) varies from -2.333 to .667 and the ICC (*consistency*) varies from -7.875 to .750. These results corroborate the results from the Scholar course, despite being lower.

Table 13. Intra Class Correlation results - ICC (agreement) and ICC (consistency) - for reviewers in Coursera

ID	C2	C8	C4	C12	C3	C11	C10	C7
Valid Reviews	3	2	3	3	3	2	3	2
ICC (agreement)	-2.333	.000	.140	.286	.353	.400	.529	.667
ICC (consistency)	-7.875	.000	.271	.529	.357	.833	.536	.750

Source: Table built with the individual results of the statistic analyses on reliability obtained with SPSS.

Moreover, both Scholar and Coursera courses present high Median values for the two types of ICC. For the Scholar course, the Median for the ICC (*agreement*) is .348 and for the ICC (*consistency*) is .471 while for the Coursera course the Medians are .319 and .443,

respectively. They are much higher than Denisczwicz and Kern (2013)'s Medians for ICC (*agreement*) of .058 and ICC (*consistency*) of .097. They are even higher than Weller's Median ICC of .30 (no specific ICC provided) from a study that analyzed reviews from professional researchers (Weller 2002, in Denisczwicz & Kern, 2013).

Two possible speculations could be raised in the attempt to explain these high values: the students' high level of formal education and the positive role of the rubrics in the peer review process. As for the former, despite the fact that the students did not receive training for the peer review activity, they all have a high level of formal education and all of them work currently or worked in the past in the Education field, especially as teachers for several years.

Regarding the positive role of the rubrics, 12 students from Scholar reported that the rubrics offer guidance, framework and a structure to follow. These results are from an open question of the post course survey. Although the question addresses specifically how the rubrics support their case writing, three students out of 12 highlighted the importance of the rubrics to reviewing other students' papers. Two of them reported the importance of knowing precisely what was expected from them in terms of content and how to provide feedback, as reported by a student: "I know exactly what to include in my work and what to comment on others' work" (data from post-course survey- Scholar). Analogous point of view comes from this other student: "I used the written explanation of the rubrics extensively to make sure that I was being thorough and covering all the information that needed to be covered. I did the same thing when I reviewed others' works" (data from post-course survey- Scholar). Another student goes further stating that the rubrics "provided a common language for giving and receiving feedback" (data from post-course survey- Scholar). Perhaps well-elaborated rubrics have a strong role in both writing and peer review processes as stated by this student:

> I need a rubric to give me a general idea of what is necessary and required to have a complete work. The rubrics were helpful because they had guiding questions. The rubric was vague enough that made me feel like I had freedom to do what I thought would be best for my topic, but specific enough that I felt like I had a framework (data from post-course survey- Scholar).

These results corroborate the influence of the rubrics exposed in a study conducted by Greenberg (2015). The results of that study show

that students who employed rubrics while writing their work performed better than students who did not use the rubrics.

A further subject that has to be considered is the structure of the rubrics from the peer-review activity of the present research. It presents rubrics comprising all the components that rubrics should have, according to Popham (1997, in: Dawson, 2015, pages not numbered): "evaluative criteria, quality definitions for those criteria at particular levels, and a scoring strategy". These components provide the students with straightforward guidelines or a "blueprint" (Greenberg, 2015) to write, review and revise their works.

Despite these positive results, it is important to state that they do not determine if reviewers are right or wrong in their judgment and neither do they reveal the quality of the feedback. It just means that the reviewers present a high level of agreement between them and present consistency on rating when giving score for a paper.

Therefore, in order to scrutinize the type of descriptive feedback and to verify the quality of the feedback, let us turn now to the qualitative analysis[38] of the feedback of a total of 100 reviews to 43 papers. There are 74 reviews to 31 papers in the Scholar course with a total of 14 paper with three reviews each, 15 papers with two reviews each, and two papers with one review. As for the Coursera course, there are 26 reviews for 12 papers with a total of five papers with three reviews each, four papers with two reviews each, and three papers with one review each.

Each criterion will be approached separately (from 1 to 6) and examples of feedback for each score (from 0 to 3) will be provided for both sources of feedback: Coursera course (Attachment T) and Scholar course (Attachment U). As mentioned in the Method chapter, score 4 was eliminated. I decided on this level of detail to have a precise perspective of what type of feedback each score demanded. It would be expected that the lower the score the better would be the feedback, as it is implied that more feedback is needed in order to achieve an optimal level. And by good quality feedback this study considers the feedback that actually articulates something that can improve the writing and that goes beyond the "cheerleader" effect (van_Haren, 2015), which just motivates the writer. This expectation was not confirmed, as forthcoming discussion. The feedback was organized into the following categories, which are explained in the Method: additional comments and

[38] See Appendix T for categorization results of feedback from Coursera course, and Appendix U from Scholar course.

suggestions on the content related to the criterion and that could improve the reviewed paper (AC/S); additional comments and suggestions on content unrelated to the criterion but that could improve the reviewed paper (AC/S-N); comments that have no possibilities to impact the paper (JC); and unclear comments (U).

To start with, the rubrics for Criterion 1 are described as follows:

Criterion 1: The Educational Challenge
Description: Describe the background to the development of this technology. What is the educational challenge that this technology is intended to address?
Reviewers: comment and suggest additional dimensions of the challenge.
Scores:

- 4: A substantial and very significant challenge
- 3: A very significant challenge.
- 2: An important challenge
- 1: A moderately important challenge
- 0: A routine challenge

Table 14 shows that 38 out of 41 descriptive feedback (92.68%) for Criterion 1 to papers developed in the Scholar course belong to the AC/S category. After analyzing all the feedback for the scores from 0 to 3, there was no difference in terms of quality or in the lengths of the feedback. In general, considering all feedback for this criterion, the shortest feedback has12 words and the longest has 97 words.

Table 14. Quantity and Types of feedback for each score for Criterion 1 – Scholar

Types of Feedback	Descriptive Feedback		Total Descriptive Feedback	Total Numeric Feedback
Types of Score	AC/S	JC		
Score 3	19	2	21	24
Score 2	15	1	16	18
Score 1	3	-	3	3
Score 0	1	-	1	1
Total	38	3	41	46

Source: Table built by counting the results from qualitative categorization of feedback

Reviewers from Scholar provide feedback for the AC/S category in various forms. Some make suggestions by using statements, as shown in the two examples below:

> You have a good start to a description here. I'm wondering what the platform looks like, how students access it, and how it directly addresses a problem in the classroom. Maybe you can provide a specific problem - or several problems, since you mention that this can be utilized across the curriculum - that would help me understand why this technology is necessary. Maybe even providing some kind of vignette would be interesting and help explain the technology.

> Your initial approximation of programming language to traditional language presented an unusual but pleasant background for what turned out to be an informative and interesting paper. You needed to be more explicit and cohesive in describing the challenge that the technology is designed to resolve. I was left to deduce that the challenge is that females are not as much into programming as males and that older children who have had no exposure to coding, have difficulty grasping the languages at high school.

Other reviewers make suggestions by employing questions, as can be seen in the following two examples:

> Is the challenge the rise in technology usage in a students non-classroom life and creating a balance? That's a great start, I like it. But, is that really the gap that game-based learning hopes to fill? Or is that just a convenient way to frame them?

> There is a lot of background information here but I am not quite sure what the educational challenge is here. What hole in learning are they trying to fix?

One reviewer even provided a deeper analysis for the subject on the paper, as follows:

> I think this program does more than just assess grade level. It allows schools to measure progress. Our school used this heavily to see if students were meeting growth rates. They would use this data to evaluate individual classes and see if one year has a greater growth than the next. It also allows for students to individualize their growth. A student performing below grade level could make more progress in their individual education than a student who is above grade level. The MAP

> program allows educators to target individual students and look at populations at large.

Concerning the feedback for the JC category, they are comprised by sentences such as "LSM is important as it is widely used in nowadays educational organizations" and "You have this pretty well thought out, though (by your own admission) the work is incomplete", which have no content that could feed the writer with suggestions to improve the paper.

Feedback to papers developed in the Coursera course present a different scenario in terms of number of feedback. Table 15 shows that only 6 out of 15 descriptive feedback (40%) for Criterion 1 fit the AC/S category. Nevertheless, they are similar to Scholar's concerning quality, and there was no major difference on the quality of feedback between different scores within this category. The shortest feedback has16 words and the longest feedback has 105 words.

Table 15. Quatity and types of feedback for each score for Criterion 1 – Coursera.

Types of Feedback / **Types of Score**	Descriptive Feedback			Total Descriptive Feedback	Total Numeric Feedback
	AC/S	JC	U		
Score 3	3	6	-	9	11
Score 2	3	2	1	6	7
Total	6	8	1	15	18

Source: Table built by counting the results from qualitative categorization of feedback

Basically, the forms of feedback in the AC/S category in Coursera are the same as in Scholar. There is only one instance where one reviewer makes a suggestion by employing statements:

> I think the challenge has been articulated very comprehensively. You might also want to additionally the issue of whether learners would actually access the resources and be productively engaged by them or whether it would just be a tick in the box activity.

The other feedback in the AC/S category is all in form of questions, such as the two following samples. The first one presents a

sequence of questions with a concluding sentence. The next feedback states the problem with two statements and poses the questions to guide the writer:

> Is the diminishing of the f2f hours a financial decision? In which case where does the money and time to implement the elearning component come from? Also does there need to be some consideration given to reducing the learning outcome and amount of content covered (eg the recommended readings) given the reduced hours. Could you explain whether the institution's decision makers advocated the online component as a cheaper alternative to face to face? The challenge seems to be political as much as educational.

> I find this very challenging, as difficult students are difficult to handle in classroom. For sure you intend to extend more on what is the meaning of 'behaviour issues' and 'the right thing' to do. Maybe an explanation of the context of these kids could help: why are they 'all' or 'mostly' behaving that way? What is their social, economical background?

As for the feedback for the JC category, they encompass sentences such as: “Good choice of topics here”; “Great I like it”; and “The challenge here appears to be the transition from face-to-face to online professional development classes for mental health professionals”. This last example is the reviewer’s summary of the challenge. None of the comments provide content that the writer could use to improve the paper.

The rubrics for Criterion 2 are described below.

Criterion 2: 'Parse' the Educational Technology
Description: How does the technology work? Explain its structure and function from the point of view of teachers and learners. How does the way the technology works reflect its understanding of learning?
Reviewers: If you believe more information is needed for a full interpretation and explanation of the technology, suggest what.
Scores:

- 4: Excellent information coverage
- 3: Good information coverage
- 2: Enough information
- 1: Just enough information
- 0: Not enough information

Table 16 shows that 43 out of 45 descriptive feedback (95.55%) for Criterion 2 to papers developed in the Scholar course belong to the AC/S category. In the same way, Table 17 displays that 7 out of 10 reviews (70%) belong to this scenario in Coursera.

Table 16. Quantity and types of feedback for each score for Criterion 2 – Scholar

Types of Feedback	Descriptive Feedback		Total Descriptive Feedback	Total Numeric Feedback
	AC/S	JC		
Types of Score				
Score 3	24	-	24	24
Score 2	12	1	13	14
Score 1	5	1	6	7
Total	41	2	43	45

Source: Table built by counting the results from qualitative categorization of feedback

Table 17. Quantity and types of feedback for each score for Criterion 2 – Coursera

Types of Feedback	Descriptive Feedback			Total Descriptive Feedback	Total Numeric Feedback
	AC/S	JC	U		
Types of Score					

Score 3	3	1		4	7
Score 2	3	-	1	4	6
Score 1	1	-	1	2	2
Total	7	1	2	10	15

Source: Table built by counting the results from qualitative categorization of feedback

The length of each feedback in Scholar varies from 13 to 141 words while in Coursera it varies from 11 to 55. Even though the number of words used by the reviewers differed, they all offer solid comments and suggestions that could improve the content of the paper, such as demonstrated in the following examples from reviewers in Scholar, the first being a short review (with 22 words) and the next one a long review (with 130 words):

> Pieces of SL are explained in a basic way that is easy to understand. Applicability to learning is still a little unclear. (22 words)

> I loved the way you started this part using scientific research results. I could understand how the Geometer's sketchpad will benefit learning math. I was impressed that its product line was that diverse. I think you did really well present this part, however, if I should suggest something on your work, I would suggest you show detailed instructions at least part of them. I mean, since I have never tried this program, I wondered how it works. Now I knew the products but still I don't know how student can use it or how the program looks like. I tried the link you provided, but for some reasons, it did not work. Hence, if it is possible, I would suggest you to add more descriptions about inside of the product. (130 words)

In the sequence, two instances from Coursera: the first one is a short review (18 words) and the second one is a longer review (55 words).

> Is it all about the online format or are there substantive issues with course content involved as well? (18 words)

> I would like to have more explanation of the integration of online with class time - how to the weekly assignments fit with the readings and lectures, the class discussions, group work and then what seem to be larger assignments? Just a bit more on the whole process as it's not entirely clear to me. (55 words)

These examples of feedback demonstrate that even short feedback can be useful to improve a paper. The first example of short feedback from Scholar, for instance, using only 22 words, manages 1) to provide a general evaluation of the writing by saying that "Pieces of SL are explained in a basic way that is easy to understand" and 2) to indicate what is still unclear in this section of the writing. The same usefulness can be observed in the first example of feedback from Coursera. With an 18-word question the reviewer further inquires the writer about the scope of the work.

The rubrics for Criterion 3 are described in the sequence.

Criterion 3: The Underlying Learning Theory
Description: What is the underlying theory of learning that this educational technology reflects? You might mention some of theorists that various members of the group introduced in the first major task in this course (cite and link to these in your references), or other learning theorists.
Reviewers: comment and suggest possible additional theoretical perspectives.
Scores:

- 4: Excellent connections made with learning theories
- 3: Good connections made with learning theories
- 2: Adequate connections made with learning theories
- 1: Very little or no connections made with learning theories

From 55 pieces of descriptive feedback, 48 (87.27%) are related to good quality feedback, comprising the AC/S category (N=15) and the AC/S-N category (N=33), as demonstrated in Table 18. They follow the same pattern of feedback already discussed in Criteria 1 and 2. The only new element here is the type of content conveyed in the AC/S-N category, which is the category that comprises the additional comments and suggestions on content unrelated to the criterion but that could improve the reviewed paper.

Table 18. Quantity and types of feedback for each score for Criterion 3 – Scholar

Types of Feedback	Descriptive Feedback				Total Descriptive Feedback	Total Numeric Feedback
Types of Score	AC/S	JC	AC/S-N	U		
Score 3	9	5	10	1	25	27

Score 2	3	-	10	-	13	16
Score 1	3	1	11	-	15	12
Score 0	-	-	2	-	2	2
Total	15	6	33	1	55	57

Source: Table built by counting the results from qualitative categorization of feedback

Regarding the content of the feedback for the AC/S-N category, two of them are about citation style, such as: "The theories have been identified. But the citation of these seems not to follow the APA style. However, this could be easily improved". The other pieces of feedback discuss the presented theories and/or deliver specific content that can improve the paper, but they fail on offering what the rubrics specifically demands: "comment and suggest possible *additional* theoretical perspectives" (my emphasis). Two instances of these occurrences:

> Theories are connected and justified, but again, more specific examples or evidence would make this stronger.

> I wonder if there's something else you could connect to in terms of having the simulations produced via technology--is that better or worse than a hands-on experiment? The divide between the simulations and the gamified multiplication is a bit awkward to me, because they seem very different to me. Is most of the content simulation or games? Good discussion of behaviorism and situated learning theory, but I think you could definitely expand, especially situated learning theory.

Unlike some of the "cheerleader" comments from the JC category, this is informative: "Your paper not only introduces technology but is very informative about the theory beyond the application. At every step of the paper your related your advocacy for this technology to this important educational theory". It provides an overall evaluation of the paper, which shows to the writer the current situation of the writing. However, again, it fails in providing information that the writer could use to improve the paper.

Table 19 shows that five pieces of descriptive feedback are from the JC category, which comprises 50% of the total of descriptive feedback received for this criterion in the Coursera course. Unfortunately, four of the five instances occur in the lowest scores, 0 and 1, where it is expected to receive more guidance, as the score is low. Reviewers just provided comments such as: "I did not see anything on this"; "Process still developing"; "Not explained"; and "In progress".

Even if the section was in progress, the reviewer could have provided guidance for the completion of that section of the paper.

Table 19. Quantity and types of feedback for each score for Criterion 3 – Coursera

Types of Feedback	Descriptive Feedback		Total Descriptive Feedback	Total Numeric Feedback
Types of Score	AC/S	JC		
Score 3	1	-	1	3
Score 2	3	1	4	6
Score 1	1	1	2	2
Score 0	-	3	3	4
Total	5	5	10	15

Source: Table built by counting the results from qualitative categorization of feedback

This uselessness of the "cheerleader" feedback is corroborated by students' views regarding the value of the descriptive feedback they received. In an open question in the post course survey, students were asked to state what was the most and the least valuable feedback they received. The biggest group of respondents, four students out of 13, responded that the least valuable feedback was the one that just agrees with what is written and says nice words such as "This is good" (respondent's words). On the other hand, also the biggest group of respondents, 5 students out of 13, responded that the most valuable feedback they received was the one with specific feedback. In a respondent's words, "the most valuable feedback was very detailed with concrete ideas for improvement".

The usefulness is particularly important in peer-review activities because a study conducted by Pol et al. (2008) has shown that the more valuable students consider the feedback the more they will employ it to rewrite their work. Moreover, the examples participants provided for "least valuable feedback" and "most valuable feedback" can be classified, respectively, as "affective feedback" and "cognitive feedback", in Cheng et al. (2015)'s terminology. According to these authors' findings, cognitive feedback provided more writing learning gains to students than affective feedback. And providing high-quality feedback influences positively in students' performance both when they provide this type of feedback to their peers and when they receive this type of feedback, according to a research conducted by Noroozi et al. (2016). The authors state that this occurs because students access a deep

cognitive level in order to provide good feedback, as they have to develop supporting arguments and to consider multiple perspectives.

The data has shown that in the good quality pieces of feedback the reviewers provide a comment and/or a suggestion that can make the work improve. And this useful comment or suggestion only can be done after the reviewer at least analyze the text and evaluate what could be improved and, in an even deeper level, conduct a search on the literature to support the provided suggestions and comments. Moreover, the same process happens when students receive good quality feedback because they have to go through deep cognitive processes such as evaluating the feedback they receive, make connections to their work, and make decisions on whether include or not the suggestions. And, according to Kollar and Fischer (2010), students only reach this cognitive level when the feedback provides good arguments.

Reaching this cognitive level in social activities mediated by 'social knowledge technologies' (B. Cope & Kalantzis, 2008) and peer-review activities is remarkably significant in the teacher education field since the mediation that takes place, by the good quality feedback, can confront teachers' beliefs and foster the process that authors (Golombek & Doran, 2014; Johnson, 2009) call internalization, which is the transformation of the external interactions to an internal personal mediation. This is the part of the process when "a person's activity is initially mediated by other people or cultural artifacts but later comes to be controlled by him/herself as he or she appropriates and reconstructs resources to regulate his or her own activities" (Johnson, 2009, p. 18).

Criterion 4 is described as follows:

Criterion 4: The Technology in Practice
Description: Is the operation of the technology in practice adequately described in the case study? Are concrete examples provided? Do they illustrate they way the technology's underlying theory of learning translates into practice?
Reviewers: What else would you like to know?
Scores:

- 0: Poor description
- 1: Adequate description
- 2: Good description
- 3: Very good description
- 4: Excellent description

Tables 20 and 21 show that the descriptive feedback for Criterion 4 illustrates an almost perfect scenario in both courses: Forty-three from the 45 descriptive feedback (95.55%) belong to the AC/S category in Scholar (Table 20), and 8 from the 11 descriptive feedback (72.72%) belong to the same category in Coursera (Table 21).

Table 20. Quantity and types of feedback for each score for Criterion 4 – Scholar

Types of Feedback	Descriptive Feedback		Total Descriptive Feedback	Total Numeric Feedback
Types of Score	AC/S	JC		
Score 3	15	-	15	17
Score 2	18	-	18	22
Score 1	7	1	8	8
Score 0	3	1	4	4
Total	43	2	45	51

Source: Table built by counting the results from qualitative categorization of feedback

Table 21. Quantity and types of feedback for each score for Criterion 4 – Coursera

Types of Feedback	Descriptive Feedback			Total Descriptive Feedback	Total Numeric Feedback
Types of Score	AC/S	JC	U		
Score 3	-	1	-	1	4
Score 2	5	1	-	6	8
Score 1	2	-	1	3	5
Score 0	1	-	-	1	1
Total	8	2	1	11	18

Source: Table built by counting the results from qualitative categorization of feedback

They also follow the same patterns of feedback previously discussed in Criteria 1 and 2 regarding length and form (questions and statements); i.e., they present no particular differences in terms of between the two courses or among scores within each course. To exemplify, the following two pieces of feedback from reviewers in Scholar show a short feedback and the longest feedback:

> I really like the content area list you provided and the links. But I would like more narrative about how Portal is used in the classroom. Maybe cite one specific project with information on assessment possibilities. Maybe you could add some images here too? (44 words)

> I liked this part because it has an obviously noticeable graph so I could grasp easily what you will tell in this part. However, as I looked into the description, I had a question about the experiment. I could understand that the achievement of Qwizdom group is greater than that of control group, but the initial percentage (from the pretest) were too different between two groups. I think the initial conditions such as students' competency level or..previous knowledge was not identical or at least similar, so it seems like a bit unreasonable to directly compare the two groups. Also, the results from the posttest are almost same. It is hard to say both groups' posttest scores are that different (there were only 3 percentage of difference). The participants of control group were already knowledgeable in that math test or something... so they could not show big improvements like the participants of Qwizdom group did. I suggest you to look at this issue, if you agree with me. Lastly, I think it was good to show teachers' usage or.. using patterns, since in this way we could know how this gadget plays a role in practice. However, at some point, I think you made too general suggestions about this technology such as.. "professional development is encouraged to help merge teaching strategies and student response system technologies." I could see that significant percentage of teachers did not use Qwizdom frequently. There could be some obvious reasons for this. They might do not have to use Qwizdom, I mean the teachers no need to use it. Hence, I would tell you that it will be much nicer if you revise this finding part to be more specific. (284 words)

The following two pieces of feedback show a short feedback and a much longer feedback from reviewers in Coursera. The first instance reinforces the previous claim that short feedback can be effective in carrying information that can improve the reviewed text.

> I'd like stronger examples of how the theory of learning is being applied. (13 words)

> Would the case study be helped if you supplement this overall picture with a detailed look at just one of the technologies/approaches and its associated learning practices. You're obviously making a lot of changes and implementing a lot of new things but looking at the way the delivery of information is taken out of the class space thus allowing for something

else to happen there, the subsequent learning practices and their associated learning theory would help focus on a specific aspect of the whole project. (85 words)

Next, the rubrics for Criterion 5, followed by the results and discussion for descriptive feedback:

Criterion 5: Critical Reflection
Description: What are the relative strengths and weaknesses of the technology?
Reviewers: provide comments and suggestions about other possible strengths and weakness that the reviewer may not have considered.
Scores:

- 4: Comprehensive analysis of strengths and weaknesses
- 3: Good analysis of strengths and weaknesses
- 2: Adequate analysis of strengths and weaknesses
- 1: Partial analysis of strengths and weaknesses
- 0: Minimal analysis of strengths and weaknesses

Answers to Criterion 5 follow the similar pattern as answers to Criterion 3 regarding good quality feedback. According to Table 22, from 43 pieces of descriptive feedback, 40 (93.02%) are related to good quality feedback, belonging to the AC/S category (N=22) and to the AC/S-N category (N=18). Additionally, they follow the identical pattern of feedback already discussed in previous Criteria in relation to forms of providing feedback (by posing questions or statements) and to the length of the feedback.

Table 22. Quantity and types of feedback for each score for Criterion 5 – Scholar

Types of Feedback	Descriptive Feedback				Total Descriptive Feedback	Total Numeric Feedback
Types of Score	AC/S	JC	AC/S-N	U		
Score 3	17	-	7	1	25	28
Score 2	1	1	9	-	11	11
Score 1	2	-	1	-	3	5
Score 0	2	-	1	1	4	4
Total	22	1	18	2	43	48

Source: Table built by counting the results from qualitative categorization of feedback

The patterns repeat themselves on the reviews in the Coursera course to Criterion 5. It even presents the highest percentage 83.33% of good quality feedback of all criteria, with 10 pieces of feedback of the AC/S category from a total of 12 pieces descriptive feedback, as shown in Table 23.

Table 23. Quantity and types of feedback for each score for Criterion 5 – Coursera.

Types of Feedback	Descriptive Feedback		Total Descriptive Feedback	Total Numeric Feedback
Types of Score	AC/S	JC		
Score 3	-	1	1	4
Score 2	6	-	6	8
Score 1	4	1	5	7
Score 0	-	-	0	0
Total	10	2	12	19

Source: Table built by counting the results from qualitative categorization of feedback

The following instances show two pieces of feedback from reviews in the Scholar course:

> Strengths and weaknesses are addressed. I can see this being a stepping stone for leadership development; however, can a computer replace real-life situations with real emotions, human connections, etc.? Can Virtual Leader stand on its own for leadership training? How should it be used with other training?

> Cost seems to always be an underlying drawback when introducing technology. Class license seems reasonable at 335, but when you are told "we have $ 0.00 to spend it can be a challenge. Do the positives outweigh the drawbacks?

Likewise, the following instances show two pieces of feedback from reviews in the Coursera course:

> How should new teachers handle those with more experience or more influence which are against technology. Often I see new teachers who are quickly disillusioned by the sudden reality of the opposition they may face when trying to ingrate technology.

> Good start of an analysis, especially identifying the need that participants learn skills, not just information. Build out the weaknesses of the method, and incorporate possible solutions into your recommendations.

Finally, in the sequence, the rubrics for Criteria 6

Criterion 6: Conclusions and Recommendations
Description: Do the conclusions and recommendations follow from the information and reasoning provided in the case study?
Reviewers: comment and suggest conclusions and recommendations you might want to see added.
Scores:

- 0: Unclear conclusions and impractical recommendations
- 1: Poor conclusions and limited recommendations
- 2: Partial conclusions and incomplete recommendations
- 3: Strong conclusions and recommendations
- 4: Very clear conclusions and strong, comprehensive recommendations

As previously emphasized, the types of descriptive feedback within each category are similar for all criteria and for all scores. Table 24 displays the numbers of feedback for Criterion 6 in Scholar revealing that from the 52 pieces of descriptive feedback 44 (84.61%) encompass the AC/S category, which is the good quality feedback. In Coursera course, the AC/S category received 4 (36.36%) of the 11 pieces of descriptive feedback, according to Table 25; the lowest percentage among all criteria.

Table 24. Quantity and types of feedback for each score for Criterion 6 – Scholar

Types of Feedback	Descriptive Feedback			Total	Total
	AC/S	JC	U	Descriptive Feedback	Numeric Feedback
Types of Score					
Score 3	18	3	1	22	25
Score 2	19	2	-	21	18
Score 1	4	-	-	4	6
Score 0	3	2	-	5	6
Total	44	7	1	52	55

Source: Table built by counting the results from qualitative categorization of feedback

Table 25. Quantity and types of feedback for each score for Criterion 6 – Coursera.

Types of Feedback	Descriptive Feedback				Total Descriptive Feedback	Total Numeric Feedback
Types of Score	AC/S	JC	AC/S-N	U		
Score 3	3	-	-	1	4	7
Score 2	1	1	1	-	3	8
Score 1	-	2	-	-	2	2
Score 0	-	1	-	-	1	3
Total	4	4	1	1	10	20

Source: Table built by counting the results from qualitative categorization of feedback

The three instances that follow are from reviews on works in Scholar course. The first example provides a suggestion with a statement while the second illustration makes suggestions employing questions. In the sequence, in the third example, the reviewer offers a personal opinion in relation to the issue, employs interrogative sentences to make suggestions to improve the work, and ends providing affective feedback.

> This section could include some specific ways or suggestions on how to improve LMS to adapt better to the modern education.

> What other recommendations do you have to enhance this program? How can LMS change and adapt to the changing methods?

> I agree 100% of the need for skill sets that interacting with technology such as ibook author teaches. I am wary though of the assumption that "almost every" student will be excited to participate in this environment. Do you believe that student motivation and intellectual curiosity will be measurable improved by using technology? If not, what are some methods that need to accompany the student in their learning? Great paper. I enjoyed it immensely.

The following four examples comprise all feedback that reviewers provided on works in Coursera course for the Criterion 6 of AC/S type of feedback, which encompasses the additional comments and suggestions on the content related to the criterion and that could improve the reviewed paper. They are all succinct and straightforward suggestions, specially the three last instances.

> I'd be interested in any recommendations that covered the need for transitioning teachers and students from a more conventional to a blended approach.
>
> Maybe switch from Facebook to Edmodo to separate student from personal…
>
> You [could] outline some tangible next steps for subsequent courses.
>
> Recommendations are very general; please be more specific.

With regards to the JC type of feedback, comprised by the feedback with comments that have no possibilities to impact the paper, the following examples are two reviews from Coursera course: “As the author has written still there is no conclusion”; and “I just put '0' because it was compulsory to answer, but I know that you hadn't this part completed -neither have I”. These instances demonstrate that the feedback was concentrated in simply communicating that the section was incomplete. The other two feedback of this category has the same nature.

On the other hand, reviews classified in this category, JC, from Scholar course, presented only two pieces of feedback out of eight commenting on the incompleteness of the section, as follows: “No conclusion or recommendation provided”; and “Could not find a section with this heading”. The other six instances from this category focus on cheering the write, such as: “Good wrap up section. It all comes down into this nicely. Good job!”; and “This is definitely a good start to a solid work. I will be anxious to read the final submission”.

To summarize the analyses of the qualitative feedback, besides the fact that the types of descriptive feedback within each category present similar features for all criteria as well as for all scores, two other conclusions can be drawn. One conclusion regards the quantity of descriptive feedback in each course. Table 26 displays the percentage of reviewers that provided descriptive feedback in addition to the numeric feedback. In the Scholar environment, reviewers offered descriptive feedback for a Mean of 92.2% of the numeric reviews. In the Coursera environment this percentage drops to 65.1.

Table 26. Percentages of valid (good) descriptive feedback for all criteria

	Valid good quality descriptive feedback (%)		**Valid total descriptive feedback (%)**	
Feedback Criteria	Scholar	Coursera	Scholar	Coursera
1	92.7	40	89.1	83.3
2	95.5	70	95.5	66.6
3	87.3	50	96.5	66.6
4	95.5	72.7	88.2	61.1
5	93	83.3	89.6	63.1
6	84.6	36.4	94.5	50
Mean	**91.4**	**68.5**	**92.2**	**65.1**

Source: Table built by counting the results from qualitative categorization of feedback and calculating the mean.

Additionally, according to Table 26, from the amount of descriptive feedback, Scholar presents a higher percentage of valid good quality descriptive feedback (categories AC/S + AC/S-N) than Coursera for all criteria. While reviews in Scholar present a Mean of 91.4% of the valid good quality descriptive feedback, the reviews in Coursera present a Mean of 68.5%. One possible explanation for this predisposition of reviewers from Scholar offering higher quantity of descriptive feedback is the difference in the interface between Scholar and Coursera. As described and illustrated in the Method section, reviewers conduct the review online having the paper side-by-side with the criteria, the scores, and the boxes to type the descriptive feedback. This feature is absent in Coursera and reviewers usually have to download the paper in order to read it. Thus, the multimodal disposition of the platform might have some influence on students' susceptibility to provide feedback.

Another conclusion that can be drawn from the analyses of this section concerning Research Question #1 is that reviewers should be warned about the consequences or the lack of good quality feedback when providing feedback. It is undeniable that people in general like receiving compliments and approval for their achievements. However, "cheerleader" feedback *per se* as well as personal comments such as "I am glad someone is looking at including this into teacher education" (Student's response), without any additional suggestion, is inefficient. This type of feedback does not provide information that allows possible improvement of the paper.

After all, students have to realize that this is beyond a simple task performed during a course. "The core of the peer review method for

learning is the students' change, from passive and unquestioning receptors of information, to active and critic members of a community that constructs knowledge" (Kern et al, 2007, p. 62). It refers to a change on the educational paradigm with students conquering agency and being empowered to be active producers of knowledge and agents responsible for their own learning development. The next section will contemplate the discussion in relation to Research Question #2, on students' voices, by presenting their perspectives on the peer review activity.

6.2 RESEARCH QUESTION 2: WHAT ARE STUDENTS' VIEWS REGARDING THEIR LEARNING EXPERIENCE WITH THE PEER-REVIEW ACTIVITY? HOW DID THE STUDENTS EVALUATE THEIR EXPERIENCE OF PROVIDING AND OF RECEIVING FEEDBACK?

The previous section tackled data provided by students' written assignments for an online Masters program using the Scholar platform and a MOOC employing the Coursera LMS. Differently, this section provides the insights from data collected by surveys that address students' views concerning their learning experience on peer reviewing during the course. It approaches the following, in that order: 1) students' experiences concerning Scholar and Coursera courses outcomes in general, considering the knowledge and skills they have developed about: the content of the course, on applying knowledge, in communication and collaboration, in self-regulated learning, and in using the internet for academic research; and their views on writing the Case Study/Work; 2) students' experience on providing feedback; 3) students' experience on receiving feedback; and 4) students' views on the role of the rubrics in the peer feedback activity.

Regarding students' experiences concerning the Scholar course outcomes in general, considering the sum of the valid percentages of the "strongly agree" group with the "agree" group, the results[39] are the following: 96.6% reported that they "strongly agree" (62.1%) or "agree" (34.5%) that they have acquired knowledge and skills about "Learning and Human Development with Technologies"; 93.1% stated they "strongly agree" (51.7%) or "agree" (41.4%) that they have acquired skills on how to apply the knowledge; 79.3% reported that they "strongly agree" (44.8%) or "agree" (34.5%) that they have acquired

[39] The tables with these results are displayed in Appendix V – Tables with the experiences concerning Scholar course outcomes.

skills in communication and collaboration; 82.8% reported they "strongly agree" (51.7%) or "agree" (31%) that they have acquired skills in self-regulated learning; and 72.4% informed they "strongly agree" (37.9%) or "agree" (34.5%) that they have acquired skills in using the internet for academic research.

When comparing these percentages with the percentages from students' experiences in the Coursera course, the numbers of the latter are lower. Students were asked to rate the usefulness of the course on helping them doing the following, and the responses[40] are the sum of the valid percentages of the "extremely useful" group with the "very useful" group: 72.7% reported that it was "extremely useful" (45.5%) or "very useful" (27.3%) on acquiring knowledge and skills about "e-Learning Ecologies"; 72.7% stated that it was "extremely useful" (36.4%) or "very useful" (36.4%) on acquiring knowledge and understanding that they can practically apply; 50% reported that the course was "extremely useful" (20%) or "very useful" (30%) to developing skills in communication and collaboration; 54.5% reported it was "extremely useful" (18.2%) or "very useful" (36.4%) to developing skills in self-regulated learning; and 45.5% informed the course was "extremely useful" (9.1%) or "very useful" (36.4%) to developing skills in using the internet for research.

These results suggest that students from both courses feel that they have developed personal and interpersonal skills, which include self-regulation, research, "teamwork, communication, critical thinking, and written documentation capacities"(Vinícius Medina Kern, Saraiva, & Pacheco, 2003, p. 43).

Regarding this last skill, students from both courses were satisfied with the experience of writing the Case Study, as demonstrated in Tables 27 and 28. Table 27 shows that 89.3% of respondents are "very satisfied" (32.1%) or satisfied (57.1%) with writing the case study in Scholar. In the sequence, Table 28 displays that 72.7% of the respondents rated the experience of writing the case study as "excellent" (45.5%) or "good" (27.3%) in Coursera.

Table 27. Level of satisfaction with writing the case study (Scholar)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Satisfied	9	29.0	32.1	32.1

[40] The tables with these results are displayed in Appendix X – Tables with the experiences concerning Coursera course outcomes.

	Satisfied	16	51.6	57.1	89.3
	Neither Satisfied nor Dissatisfied	3	9.7	10.7	100.0
	Total	28	90.3	100.0	
Missing	System	3	9.7		
Total		31	100.0		

Source: Data from post-course survey (Scholar) organized with SPSS.

Table 28. Participants' ratings on their experience with writing the case study (Coursera)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent	5	41.7	45.5	45.5
	Good	3	25.0	27.3	72.7
	Fair	2	16.7	18.2	90.9
	Very poor	1	8.3	9.1	100.0
	Total	11	91.7	100.0	
Missing	Skip	1	8.3		
Total		12	100.0		

Source: Data from post-course survey (Coursera) organized with SPSS.

Differently to what was reported by Vinicius Medina Kern, Pernigotti, Calegaro, and Bento (2002) describing students' lack of engagement in the peer feedback activity, students from both groups, Coursera and Scholar, engaged in the peer review activity developed in the courses and enjoyed the process. This same enjoyment was reported by Yang (2016). This difference may reside in the fact that most participants of the present research are or were teacher for a long period of time and hold a high level of formal education. Also, the mode of education – online learning – already might select students that are open-minded regarding educational activities as opposed to the face-to-face setting reported in Vinicius Medina Kern et al. (2002). Another matter that has to be mentioned is the cultural background. Vinicius Medina Kern et al. (2002)'s participants were exclusively Brazilians, who are still suffering the effects of the educational system that recognizes the teacher/professor as the holder of the knowledge that is supposed to be passively received by the students. In the present investigation, respondents reported to be satisfied with both receiving and giving peer feedback, as described in the sequence.

Providing feedback has shown to be a more satisfied experience to respondents than receiving feedback, according to their responses. To

start with, 86.2% of the respondents reported to be "very satisfied" (41.4%) or "satisfied" (44.8%) with giving feedback through peer review to other participants of the course in Scholar, as revealed in Table 29.

Table 29. Level of satisfaction with providing feedback through peer reviews to other participants of the course (Scholar)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Satisfied	12	38.7	41.4	41.4
	Satisfied	13	41.9	44.8	86.2
	Neither Satisfied nor Dissatisfied	2	6.5	6.9	93.1
	Dissatisfied	2	6.5	6.9	100.0
	Total	29	93.5	100.0	
Missing	System	2	6.5		
Total		31	100.0		

Source: Data from post-course survey (Scholar) organized with SPSS.

Furthermore, the reactions to the open-ended question illustrate that giving feedback is as important as receiving feedback to enhance the learning process, as demonstrated by Scholar students responses when they were asked to identify three things they learned through giving feedback to other participants of the course. Peer feedback is a cyclical process of dialogic mediation. This process of mediation, according to Johnson (2009, p. 63), leads to cognitive development.

Providing feedback is a task that leads the reviewer to a high-level cognitive process (Kollar and Fisher, 2010). Some of these processes were described by the respondents, as follows: S2 says that by providing feedback she developed critical thinking, she learned a method in collaborative knowledge construction, and learned to "recognize my own strength and weakness for better improvement". The critical thinking aspect was also mentioned by S13: "Giving feedback causes you to objectively look at the assignment requirements and rate the work accordingly. This helps you become a better writer, critical thinker". Peer feedback, according to S20, "is a great learning enabler, I recognized things I could do better by offering suggestions to my classmates". The Case Studies they review, in this context, along with the rubrics, are the tools that guide the reviewers through the cognitive processes and make them go from point A to B of knowledge

building.

In the same way, S22 reported that with providing feedback he was able to "learn new knowledge or new interpretation of the old concept from others. Clarify my own thoughts toward the topic they talk about by providing my words". This is an example of the "dialogic mediation process of reconceptualizing and recontextualizing knowledge". S22 employed new knowledge to reconceptualize his previous concepts.

Another reported aspect of the benefits of giving feedback regards the understandings we acquire for our own work. Table 30 shows that 96.6% of the respondents that developed the activity in Scholar "strongly agree" (37.9%) or "agree" (58.6%) with the following statement: "Providing feedback to other participants of the course through peer reviews helped me to think about my own case study".

Table 30. Level of agreement with the statement: "Providing feedback to other participants of the course through peer reviews helped me to think about my own case study" (Scholar)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	11	35.5	37.9	37.9
	Agree	17	54.8	58.6	96.6
	Neither Agree nor Disagree	1	3.2	3.4	100.0
	Total	29	93.5	100.0	
Missing	System	2	6.5		
Total		31	100.0		

Source: Data from post-course survey (Scholar) organized with SPSS.

Providing feedback leads reviewers to rethink their own work in terms of stile, organization and content, as stated by S6: "I was able to compare my writing styles with others. By reviewing others, it made me take a second look at my own work. I realized what things I could add to my work to make it a better piece". This view is shared by S4: "It helped me look at my own paper in a different light". S10 reported that with the experience of giving feedback "I learned how to make some of my writing and organization a little more clear based on the good and bad of others works". This is almost the same observation described by S24:

> I learned the importance of including screenshots, video links etc. in 21st century academic writing. I was able to see how other people structured their papers and this enable me to adapt my own presentation layout by avoiding those aspects that I didn't like, and adding more of the aspects that I did like. Lastly, in reviewing others' works I would usually spot errors and omissions in my own work.

S11 learned "organizational techniques that [he] applied to [his] own writing". Other respondents reported having learned about: how to structure a work (S31), "how to better visually organize materials" (S18), gaining ideas and insights from what others wrote (S18 and S31), how "choosing a specific topic results in a more concise paper" (S10), and "how to cite my own work, various layouts to use and how to make my own work more concise" (S26). These examples corroborate the study conducted by (Yang, 2016, p. 696), where most of the respondents of the survey informed that they like to provide feedback due to the fact that they can both learn from each other and compare their peers' writings with their own.

Two further aspects were also mentioned among the lessons learned by providing feedback to others. One of them recognizes the importance of the rubrics. S25 "realized how helpful and important a rubric is in giving feedback". The other aspect acknowledges that providing feedback improved S25's English language skills. According to S25's words, giving feedback "improved my English language skills since I'm an ESL person". Additionally, S27 learned from providing feedback to a text written in English by a non-native speaker of English, as reported: "I was able to get the perspective of a student whose first language was not English and their revision process".

Furthermore, respondents stated they learned content from the course by providing feedback. S11 "I learned more about their topics". S8 "I learned quite a bit about other learning technologies". S17 "you learn a lot about the content and technology they're discussing"

Giving feedback also made students think about this part of the peer review process itself, activating the highest cognitive level: metacognition. S13 questions her own way to give feedback: "Even though we are giving feedback to someone we've never met face to face, we still face the same questions, is this feedback too harsh? Should I have said that differently". S19 learned skills such as "how to be succinct in comments, how to comment on multimodal writing, and how to be constructively critical". In the same way, S11 "learned how to give feedback in a positive way". These responses exemplify what

Kollar and Fisher (2010) state about high-level cognitive and discursive processing during feedback provision: “For B’s feedback to facilitate learning, B not only needs to deeply process A’s first product, but also show planning and monitoring concerning how to formulate feedback in a way that A can benefit from it”.

Although the level of satisfaction with giving feedback through Scholar (86.2%) was higher than through Coursera, the results of the latter are still positive with 63.6% of the respondents rating the experience of providing peer feedback as “excellent” (36.4%) or “good” (27.3%), as represented in Table 31.

Table 31. Participants' ratings on their experience with providing feedback through peer reviews to other participants of the course (Coursera)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent	4	33.3	36.4	36.4
	Good	3	25.0	27.3	63.6
	Fair	3	25.0	27.3	90.9
	Very poor	1	8.3	9.1	100.0
	Total	11	91.7	100.0	
Missing	Skip	1	8.3		
Total		12	100.0		

Source: Data from post-course survey (Coursera) organized with SPSS.

Participants of this course were also invited to identify three things they learned through giving feedback. Eight respondents shared at least one item they learned. The same way as in Scholar, respondents from Coursera learned content when providing feedback. Four respondents learned more about the subjects developed through the course and further explored in the Case Study, such as: the “affordances used in a variety of context” (C6), “that blended class can be effective to enhance learning” (C7), a “variety of cases” (C9), and “new teaching techniques/technology” and “new perspectives” (C11).

Another aspect that was observed by Scholar’s respondents and corroborated by Coursera’s is the reflection about the very activity of giving feedback. C11 reported learning “to feel good about critiquing someone else's work”, which is a feeling that demonstrates the level of comfort on engaging in the process – an important trait to be developed among academics. Moreover, C5 states that he learned “respect for other's time, energy, and point of view”, “how well [he is]

communicating - especially to those of other languages", and to "concentrate on communicating clearly an intention".

The rubrics were also mentioned as a learned item. C10 mentioned having learned "details of rubric". The way it is stated leads to a possible interpretation that the respondent had not seen all the details of the rubrics when writing the Case Study. Actually, according to Pol et al. (2008, p. 1816), "providing feedback is important in giving students a good idea of the criteria for the product". Also, "sticking to the assigned rubric", says C4, "makes it easy for the reviewer to quickly identify different sections".

Additionally, they reported to have learned the following skills: "identify tools on the web" (C9), "where to provide better explanation of things" (C1), and to "apply the feedback given to my own work".

Both Scholar and Coursera respondents identified some negative aspects of providing feedback. C4 complains about plagiarism and the lack spelling check of the work: "Some people have no compunction about submitting plagiarized work", "Many people still do not know how to use spell-check". S7 makes a consideration about her capability to be a reviewer saying: "I am not equipped to give feedback on the theorists we studied, I knew little about them and felt unqualified to comment. Sometimes peer reviews are eye-opening and sometimes they are a waste of time because the feedback is useless". This questioning of the ability to review a work from a peer is one of the negative outcomes also reported by Orsmond, Merry, and Reiling (1996). On the other hand, S26 complains about the level of some writing:

> There are a variety of writing levels in the class. I have been frustrated with the work some turn in. I usually spend hours on my 1st draft and it often is obvious others don't spend much time at all. This leaves very little to comment on or to learn bout when giving feedback on their work.

Let us turn now to aspects of receiving feedback.

Regarding the level of satisfaction with receiving feedback through peer reviews from other participants of the course in Scholar, 72.4% of the respondents were "very satisfied" (37.9%) or "satisfied" (34.5%) with the action, as shown in Table 32.

Table 32. Level of satisfaction with receiving feedback through peer reviews from other participants of the course (Scholar)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Satisfied	11	35.5	37.9	37.9
	Satisfied	10	32.3	34.5	72.4
	Neither Satisfied nor Dissatisfied	6	19.4	20.7	93.1
	Dissatisfied	2	6.5	6.9	100.0
	Total	29	93.5	100.0	
Missing	System	2	6.5		
Total		31	100.0		

Source: Data from post-course survey (Scholar) organized with SPSS.

From the 21 respondents that provided some information in the survey question that they were supposed to identify three things they learned through receiving feedback, with the exception of one, all the others reported having learned positive things specially regarding organization, style and content of the Work.

To start with, learning how to organize the writing was one of the items learned by receiving feedback. To exemplify, respondents have learned the following: "how to better construct a multimodal piece, how to organize ideas in a reader-friendly fashion" (S19), to "better organize materials" (S18), to "better structure of my own work" (S31), "paying closer attention to flow" and "less focus on grammar" (S5). Moreover, "my peers helped me with my organization", said S8, and S17 stated that

> a couple of times I realized places where I was less than clear; It was nice to get close readings of my work and see what people really liked and where they got lost; I would have loved to get more clear and in-depth feedback (I still haven't gotten good annotations, for example).

These instances show the importance of having another person's understanding of our writing to better organize the flow of the content.

This openness to other's viewpoints was also present in the lessons learned when giving feedback. With the received feedback, for example, S2 was able to "learn the different perspective and experiences", and S22 has learned to "know different view point on the same topic from others. Realize my weakness or advantage of the discussion or description I made. Connect or extend other relative

information with the opinions offered by peer". Making connections is a high-level cognitive process and, as such, according to Topping (1998, p. 254), it "could help to consolidate, reinforce, and deepen understanding in the assess".

S16 summarizes the importance of both organization and content matters on the feedback: "The feedback can be very useful. It's nice to hear suggestions about organization and where the evidence provided is unclear or insufficient. The grammatical suggestions also have value". Besides the mentioned feedback on aspects of organization of the writings, the following feedback influenced directly on the content of the writings by: 1) offering and/or asking for additional information or even for further clarification, such as: "I was able to determine where the paper needed clearer examples", "I was able to identify areas in my own work that needed additional data", and "I was able to get affirmation on which parts of the paper needed no further clarification or data" (S27), "adding more examples/details" (S26); 2) offering new resources, such as the feedback received by: "suggestions of relevant resources to support my work" (S31) "ideas for graphics, and focusing my work" (S8), "I was given new resources" (S10); 3) enriching the text by "giv[ing] stronger overviews" (S18), "having stronger citations in the writing piece" (S5), and "exploring a new idea. I learned how to expand explanations" (S6); or actually 4) pointing to misconception of theories, as reported by S10: "Two reviewers pointed out that I was confusing two theories, which I corrected". In this last case, the reviewers were tools that guided the student from point A to point B, reaching student's highest point (the level of potential development) in the Vygotsky (1978)'s ZPD, as the student realized the correct concept of theories.

Also, the received feedback influenced the content by helping with the consistence of the work, as stated by S11: "Receiving feedback helped me make my ideas clearer; it helped me see my topic from a different angle; it helped me be consistent throughout the work".

Some of the lessons learned through receiving feedback relate to the style of writing, according to respondents' views. S20 acknowledges that his "writing needs help" and that "corrections were a lot of work, but worth the effort" making him to learn "how to write with a more active style". S19 has learned how to write more concisely while S26 has learned how to "use quotes more effectively". S24 stated having learned the following three things by receiving feedback: "My writing style needs to move into the 21st century", "I can keep on task and avoid late submissions if I do a little at a time", and "I need to improve on my level of specificity". This is a productive reflection on the writing style

and on the attitude of avoiding late submissions. Late submissions are mentioned by Vinícius Medina Kern, Pacheco, Saraiva, and Pernigotti (2007) as one of the problems that can harm the peer review process. Moreover, S18 has learned how to "use less technical jargon" and S2 has learned how to improve his work in general.

Another aspect learned by receiving feedback is the development of skills. Corroborating both what was already mentioned in this section and when answering the Research Question #1. Here, besides the skills already spotted such as identifying and correlating information, a respondent clearly mentioned having learned "how to upload an image" (S6).

Finally, S10 and S31 were glad to learn that they have received affirmation or confirmation for their work, as they state: "Strong portions of my work were recognized" (S10) and "affirmation of my work and my ideas" (S31).

The negative lesson learned by receiving feedback relates to S4's experience: "I struggled to get my assignments submitted correctly, so I received little feedback. The feedback I did receive just seemed like students trying to complete assignment".

All things considered, S3'words seem to provide a summary of what can be observed on the feedback received by students in Scholar: "Many classmates have a wide range of background knowledge. Some classmates value feedback while others do not put an emphasis on it. Peers did a good job at trying to help take a paper content to the next level".

And these responses to what they have learned through receiving feedback were reinforced by respondents' level of agreement with the statement "The feedback I received from my reviewers was helpful". Table 33 demonstrates that 82.8% of the respondents "strongly agree" (31%) or "agree" (51.7%) with that statement.

Table 33. Level of agreement with the statement: "The feedback I received from my reviewers was helpful." (Scholar)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	9	29.0	31.0	31.0
	Agree	15	48.4	51.7	82.8
	Neither Agree nor Disagree	5	16.1	17.2	100.0
	Total	29	93.5	100.0	

Missing	System	2	6.5		
Total		31	100.0		

Source: Data from post-course survey (Scholar) organized with SPSS.

On the other hand, in Coursera course, only 36.5% of the respondents rated their experience with receiving feedback through peer reviews from other participants of the course as "excellent" (27.3%) or "good" (9.1%), as presented in Table 34. More than half of the respondents (54.6%) rated their experience as "poor" and "very poor" (with 27.3% of the valid responses each).

Table 34. Participants' ratings on their experience with receiving feedback through peer reviews from other participants of the course (Coursera)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent	3	25.0	27.3	27.3
	Good	1	8.3	9.1	36.4
	Fair	1	8.3	9.1	45.5
	Poor	3	25.0	27.3	72.7
	Very poor	3	25.0	27.3	100.0
	Total	11	91.7	100.0	
Missing	Skip	1	8.3		
Total		12	100.0		

Source: Data from post-course survey (Coursera) organized with SPSS.

Nine respondents identified at least one item learned through receiving feedback. Things learned about content were the most reported, such as: C6 learned "how to structure some LMS questions" and "differentiating through LMS management"; C7 learned the "the connection between online and face-to-face sections of a class", "critical appraisal of ICT affordances in developing online class", and "provision of details in planning online class".

Other respondents reported having learned, in their words: how "to be more clear in expressing ideas" and "language use" (C2); "improve my work" (C11); "what info. I'd missed" and "request for more detail" (C10). C4 stated that he learned that his "case study is not applicable to a general audience". Also, C5 learned "different ways of looking at things" and "understanding [his] level of communication better". Finally, C11 said: "I learned I marked myself harder than my

reviewers did" and "I learned I like to receive helpful constructive feedback".

As reported in providing feedback, they stated some negative points on receiving feedback as well. According to the respondents, "feedback lacks quality"(C1) and "not everyone cares about giving feedback" (C1). C4, as regard learned things, says that "nothing else, really, that I hadn't already self-identified".

Despite the negative experience of receiving feedback, more than half (55.6%) of those respondents who received feedback classified the helpfulness of the feedback as "extremely helpful" (33.3%) or "very helpful" (22.2%), according to Table 35.

Table 35. Helpfulness of the feedback participants received from their reviewers (Coursera)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely helpful	3	25.0	33.3	33.3
	Very helpful	2	16.7	22.2	55.6
	Moderately helpful	1	8.3	11.1	66.7
	Slightly helpful	2	16.7	22.2	88.9
	Not at all helpful	1	8.3	11.1	100.0
	Total	9	75.0	100.0	
Missing	Skip	1	8.3		
	I did not receive any feedback from other students	2	16.7		
	Total	3	25.0		
Total		12	100.0		

Source: Data from post-course survey (Coursera) organized with SPSS.

All things considered for both Scholar and Coursera courses – the learning outcomes and the views on the experience of giving and receiving feedback – the students' views corroborate the results reported by Orsmond et al. (1996). In the post-course survey the authors applied to the students, most of them reported that "the scheme of peer assessment makes you": independent, to think more, to learn more, to gain confidence, to be critical, and to work in a structured way (Orsmond et al., 1996, p. 245). In addition, most of the respondents from Orsmond et al. (1996, p. 245)'s research also reported that peer assessment is beneficial, helpful, challenging, and time consuming,

which were all aspects mentioned by respondents of the present investigation, except for the time consuming aspect. Pol et al. (2008, p. 1816) summarize these aspects of giving and receiving feedback by stating that "learning effects of providing feedback will be accomplished relatively simply: as long as students invest time and effort into actively constructing content-oriented reactions, we can expect certain learning gains. The learning effects of receiving feedback, however, highly depend on its quality, which in its turn hinges on the expertise of the provider".

In relation to the influence of the rubrics in the peer feedback process, the responses to the survey corroborate the difference between students that performed the peer review task in Scholar and in Coursera. While 54.5% of the respondents in Coursera recognize the level of helpfulness of the rubrics as "extremely helpful" (18.2%) or "very helpful" (36.4%) – as shown in Table 36 – almost all respondents in Scholar recognize its helpfulness to writing the work, providing feedback, and revising their own work, as described in the sequence.

Table 36. Helpfulness of the rubrics (Coursera)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely helpful	2	16.7	18.2	18.2
	Very helpful	4	33.3	36.4	54.5
	Moderately helpful	3	25.0	27.3	81.8
	Slightly helpful	2	16.7	18.2	100.0
	Total	11	91.7	100.0	
Missing	Skip	1	8.3		
Total		12	100.0		

Source: Data from post-course survey (Coursera) organized with SPSS.

Tables 37 and 38 illustrate that all respondents in Scholar acknowledge the helpfulness of the rubrics to write the works and to provide feedback. With regard to the former, 72.4% of the respondents "strongly agree" and 27.6% "agree" that the rubrics were helpful to write the works (Table 37). As for the latter, Table 38, 75.9% of the respondents "strongly agree" and 24.1% "agree" that the rubrics were helpful to provide feedback to other participants' works.

Table 37. Level of agreement with the statement: “The rubrics (in the Creator space) were helpful to write my works.” (Scholar)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	21	67.7	72.4	72.4
	Agree	8	25.8	27.6	100.0
	Total	29	93.5	100.0	
Missing	System	2	6.5		
Total		31	100.0		

Source: Data from post-course survey (Scholar) organized with SPSS.

Table 38. Level of agreement with the statement: “The rubrics (in the Creator space) were helpful to provide feedback to other participants' works” (Scholar)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	22	71.0	75.9	75.9
	Agree	7	22.6	24.1	100.0
	Total	29	93.5	100.0	
Missing	System	2	6.5		
Total		31	100.0		

Source: Data from post-course survey (Scholar) organized with SPSS.

Similar level of recognition occurs with the level of helpfulness of the rubrics to reviving their own works in Scholar: 96.6% of the respondents “strongly agree” (72.4%) or “agree” (24.1%) that the rubrics are helpful to revising their own work, as displayed in Table 39.

Table 39. Level of agreement with the statement: "The rubrics (in the Creator space) were helpful to revise my own works" (Scholar)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	21	67.7	72.4	72.4
	Agree	7	22.6	24.1	96.6
	Disagree	1	3.2	3.4	100.0
	Total	29	93.5	100.0	
Missing	System	2	6.5		
Total		31	100.0		

Source: Data from post-course survey (Scholar) organized with SPSS.

These results corroborate the speculation formulated in Research Question #1 that aspects of the Scholar environment such as the feature of having the work and the rubrics side-by-side may enhance learning outcomes. Furthermore, students in Scholar were asked to rate their level of agreement with their experiences concerning individual learning processes reacting to the following statement: "The learning environment offers opportunities to be successful (e.g., via rewriting my work based on feedback)". And 96.6% of the valid percentages of respondents "strongly agree" (58.6%) or "agree" (37.9%) with the statement and only one respondent (3.4%) disagrees. Scholar is a 'social knowledge technology' (B. Cope & Kalantzis, 2008) that was developed to fulfill educational purposes on an "attempt to reframe the relations of knowledge and learning, recalibrating traditional modes of pedagogy in order to create learning ecologies which are more appropriately attuned to our times" (B. Cope & Kalantzis, 2013, p. 333). Moreover, its development is grounded in the New Learning theory, which proposes seven openings for educational transformation: ubiquitous learning, active knowledge production, multimodal knowledge representation, recursive feedback, collaborative intelligence, and differentiated learning, as approached in Chapter Three. Therefore, it is likely that these affordances foster learning outcomes. Thus, this is an aspect that should be taken into consideration when improving the existing technology and or developing new educational technologies.

To summarize, "peer assessment is not only a grading procedure, it is a teaching tool, i.e. part of a learning process where skills are developed" (Orsmond et al., 1996, p. 245). And participants of this research have perceived peer feedback as part of a learning process, as

demonstrated in this section. It disclosed students' perceived development of skills during their courses, such as on the content of the course, on applying knowledge, on communication and collaboration, on self-regulated learning, and on using the Internet for academic research. These perceptions were rated higher in Scholar than they were in Coursera. Moreover, it revealed that participants of courses in Scholar and in Coursera have a positive view of their experiences of giving and receiving feedback, with the percentages from Scholar being higher than the percentages from Coursera. These experiences exposed students to a range of learning opportunities to develop skills, high-level cognition and metacognition. Finally, it presented participants' views on the helpfulness of the rubrics in the peer feedback activity. It revealed a considerable difference between Coursera's participants' views and Scholar's, with the latter receiving almost unanimous appreciation. The next section will approach the implications of peer-to-peer learning in online environments for teacher professional learning and second language academic literacy.

6.3 RESEARCH QUESTION 3: WHAT ARE THE IMPLICATIONS OF PEER-TO-PEER LEARNING IN ONLINE ENVIRONMENTS FOR TEACHER PROFESSIONAL LEARNING AND SECOND LANGUAGE ACADEMIC LITERACY?

This section draws on the conclusions from sections 6.1 and 6.2, on the review of the literature on teacher development, and on the provided Brazilian context of pre-service English teacher training to postulate a philosophical justification for collaborative learning technologies and to provide pedagogical implications for teacher professional learning and second language academic literacy.

In the introductory chapter of this dissertation I presented the Brazilian Government's strategy, implemented in 2006 with the Brazilian Open University (UAB, Universidade Aberta do Brasil), to increase the numbers of capacitated teachers, especially in regions where the access to public universities is remote. As it is a blended system of education with 70% of it occurring online, Internet access is an indispensable tool. The access to Internet in the world increased from 15.8% (2005) to 38.1% (2013)[41] while in Brazil it increased from 20.9%

[41] Data from the Word Bank:
http://data.worldbank.org/indicator/IT.NET.USER.P2/countries?display=graph.

to 49.4%, during the same period of time, according to the Brazilian Institute of Geography and Statistics (Orsmond et al., 1996, p. 245). The highest percentages of people with access to Internet in Brazil are in the Southeast (57%), Center-West (54.3%), and South (53.5%) regions, and lowest percentages are in the North (38.6%) and Northeast (37.2%) regions, according to the Brazilian Institute of Geography and Statistics (IBGE, 2015). This means that even online education, in terms of coverage, is still at a developmental stage in Brazil. Furthermore, it was also aforementioned that, in 2013, 21% of the teachers that were already in-service did not have proper qualification for the teaching position they occupy. Having these numbers and this potential in mind, both in-service and pre-service teacher education programs have an extensive path to be covered.

In this line of thought, it is undeniable that to increase the number of graduated teachers is an urgent task. However, after ten years of the implementation of the Brazilian Open University (UAB) program, it is equally relevant to test new systems of improving students' experiences on online foreign language teacher education programs in order to provide opportunities to develop meta-cognition during real social interaction activities such as peer-reviewing. The advances of technology have made this task not only possible but also enabled a task design that diminishes the burden on facilitators and empowers students. Therefore, in order to understand the importance and the implications of peer-to-peer learning in online environments for teacher professional learning and second language academic literacy in Brazil, it is necessary to provide an illustration of how a course is organized and developed. The following example is from an UAB course where I work as an e-tutor for three and a half years. This example is relevant in order to understand the context of teacher education in online environments in Brazil, and to further reveal how technology could help to improve teacher education in this learning environment.

Regarding the course as a whole, in brief, it was an undergraduate course that offers a degree on Teaching English Language and Literature. As all courses that offer a teaching degree on a foreign language in Brazil, it has a twofold objective of teaching students the foreign language and teaching how to teach this language, which in this case was English. The course started with 250 students (50 in each district/venue, called "polo"), from which around 100 graduated. Additionally, this course was held through the distance education mode,

during eight semesters, in a blended system where up to 30%[42] of the total of the course hours were developed face-to-face. In this sense, students had to attend face-to-face weekly meetings at one of the five venues, all distributed in one State in the south region of Brazil, being distant from 12.1 to 554 Km from the university offering the course, as all distances displayed in Figure 33

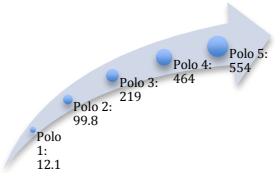


Figure 34. Distance (in Km) between each of the five venues in relation to the university.
Source: The distances were calculated employing GoogleMaps and choosing the closest route from the university to the city where each polo is located.

To exemplify one course and its agents and activities in depth, one of the courses the students had to take in their last semester of the course was the Teaching Practicum III, when the prospective teachers engaged in actual teaching. In this course, the students had support from several sources, such as the professor of the course, online and face-to-face tutors, written materials in softcopies, and a course book written by the professor both in soft and hardcopies. These written materials refer to the instructions found on course plans, activities, tutorials, and course books, to mention some.

The professor was physically based at the university and she traveled to each polo twice during the period that the course was held. Additionally, she held one videoconference at beginning of the course and maintained synchronous and asynchronous communication with the students and with the tutors employing Moodle, Skype, GoogleDrive, and e-mails. The tutors employed the same tools for communications with students. Moreover, the professor also wrote a book for this course, selected the content and the pedagogies for it and developed the activities.

With reference to the duties of the face-to-face tutors, two for each polo, according to the Course Plan, they were responsible for:

[42] Information taken from https://ead.ufsc.br/ingles/informacoes-gerais-do-curso/. Accessed in August 7, 2013.

verifying if students had registered the official form for the practicum activity and if they had handed in the presentation letter and the course plan at the school where they would do the practicum; elaborating a schedule for the teaching practicum; participating in the videoconference; maintaining weekly/every other week telephonic contact with the schools to check on the prospective teachers; observing the prospective teachers' classes; providing didactic and pedagogic follow up on these observations; elaborating critical evaluative reports on the prospective teachers' performance; listing the complete names of the English teachers that collaborated to the practicum in order to provide them a certificate; participating in weekly meetings via Skype; evaluating the discipline; and verifying if students presented the poster in the school and handed in a copy of the Final Report to the school.

As regards the obligations of the e-tutors, one for online tutoring students of each polo, as stated in the Course Plan, they were responsible for: reading and evaluating the prospective teachers' course plan and teaching schedule; elaborating a schedule to follow the activities of each prospective teacher; participating in the videoconference; advising the elaboration of lesson plans; correcting and evaluating these plans; reading the critical reflective reports, daily; advising the prospective teacher on his/her level of reflective thinking, elaborating reports on the development of the prospective teachers; participating in weekly meetings; maintaining weekly contact with the face-to-face tutors to follow up the implementation of the lesson plans and the development of the prospective teachers; advising the elaboration of the poster; reading and evaluating the posters; advising on the elaboration of the final report; reading and evaluating the final report; and listing the names of the students in risk of failing.

The students had to complete the following activities. They had to draw a teaching schedule of 13 classes for their practicum and elaborate a Course Plan or adapt the one developed in the previous discipline. Besides, they had to design 13 lesson plans along with the learning activities. They also had to write a critical-reflective journal about the 13 classes they taught, and write six critical-reflective reports on six classes they observed their colleague teaching. Additionally, they had to create a poster portraying their teaching experiences in school, present the poster in the school, and write a report on that presentation. Finally, they had to compose a Final Report describing their experiences during the courses of Teaching Practicum I, II, and III.

Depending on the circumstances and context, some activities were developed in pairs, trios, or individually. The only ones developed

exclusively individual were the journal and the reports on the observation of the colleagues' teaching. Taking, for instance, the lessons plans developed by students in the venue I was responsible for, most of them were developed in pairs.

Even so, this activity alone was already very demanding for the e-tutor if we consider the following numbers: 10 group of students, 13 lesson plans for each group, and the mean of five drafts for each lesson plan per group. This alone totalizes 650 files for the tutor to provide feedback and manage the organization. All the feedback was through personal e-mail communication and the use of Microsoft Word files. Moodle was employed only as storage for the final versions of the files and for grading. This means that every e-mail I received with lesson plans I had to download the files, provide feedback, upload the files, and reply the e-mail. When the next draft arrived I had to do the same procedure and localize and open the previous file to compare and verify if the student had modified something, and so on, until the lesson plan met the minimal requirements to develop a communicative English class.

Despite being a demanding task, it was an unaccountable learning experience for me. However, it prevented the students from having the same experience of reading and providing feedback for several peers and, consequently, precluding them from all the benefits that this activity could afford. Moreover, students received feedback only from one source: the e-tutor. It is understandable that conducting a peer-review activity, the way it was conducted in this research, with several files of lesson plans (and several versions) would be even more demanding, if the activity had to be manually managed and organized. Vinicius Medina Kern et al. (2002) and Vinícius Medina Kern et al. (2003) already pointed this amount of work as a serious limitation for peer-review activity. According to Vinicius Medina Kern et al. (2002, p. unnumbered page),

> some of the functional requirements of a software interface for peer review application in learning are: website configuration, CFP [call for papers] and review form publication, student data input, paper submission, referee allocation support, authorship omission, acknowledgment of reception, and author notification.

Fortunately, learning systems such as Scholar besides performing all this work also allow the facilitator to observe all the peer-feedback activities among students. As demonstrated in the results and the

discussion of Research Question #1, with data from the feedback, and Research Question #2, through students' views, students profit from online peer review activities, as they are cognitively demanding.

These new technological affordances enable us to change paradigms in education both in online and in face-to-face settings and, therefore, "pedagogical practices and social structures are transformed" (Dabbasgh, 2005, p. 32). Besides all the already discussed benefits of peer-to-peer learning, modifying students' social role in the educational process seems to be the ultimate goal of this activity in education. As social identities and social relationships are constructed (Fairclough, 1992), it is time to rebuild the social identity of professors, tutors, and students and develop new relationships among them. In this new educational paradigm professors and tutors renounce their institutionalized current position of knowledge holders and transmitters and become mediators of interactions and guiding students to sources or pathways to obtain knowledge. This innovative relation with knowledge demands innovative approach to the online teaching-learning social practice.

This educational shift also changes students' social role. This role demands action and responsibility from students towards their own process of learning and they are embedded with agency to also be autonomous knowledge mediators. Students become responsible for their own construction and consumption of knowledge. "Autonomy is an important premise of adult learning. Nevertheless, this premise is at times contradicted in adult learning processes by resistance to change" (Vinícius Medina Kern et al., 2007, p. 60). And confronting beliefs and facing resistance to change are central aspects in pre-service teacher education as their practices follow their beliefs.

Therefore, the peer-reviewing activity *per se* already challenges this setting because it transfers the learning accountability to the teachers to be, disrupting the common belief that the professor is the only beholder of knowledge. Moreover, by engaging in online peer-review activity, for example on lesson plans, prospective teachers would benefit from reading and providing feedback to other peers and receiving feedback from different peers. Consequently, they would be exposed to other beliefs by considering other ways of developing activities and applying theories in foreign language classroom, and they would be challenged by reviewers when they provide feedback questioning some developments in the lesson plan or provide comments that make students (prospective teachers) question themselves. "Students usually recognize that they can benefit from studying the

work of colleagues and reflecting about their own work. This seems to be a strong contribution of peer review: to make students exercise high-level cognitive skills" (Vinícius Medina Kern et al., 2007, p. 54).

This is the dialectic relationship between the *spontaneous concept* (Vygotsky, 1986) or *everyday concept* (Johnson, 2009) and the *scientific concept* (Johnson, 2009; Vygotsky, 1986) that allows the possible reconceptualizzation and recontextualization of knowledge. B. Cope and Kalantzis (2013)'s seven openings for educational transformation (ubiquitous learning, active knowledge production, multimodal knowledge representation, recursive feedback, collaborative intelligence, and differentiated learning) are instruments in online peer-review activities that can enhance prospective teachers' cognition and metacognition, as they promote real, multiple, and contextualized social interactions. The development of metacognition is an important outcome in teacher education.

Another implication of peer-to-peer learning in online environments for teacher professional learning and second language academic literacy regard the learning of language itself. As foreign language teacher education programs in Brazil teach both the language itself and ways of teaching the language, peer review activity exposes students to different uses of the language besides receiving feedback on his or her own work, such as profiting from reading their peers' works, as demonstrated in this research. Additionally, according to Topping (1998, p. 261), "peer assessment of writing has been used in English-as-a-second-language (ESL) contexts in several countries, especially in composition classes". Reviewers, rubrics and the reviewed texts act as mediation tools to foster learning. They act on the *potential developmental level* (Vygotsky, 1978) helping the prospective teachers to move from point A to point B in their writing, use of English, and understanding and applying of concepts.

To recap, this section an example of the process of developing a review activity manually and indicated the use of technologies such as Scholar to overcome the organizational limitation. Additionally, this section presented some implications of peer-to-peer learning in online environments for teacher professional learning and second language academic literacy, such as the use of technology as means to enhance prospective teachers' cognition and metacognition skills and to foster their language learning.

CHAPTER 7 – CONCLUDING REMARKS

This dissertation reported the research process that investigated a peer-review activity among students from two different online learning settings: 1) a Masters program using the Scholar platform, and 2) a MOOC employing the Coursera LMS. Both courses were offered by the University of Illinois at Urbana-Champaign and they were mediated by the same professor. The objective of this research was to develop a further understanding of peer-review activity in e-learning contexts by 1) evaluating intervention outcomes, 2) providing an overview of learners' views, 3) postulating a philosophical justification for collaborative learning technologies, and 4) providing pedagogical implications for teacher professional learning and second language academic literacy. This study was guided by the following research questions:

1- What kind of peer feedback was used for the development of the students' written case studies?

2- What are students' views regarding their learning experience with the peer-review activity? How did the students evaluate their experience of providing and of receiving feedback?

3- What are the implications of peer-to-peer learning in online environments for teacher professional learning and second language academic literacy?

This chapter provides an overview of this research endeavor by presenting the main findings of both the pilot study and the main study. In the sequence, it indicates some pedagogical implications for the education field in general for both face-to-face and online modes of education. Subsequently, it exposes the limitations of the study and, finally, it directs suggestions for further research.

7.1 MAIN FINDINGS

For the Research Question #1, "What kind of peer feedback was used for the development of the students' written case studies?", data was analyzed from reviewers' numeric feedback as well as descriptive feedback. Regarding the findings for the numeric feedback, the analyses of reviewers' reliability considering intraclass correlations for consistency and agreement revealed that the Median of each one of them resembled the Median of professional raters found on the literature. The Median for the ICC (*agreement*) is .348 and for the ICC (*consistency*) is .471 for the Scholar course, and the Median for the ICC (*agreement*) is

.319 and for the ICC (*consistency*) is .443 for the Coursera course. Scholar's Median values are slightly higher than Coursera's values. The high consistency and agreement among reviewers could be explained by the participants' high level of educational background as well as their teaching experience. Another possible explanation was the positive role of the well-developed rubrics for writing and reviewing the case studies, with clear description of the rating levels. This was corroborated by survey data showing participants' views on the helpfulness of the rubrics.

Concerning the descriptive feedback, 100 reviews were analyzed, being 74 for works on Scholar and 26 for works on Coursera. Results show that Scholar's participants (92.2%) provided more descriptive feedback than Coursera's participants (65.1%). Moreover, from the qualitative feedback they provided, Scholar's participants (91.4%) provided more good quality category of qualitative feedback than Coursera's participants (68.5%). This considerable difference between Scholar and Coursera could be explained by the distinctions between their learning interfaces. Scholar presents a multimodal interface organizing the case study side-by-side with the rubrics and the review criteria and the space to provide numeric and descriptive feedback, whereas Coursera only presents the rubrics, the review criteria, and the space to provide the feedback, without simultaneous visualization of the case study.

Regarding Research Question #2, "What are students' views regarding their learning experience with the peer-review activity? How did the students evaluate their experience of providing and of receiving feedback?", data from the surveys disclosed students' views concerning their learning experience of the activity of peer review during the course they were attending in Scholar or Coursera. Participants of the former offered higher rates for the positive course outcomes than participants of the latter on the following aspects: knowledge and skills they have developed about the content of the course, use of the knowledge, communication and collaboration, self-regulated learning, use of the internet for academic research, and writing the Case Study/Work. The responses of the surveys also revealed that students' have a positive view of the experience of receiving and providing feedback, with the percentage of satisfied participants being higher in Scholar than in Coursera. It also revealed that students perceived that their engagement in this learning activity fostered the development of skills, metacognition, and high-level cognition. A final finding from participants' answers to the surveys regards their views on the role of

the rubrics in the peer feedback activity. Around half of the participants from Coursera recognize the helpfulness (extremely helpful or very helpful) of the rubrics whereas almost all participants from Scholar strongly agree or agree that the rubrics were helpful to write their case study and to provide feedback to their peers. This corroborates the speculation raised in Research Question 1 that the distinctive feature of having the case study side-by-side with the rubrics and the review criteria accompanied by the space to provide the feedback could enhance learning outcomes.

Finally, as regards Research Question # 3, "What are the implications of peer-to-peer learning in online environments for teacher professional learning and second language academic literacy?", an example on how a teacher education course developed in Brazil was provided in order to postulate suggestions on how the advances of technology could enhance learning in this scenario. The present research reveals that learning environments such as Scholar successfully unravels the organizational procedures that used to qualify a peer-feedback activity as a highly demanding task for the professors. These limitations being addressed, the focus can be directed to the benefits of peer-feedback to the development of pre-service teachers' reasoning. Besides benefiting from feedback provided by multiple sources, prospective teachers would engage in activities that develop their metacognition. Moreover, they can profit from the shift of roles that peer-feedback activities provide by attributing agency to the reviewers and, consequently, increasing the possibility of promoting a transformation in future education by educating teachers aware of their new role in modern society. This is a role that increasingly requires teachers who mediate knowledge relations, negotiate ubiquitous learning, and foster awareness among learners of their responsibilities on their own learning development. The learner's role is active to produce and share knowledge in a collaborative learning setting.

7.2 PEDAGOGICAL IMPLICATIONS

These aforementioned new roles require the development of new skills such as the ability of being selective, which is one of the main pedagogical implications of online peer-feedback. The affordances of the Internet and of the new educational technologies have built a learning space that is unrestricted to walls. The world with its unlimited amount of sources of knowledge has become the new learning space. Therefore, these implications apply to face-to-face learning, *e*-learning,

and blended learning. Facilitators, on the other hand, besides dominating the skill of being selective, have the responsibility of guiding students through this process of developing it until they are able to make informed decisions on their own.

A further pedagogical implication concerns the way knowledge is considered in society.

> Knowledge is not a matter of what I know as an individual. It is my capacity to navigate the wide epistemic world at my fingertips; it is my ability to discern critically what is salient and what is not; it is commitment to acknowledge the social provenance of my knowledge by means such as citations and links; it is my ability to work with others to create collaborative knowledge where the sum of the knowable is greater than the individual contributions of colleagues in-the-knowing; it is my capacity for synthesis; and it is my ability to extend creatively socially acquired knowledge. B. Cope and Kalantzis (2013)

With online peer-feedback, knowledge is co-constructed and reconceptualized among members of that learning community and with the diverse available sources of knowledge. Online peer-feedback provides the scenario to develop collaborative knowledge creation, consumption, and distribution.

One relevant pedagogical implication relates to teachers' limited available time. As the number of students per course is increasing and the teaching hours remain the same, new modes to provide feedback are needed. "A practical benefit of implementing peer assessment is that the feedback comes in much larger quantities than the teacher could ever provide alone, and becomes available much sooner. A more pedagogical reason for implementing peer assessment is that it resembles professional practice" Vygotsky (1978). Peer assessment is now a usual and emergent activity in work settings, especially in academic, humanitarian, and business fields.

Another pedagogical implication affects the way in which higher education through the online mode is developed in Brazil. With these new affordances provided by technology and new pedagogical approaches that originated with it, perhaps it is possible to reevaluate and to reconsider the system of having physical learning venues where at least 30% of the education has to occur face-to-face. It is possible that we already have technology and pedagogy to provide a good-quality *e*-learning that could be made available to everyone and everywhere

without geographical restriction inside Brazilian borders. This could provide qualified teacher education in remote areas of Brazil.

An additional pedagogical implication is that besides employing peer-feedback in higher education, teachers could start using it in other grades to improve writing, as already occurs in countries such as the United States of America and Australia, where some schools use Scholar with students since grade 4; or as it occurs in Taiwan, where they employ another software with 5th graders (W. Cope, 2016). Brazil could profit from implementing a writing program in high schools. According to the Organization for Economic Co-operation and Development (OECD) notes on the Brazilian results on the Programme for International Student Assessment (PISA) 2012, Brazil has improved in education in several fronts such as on expanding the number of students' enrolments in schools, improving the performance on the tests, and attracting and retaining qualified teachers[43]. However, the same notes state that Brazil still performs below the average in all measured subjects (mathematics, reading, and science) being among the last 12 positions of the ranking comprised by 65 countries. Moreover, the results of students' performance on the Brazilian High School National Exam (ENEM) are catastrophic. In 2014, from the 6,2 million students that took the exam, 529,374 got grade zero on the essay assignment and only 250 students got the maximum grade[44]. It appears reasonable that this problem requires new approaches. Possibly, the use of online peer-feedback with students in high schools, with all its advantages already discussed in this report, could help to transform Brazilian's educational situation. After all, according to the Brazilian 2015 educational census[45] that was just released, 65% of the schools in Brazil have Internet access and 54% of them have high speed Internet.

Furthermore, online peer-feedback activities could be employed in all levels and modes of education to enhance writing in foreign language as demonstrated by (Pol et al., 2008, p. 1804). I am developing a program that employs online essay writing, peer-feedback, self-review,

---

[43] Source: http://download.inep.gov.br/acoes_internacionais/pisa/resultados/2013/country_note_brazil_pisa_2012.pdf

[44] Source: http://agenciabrasil.ebc.com.br/educacao/noticia/2015-01/resultado-do-enem-mostra-fragilidade-na-leitura-e-na-escrita-dizem

[45] Source: http://www.qedu.org.br/brasil/censo-escolar?year=2015&dependence=0&localization=0&education_stage=0&item=

and rewriting with a group of advanced learners of English as a foreign language.

7.3 LIMITATIONS OF THE STUDY

One of the limitations of this study concerns the use of two surveys (one pre-course and the other post-course) for the students in Coursera. This design might have influenced the number of participants. However, this was necessary due to requirements of the program, as elucidated in the Method chapter.

Another limitation regards the reduced availability to financial resources to invest in adequate software to conduct research. SPSS, Adobe Pro, and EndNote already represent a considerable monthly expense. However, a software such as ATLAS.ti or NVivo would be significant to analyze qualitative data. It could show data organized in different ways and reveal insights that can remain hidden by the manual organization.

7.4 SUGGESTIONS FOR FURTHER RESEARCH

As educational technology is evolving and access to Internet is increasing in all regions of Brazil, more pieces of research like this one employing online peer-feedback are definitely necessary. It would be especially relevant to research a blended course of language teacher formation to compare the results with this investigation. Moreover, considering the positive outcomes of employing online peer-to-peer activity, this theme should be researched in all modes of education and with students of all levels such as in higher education with graduate and undergraduate students and with students from high school. There is a lack of research on the impact that this kind of activity could demonstrate on the witting outcomes of high school students in Brazil. In the same way, there is an absence of investigations employing online peer-review activity on the development on the writing in a foreign language.

Additionally, as students demonstrated a high appreciation for providing feedback, demonstrating that they were more satisfied with giving than with receiving feedback, further exploration should analyze to what extend students implement the feedback they receive and verify what is the amount of influence of the following on their rewriting process: the lessons learned by providing feedback, the lessons learned from the received feedback, and the rubrics and review criteria.

Furthermore, research as the one developed in this dissertation should be conducted by a group of researchers in order to develop further investigations such as social network analysis. A group of researchers at the University of Illinois at Urbana-Champaign, guided by Prof. William Cope, are investigating how to employ big data to conduct social network analysis, as illustrated in Figure 35.

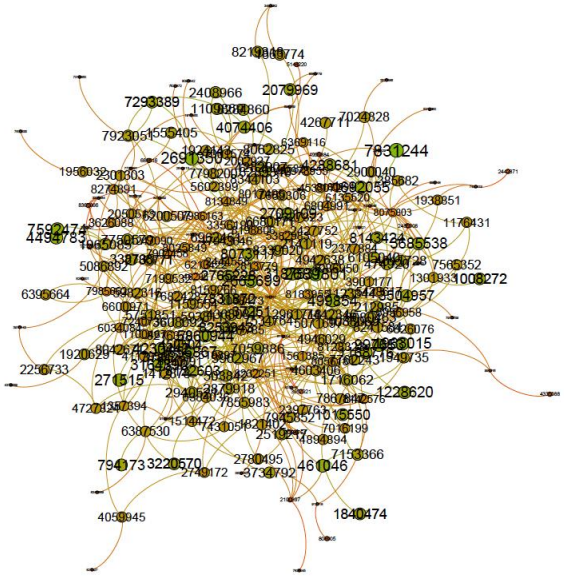


Figure 35. An example of social network analysis
Source: University of Illinois Urbana–Champaign; Prof. Cope's research group

Figure 35 is an example of one type of social network analysis and it shows the relationship among students discussing on the forum about the case study writing. Therefore, the impact of these relations on the students' development would be enlightening. After understanding the dynamics of these relations, it will be possible to conduct this network analysis during the development of the course. The objective, in the future, is to identify students that are disseminators of ideas and employ their skills to enhance learning to all students. The facilitator of the course will be able to make simultaneous informed pedagogical decisions in the online educational environment.

However, this entire discussion as well as new technologies and new pedagogical approaches depend on an essential element to be successful: human preparedness. Therefore, all the participants of the educational process have to be at least willing to improve as human beings, which requires both reflection and action. After all, borrowing again Marie Sklodowska-Curie's words, as stated in the epigraph of this dissertation, "You cannot hope to build a better world without improving the individuals. To that end each of us must work for his own improvement, and at the same time share a general responsibility for all humanity…"[46]

[46] Source: https://www.aip.org/history/exhibits/curie/brief/06_quotes/quotes_03.html

REFERENCES

Akeroyd, J. (2005). Information management and e-learning: Some perspectives. *Aslib Proceedings, 57*(2), 10.

Alonso, K. M. (2008). Tecnologias da Informação e Comunicação e Formação de Professores: Sobre Rede e Escolas. *Educação & Sociedade, 29*(104 Special), 22.

Araújo, R. A. G. S. (2011). *Políticas para a Formação de Professores a Distância: um estudo realizado em um Curso de Pedagogia de uma instituição particular de ensino.* (Mestrado em Educação Mestrado), Pontifícia Universidade Católica de Minas, Belo Horizonte. Retrieved from http://www.biblioteca.pucminas.br/teses/Educacao_AraujoRAGS_1.pdf

Athias, M. F. (2010). *Licenciatura em matemática na modalidade de educação a distância: um desafio para a formação de professores.* (Mestre em Educação Matemática), Pontifícia Universidade Católica de São Paulo, São Paulo. Retrieved from http://www.sapientia.pucsp.br//tde_busca/arquivo.php?codArquivo=11885

Banco_de_Teses. from http://capesdw.capes.gov.br/?login-url-success=/capesdw/

Barreto, R. G. (2003). Tecnologias na formação de professores: o discurso do MEC. *Educação e Pesquisa, 29*(2), 16.

Barreto, R. G. (2010). A formação de professores a distância como estratégia de expansão do ensino superior. *Educação & Sociedade, 31*(113), 20.

Bele, J., & Rugelj, J. (2007). Blended learning - an opportunity to take the best of both worlds. *International Journal of Emerging Technologies in Learning (iJET), 2*(3).

Bell, F. (2010a). Connectivism: Its place in theory-informed research and innovation in technology- enabled learning. *The International Review of Research in Open and Distance Learning, 12*(3), 21.

Bell, F. (2010b). *Network theories for technology-enabled learning and social change: Connectivism and actor network theory.* Paper presented at the 7th International Conference on Networked Learning 2010, University of Lancaster.

Belloni, M. L. (2001). *Educação a distância* (2 ed.). Campinas: Autores Associados.

Belloni, M. L. (2002). Ensaio sobre a educação a distância no Brasil. . *Educação & Sociedade*, *23*(78), 26.

Benevenutti, Z. M. S. (2011). *O processo de ensinar e de aprender nos dizeres do acadêmico e das acadêmicas de um curso de pedagogia a distância.* (Mestre em Educação), Universidade Regional de Blumenau, Blumenau. Retrieved from http://www.sed.sc.gov.br/secretaria/documentos/doc_download/2329-zilma-monica-sansao-bevenutti

Berg, J., & van_Haren, R. (2014). *Slides from personal presentation Scholar workshop*.

Berge, Z. L. (2013). Bariers to communication in distance education. *Turkish Online Journal of Distance Education*, *14*(1).

Bernstein, B. (1990). *Class, Codes and Control: The structuring of pedagogic discourse* (Vol. 4). London: Routledge.

Bernstein, B. (2000). *Pedagogy, symbolic control, and identity: Theory, research, critique* (Revised ed.). Lanham: Rowman & Littlefield.

Butin, D. W. (2012). What MIT should have done. *eLearn Magazine*.

Cabiria, J. (2012). *Connectivist learning environments: Massive open online courses.* Paper presented at the The 2012 World Congress in Computer Science Computer Engineering and Applied Computing, Las Vegas.

Carr-Chellman, A., & Duchastel, P. (2000). The ideal online Course. *British Journal of Educational Technology*, *31*(3), 13.

Carvalho, A. B. G. (2009). *A educação a distância e a formação de professores na perspectiva dos estudos culturais.* (Doutor em Educação Doutorado), Universidade Federal da Paraíba. Retrieved from http://www.dominiopublico.gov.br/pesquisa/DetalheObraForm.do?select_action=&co_obra=188750

Cheng, K.-H., Liang, J.-C., & Tsai, C.-C. (2015). Examining the role of feedback messages in undergraduate students' writing performance during an online peer assessment activity. *Internet and Higher Education*, *25*, 7.

Cope, B., & Kalantzis, M. (2008). *Ubiquitous Learning: An Agenda for Educational Transformation.* Paper presented at the 6th International Conference on Networked Learning, Halkidiki, Greece.

Cope, B., & Kalantzis, M. (2013). Towards a New Learning: the Scholar social knowledge workplace, in theory and practice. *E-Learning and Digital Media*, *10*(4), 25.

Cope, W. (2016). Towards Reflexive Pedagogy. Retrieved from https://cgscholar.com/community/community_profiles/new-learning/community_updates/37105

Cormier, D. (2008). The CCK08 MOOC - Connectivism course, 1/4 way. Retrieved from http://davecormier.com/edblog/2008/10/02/the-cck08-mooc-connectivism-course-14-way/

Dabbasgh, N. (2005). Pedagogical models for e-learning: A theory-based design framework. *International Journal of Technology in Teaching and Learning, 1*(1), 20.

Dawson, P. (2015). Assessment rubrics: towards clearer and more replicable design, research and practice. *Assessment & Evaluation in Higher Education*, 14. doi: 10.1080/02602938.2015.1111294

Decreto_5622. (2005). *Regulamenta o art. 80 da Lei n. 9.394, de 20 de sezembro de 1996, que estabelece as diretrizes e bases da educação nacional.* Brasília: Presidência da República Retrieved from http://www.planalto.gov.br/ccivil_03/_ato2004-2006/2005/Decreto/D5622.htm.

Dellagnelo, A. d. C. K., Muck, K. E., & Abreu, B. B. (2012). Reflexões acerca das demandas dos alunos relativas às práticas pedagógicas em uma disciplina do EaD: particularizando a autonomia. *Anais IV SEPEaD*, 7.

Denisczwicz, M., & Kern, V. M. (2013). Indicadores de gestão na revisão por pares: confiabilidade da revisão recíproca anônima de propostas de mestrado. *Liinc em Revista, 9*(1), 13.

Dornyei, Z. (2007). Qualitative, quantitative, and mixed methods research *Research Methods in Applied Linguistics*. Oxford: Oxford University Press.

Downes, S. (2007). What Connectivism is. Retrieved from http://halfanhour.blogspot.com.br/2007/02/what-connectivism-is.html

Downes, S. (2008). Places to go: Connectivism & connective knowledge. *Innovate, 5*(1).

e-MEC. Retrieved February 20, 2013, 2013, from http://emec.mec.gov.br

Eisenhart, M. A., Shrum, J. L., Harding, J. R., & Cuthbert, A. M. (1988). Teacher beliefs: Definitions, findings, and directions. *Educational Policy, 2*(1), 30.

England, L. (2012). Online Distance TESOL in the 21st Century-From the Trench. In L. England (Ed.), *Online Language Teacher*

Education: TESOL Perspectives. News York/London: Routledge.

Fairclough, N. (1992). A social theory of discourse. In N. Fairclough (Ed.), *Discourse and social change*. Cambridge: Pollity Press.

Fernandes, G. W. R. (2007). *Práticas pedagógicas mediatizadas: delineando caminhos para a formação de professores de física na modalidade a distância.* (Mestre), Universidade Federal de Santa Catarina, Florianopolis. Retrieved from http://repositorio.ufsc.br/xmlui/bitstream/handle/123456789/90430/245684.pdf?sequence=1&isAllowed=y

Flew, T. (2013). *New media and the transformation of higher education*. School of Humanities and Cultural Industries, Bath Spa University. Invited PresentationOctober 14, 2013. Retrieved from http://eprints.qut.edu.au/63445/

Formiga, M. (2011). *Panorama Nacional e Internacional de Educação Aberta e a Distância*. Rede EAD Senac. Curso de Especialização em Educação a Distância 2011.

Freeman, D., & Johnson, K. E. (1998). Reconceptualizing the knowledge-base of language teacher education. *TESOL Quaterly, 32*, 21.

Freire, P. (1996). *Pedagogia da autonomia: saberes necessarios à prática educativa*. São Paulo: Paz e Terra.

Freitas, H. C. L. d. (2003). Certificação docente e formação de educador: regulação e desprofissionalização. *Educação & Sociedade, 24*(85), 30.

Freitas, H. C. L. d. (2007). A (nova) política de formação de professores: a prioridade postergada. *Educação & Sociedade, 28*(100), 8.

Gee, J. P. (2013). *The Anti-Education Era*. New York: Palgrave Macmillan.

Gikandi, J. W., Morrow, D., & Davis, N. E. (2011). Online formative assessment in higher education: A review of the literature. *Computers & Education, 57*(4), 19.

Giolo, J. (2008). A educação a distância e a formação de professores. *Educação & Sociedade, 29*, 24.

GloboEducação. Retrieved February 20, 2013, 2013, from http://redeglobo.globo.com/globoeducacao/noticia/2012/09/telecurso-ha- mais-de-30-anos-investindo-em-educacao-distancia.html

Golombek, P., & Doran, M. (2014). Unifying cognition, emotion, and activity in language teacher professional development. *Teaching nd Teacher Education, 39*, 10.

Gomes, R. d. C. G. (2000). *Educação a distância: uma alternativa para a formação de professores e demais profissionais na sociedade do conhecimento.* (Mestre Mestrado), Universidade Federal de Santa Catarina, Florianopolis. Retrieved from http://teses.eps.ufsc.br/defesa/pdf/4930.pdf

Greenberg, K. P. (2015). Rubric Use in Formative Assessment: A Detailed Behavioral Rubric Helps Students Improve Their Scientific Writing Skills. *Teaching of Psychology, 42*(3), 7.

IBGE. (2015). *Acesso à Internet e à Televisão e Posse de Telefone Móvel Celular para Uso Pessoal 2013*. Rio de Janeiro: IBGE Retrieved from http://biblioteca.ibge.gov.br/visualizacao/livros/liv93373.pdf.

Johnson, K. E. (1999). *Understanding language teaching: reasoning in action*. Boston: Heinle & Heinle Publishers.

Johnson, K. E. (2009). *Second language teacher education: A sociocultural perspective*. New York/London: Routledge.

Kalantzis, M., & Cope, B. (2012). *New Learning: elements of a science of education.* Cambridge: University of Cambridge Press.

Kern, V. M., Pacheco, R. C. d. S., Saraiva, L. M., & Pernigotti, J. M. (2007). Peer Review in Computer Science: Toward a Regular, Large Scale Educational Approach. In F. M. Mendes & F. V. Brasileiro (Eds.), *Advances in Computer-Supported Collaborative Learning*. Hershey, USA: Idea Group Inc.

Kern, V. M., Pernigotti, J. M., Calegaro, M. M., & Bento, M. (2002, March 17-20). *Peer review in engineering education: Speeding up learning, looking for a paradigm shift.* Paper presented at the INTERTECH '2002 – International Conference on Engineering and Technology Education, Santos - Brazil.

Kern, V. M., Saraiva, L. M., & Pacheco, R. C. d. S. (2003). Peer Review in Education: Promoting Collaboration, Written Expression, Critical Thinking, and Professional Responsibility. *Education and Information Technologies, 8*(1), 10.

Kohl, M. O. (1997). *Vygotsky Aprendizado e desenvolvimento: um processo sócio-histórico* (4th ed.). São Paulo: Scipione.

Kollar, I., & Fischer, F. (2010). Peer assessment as collaborative learning: a cognitive perspective. *Learning and Instruction, 20*(4), 5.

Kop, R., & Fournier, H. (2010). New dimensions to self-directed learning in an open networked learning environment. *International Journal of Self-Directed Learning, 7*(2).

Kop, R., Fournier, H., & Mak, J. S. F. (2011). A pedagogy of abundance or a pedagogy to support human beings? Participant support on massive open online courses. *International Review of Research in Open and Distance Learning, Special Issue - Emergent Learning, Connections, Design for Learning, 12*(7), 19.

Lantolf, J., & Thorne, S. (2006). *Sociocultural Theory and the Genesis of Second Language Development.* New York: OUP.

Lee, J.-K., & Lee, W.-K. (2008). The relationship of e-Learner's self-regulatory efficacy and perception of e-Learning environmental quality. *Computers in Human Behavior, 24*(1), 16.

Leffa, V. J. (2005). Aprendizagem mediada por computador à luz da Teoria da Atividade. *Calidoscópio, 3*(1), 10p.

Lei_9394. (1996). *Estabelece as diretrizes e bases da educação nacional*. Presidência da República Retrieved from http://www.planalto.gov.br/ccivil_03/LEIS/L9394.htm - art80.

Lima, M. J. d. (2003). *Caminhos e Descaminhos da Formação de Professores: Entre o real e o "virtual" da*
educação a distancia. (Mestre em Políticas Públicas Mestrado), Universidade Federal do Ceará, Fortaleza. Retrieved from http://www.uece.br/politicasuece/index.php/arquivos/doc_view/41-mariajanetedelima1?tmpl=component&format=raw

Liyanagunawardena, T. R., Adams, A. A., & Williams, S. A. (2013). MOOCS: A Systematic Study of the Published Literature 2008-2012. *The International Review of Research in Open and Distance Learning, 14*(3).

Locke, L. F., Silverman, S. J., & Spirduso, W. W. (1998) *Reading and understanding research*. Thousand Oaks, CA: Sage Publications.

Luca, N. P. D. (2002). Formação de Professores Exige Rede. *Revista Brasileira de Educação, 20*, 11.

Maciel, I. M. (2006). *Educação a distância e ambiente virtual: construindo significados*. Rede EAD Senac. Curso de Especialização a Distância 2011.

Mackness, J., Mak, S. F. J., & Williams, R. (2010). *The ideals and reality of participating in a MOOC.* Paper presented at the 7th International Conference on Networked Learning 2010, University of Lancaster.

Mak, S. F. J., Williams, R., & Mackness, J. (2010). *Blogs and forums as communication and learning tools in a MOOC.* Paper presented at the Networked Learning Conference, University of Lancaster.

Martelli, I. (2003). *EAD: uma alternativa de políticas educacionais para a formação de professores.* (Doutor em Educação), Universidade Estadual Paulista Julio de Mesquita Filho, Marilia. Retrieved from http://base.repositorio.unesp.br/bitstream/handle/11449/101535/martelli_i_dr_mar.pdf?sequence=1

McAuley, A., Stewart, B., Siemens, G., & Cormier, D. (2010). The MOOC model for digital practice, SSHRC Knowledge Synthesis Grant on the Digital Economy.

McGuire, R. (2014). The Best MOOC Provider: A Review of Coursera, Udacity and Edx. 2015, from http://www.skilledup.com/articles/the-best-mooc-provider-a-review-of-coursera-udacity-and-edx

Ministério_da_Educação_e_Cultura. Retrieved February 20, 2013, 2013, from http://portal.mec.gov.br/index.php?option=com_content&view=article&id=13105&Itemid=8 79

Morgado, L. (2001). O papel do professor em contextos de ensino on-line: problemas e virtualidades. *Discursos*, *3*(Special), 14. http://www.univ-ab.pt/~lmorgado/Documentos/tutoria.pdf

Muck, K. (2015). The Role of Recursive Feedback: A Case Study of e-Learning in Emergency Operations. *The International Journal of Adult, Community, and Professional Learning and Instruction*, *23*(1), 25.

Muck, K., & Sadki, R. (2015). Learning in Emergency Operations: A Case Study of a Cross-Sector Distance Learning Course Organized by the International Federation of Red Cross and Red Crescent Societies (IFRC). LSi.

Muck, K. E. (2010). *How Lessons are Taught: A Case Study of a Linguistic Approach to Teacher's Discourse.* (Mestre em Letras Mestrado), Universidade Federal de Santa Catarina, Florianopolis. Retrieved from http://www.tede.ufsc.br/teses/PLLE0452-D.pdf

Munhoz, A. S. (2000). *Uma proposta para formação de professores para educação a distância.* (Mestre em Engenharia de Produção Mestrado), Universidade Federal de Santa Catarina,

Florianopolis. Retrieved from http://tede.ufsc.br/teses/PEPS5199-D.pdf

Nevado, R. A., Carvalho, M. J. S., & Menezes, C. S. d. (2009). Inivações na formação de professores na modalidade a distância. *ETD-Educação Temática Digital, 10*(2), 20.

Noroozi, O., Biemans, H., & Mulder, M. (2016). Relations between scripted online peer feedback processes and quality of written argumentative essay. *Internet and Higher Education, 31*, 12.

Orsmond, P., Merry, S., & Reiling, K. (1996). The Importance of Marking Criteria in the Use of Peer Assessment. *Assessment & Evaluation in Higher Education, 21*(3).

Paechter, M., Maier, B., & Macher, D. (2010). Students' expectations of, and experiences in e-learning: Their relation to learning achievements and course satisfaction. *Computers & Education, 54*, 8.

Palloff, R. M., & Pratt, K. (2002). *Construindo Comunidades de Aprendizagem no Ciberespaço: Estratégias eficientes para a sala de aula on-line* (V. Figueira, Trans.). Porto Alegre: Artmed.

Pol, J. v. d., Berg, B. A. M. v. d., Admiraal, W. F., & Simons, P. R. J. (2008). The nature, reception, and use of online peer feedback in higher education. *Computers & Education, 51*, 14.

Portal_de_Periódicos. from http://www.periodicos.capes.gov.br/

Reis, J. d. S. (2003). Reformas do Estado e da educação e as políticas públicas para a formação de professores a distância: implicações políticas e teóricas. *Revista Brasileira de Educação, 24*, 17.

Rodriguez, C. O. (2012). MOOCs and the AI-Stanford like courses: Two successful and distinct course formats for massive open online courses. *European Journal of Open, Distance and E-Learning*, 13.

Sá, R. A. d. (2007). *Educação a distancia : estudo exploratorio e analitico de curso de graduação na area de formação de professores.* (Doutor em Educação Doutorado), Universidade Estadual de Campinas, Faculdade de Educação, Campinas, SP. Retrieved from http://www.bibliotecadigital.unicamp.br/document/?code=vtls000416443&fd=y

Schaffhauser, D. (2014). Georgia Tech MOOC-Based Degree Program Turns Away Nearly 2,000 Applicants. 2015, from http://campustechnology.com/articles/2014/01/21/georgia-tech-

mooc-based-degree-program-turns-away-nearly-2000-applicants.aspx
Scheibe, L. (2006). Formação de Professores: Dilemas da Formação Inicial à Distância. *Educere et Educare, 1*(2), 14.
Schweigert, W. A. (1994). Introduction to the Scientific Method *Research methods and statistics for psychology*. Pacific Grove, CA: Brooks/Cole Publishing Company.
Shah, D. (2014). Coursera, the largest MOOC provider crosses 10 million students, earns $1M+ in monthly revenues. 2015, from https://http://www.class-central.com/report/coursera-10-million-students/
Silva, E. F. (2007). *A hora e a vez do preceptor em educação a distância: novos olhares sobre sua formação, trabalho e identidade.* (Mestrado em Educação Mestrado), Universidade de Uberaba. Retrieved from http://www.dominiopublico.gov.br/download/texto/cp064498.pdf
Silva, M. L. R. d., & Mercado, L. P. L. (2010). A interação professor-aluno-tutor na educação on-line. *Revista Eletrônica de Educação, 4*(2), 27.
Stewart, B. (2010). Social media literacies and perceptions of value in open online courses. .
Stodel, E. J., Thompson, T. L., & MacDonald, C. J. (2006). Learners' Perspectives on What is Missing from Online Learning: Interpretations through the Community of Inquiry Framework *International Review of Research in Open and Distance Learning, 7*(3), 24.
Topping, K. (1998). Peer Assessment Between Students in Colleges and Universities. *Review of Educational Research, 68*(3), 28.
Toschi, M. S. (1999). *Formação de professores reflexivos e TV Escola: equívocos e potencialidades em um programa governamental de educação a distância* (Doutor em Educação), Universidade Metodista de Piracicaba, Piracicaba. Retrieved from http://www.dominiopublico.gov.br/download/texto/me000640.pdf
Tschofen, C., & Mackness, J. (2012). Connectivism and dimensions of individual experience. *The International Review of Research in Open and Distance Learning, 13*(1), 19.
Universidade_Aberta_do_Brasil. Retrieved February 20, 2013, 2013, from

http://www.uab.capes.gov.br/index.php?option=com_content&view=article&id=6&Itemid=1 8

van_Haren, R. (2015). Educational Blog - Private Access.

Velloso, R. V. (2012). Desafios para a formação de professores nas universidades públicas. *Revista Eletrônica de Educação, 6*(2).

Vygotsky, L. S. (1978). Interaction between learning and development. In M. Gauvain & M. Cole (Eds.), *Readings on the Development of Children, 1997*, (2nd ed.). New York: W. H. Freeman and Company. (Reprinted from: Mind and Society. Cambridge, MA: Harvard University Press).

Vygotsky, L. S. (1981). The genesis of higher mental function. In J. V. Wertsch (Ed.), *The concept of activity in Soviet psychology* Armonk, NY: Sharpe.

Vygotsky, L. S. (1986). *Thought and language.* (A. Kozulin, Trans.). Cambridge: MIT Press.

Warschauer, M., & Meskill, C. (2000). Technology and second language learning.

Wertsch, J. V. (2007). *The Cambridge Companion to Vigotsky* (H. Daniels, M. Cole & J. V. Wertsch Eds.). Cambridge: CUP.

White, C. (2003). *Language teaching in distance education*. Cambridge: CUP.

White, S., Davis, H., Dickens, K., & Fielding, S. (2013). Crafting a Rich and Personal Blending Learning Environment: An Institutional Case Study from a STEM perspective. *5th International Conference on Computer Supported Education - CSEDU 2013*.

Yang, Y.-F. (2016). Transforming and constructing academic knowledge through online peer feedback in summary writing. *Computer Assisted Language Learning, 29*(4), 20.

Yu, F.-Y., & Wu, C.-P. (2013). Predictive Effects of Online Peer Feedback Types on Performance Quality. *Educational Technology & Society, 16*(1), 10.

APPENDICES

Page intentionally left blank.

Appendix A - Pilot study: Pre-course survey

Wednesday, March 12, 2014 2:51:34 PM CDT Signed in as *Katia Muck* Help | Sign Out

Scholar Survey

Main | My Content | Edit Survey | Survey Preview

Title: FACT/ERU Learning Pre-Course Survey (Nov/2013)

Consent Form

Question 1

Dear Volunteer Participant:

Thank you for your interest in participating in a pilot short course on FACT/ERU Learning through the IFRC. We are a team of education researchers based at the University of Illinois examining ways to improve how global volunteers and members of National Societies learn IFRC policies and procedures in diverse local contexts. We would like to collect data about your participation to be used for education research, journal articles, and the improvement of online learning for humanitarian action.

The IFRC will be using a writing platform called Scholar to complete assignments for the course. With your consent, your writing artifacts (for example, weekly posts, case studies, and reviews) will be collected through Scholar. We also ask that you complete an anonymous survey about your interests in FACT/ERU Learning, your motivations for learning, and your experiences with online learning. A sample of volunteer participants will be asked to participate in individual or group interviews on the subject.

All data, feedback, and observations will be saved in a secure and private place, accessible only by course admins and our research team. All information collected will be identifiable only by confidential identification numbers created by the research team. Pseudonyms or codes will be substituted for the names of participants, interview subjects and the National Societies to protect confidentiality. Group-interview participants will be asked to honor the confidentiality of the shared responses and keep the sessions private, however, we cannot guarantee that one or more group members won't relate 'who said what' after the session is over.

Risk to volunteer participants is typically no greater than what would normally be experienced through the course of participation in an online training course. Most of the data collected is part of regular coursework. Other data collection (interviews and surveys) is optional.

Your participation in this project is completely voluntary, and you may stop taking part at any time. In cases where participants do not consent to data collection, volunteer participants will still use Scholar for their course assignments, but the research team will collect no data and the volunteer participant will not participate in surveys or interviews. Participation/non-participation will have no effect on your future relationship with the IFRC or your assessment in this online training course.

If you have any questions about the project, please feel free to contact the Scholar Research Team by mail, e-mail, or telephone:

Dr. William Cope, *Principal Investigator/Professor* & Katia E. Muck, *Investigator*

#171 Children's Research Center, 51 Gerty Drive, Champaign, IL, 61820 USA

217-418-6000 / muck@illinois.edu / billcope@illinois.edu

Please respond YES or NO.

My writing and data related to my writing may be anonymously used for research purposes.

- ◯ Yes
- ◯ No

Experience and Skills

Question 2

What is your organizational affiliation?

- ☐ FACT roster member
- ☐ ERU roster member
- ☐ RDRT/RIT roster member
- ☐ National Society volunteer
- ☐ National Society staff
- ☐ IFRC Sretariat
- ☐ ICRC
- ☐ International NGO

- [ ] United Nations
- [ ] Other. What?

Question 3

My work around emergency operations is…

- [ ] Local (branch)
- [ ] Regional
- [ ] National (headquarters)
- [ ] International
- [ ] Other. Please explain.

Question 4

How many years have you been in Red Cross Red Crescent?

- ◯ Less than one year
- ◯ 1-2 years
- ◯ 3-5 years
- ◯ 6-10 years
- ◯ 10+ years

Question 5

How many years of experience have you had in emergency operations?

- ◯ 1-2 years
- ◯ 3-5 years
- ◯ 6-10 years
- ◯ 10+ years

Question 6

How many emergency operations have you participated in?

Question 7

State the types of emergencies for which you have experience and skills.

Question 8

What is your national society?

- ◯ Afghan Red Crescent Society
- ◯ Albanian Red Cross
- ◯ Algerian Red Crescent
- ◯ American Red Cross
- ◯ Andorran Red Cross
- ◯ Angola Red Cross

- Antigua and Barbuda Red Cross Society
- Argentine Red Cross
- Armenian Red Cross Society
- Australian Red Cross
- Austrian Red Cross
- Bahamas Red Cross Society
- Bahrain Red Crescent Society
- Bangladesh Red Crescent Society
- Baphalali Swaziland Red Cross Society
- Barbados Red Cross Society
- Belarus Red Cross
- Belgian Red Cross
- Belize Red Cross Society
- Bolivian Red Cross
- Botswana Red Cross Society
- Brazilian Red Cross
- British Red Cross
- Brunei Darussalam Red Crescent Society
- Bulgarian Red Cross
- Burkinabe Red Cross Society
- Burundi Red Cross
- Cambodian Red Cross Society
- Cameroon Red Cross Society
- Canadian Red Cross Society
- Central African Red Cross Society
- Chilean Red Cross
- Colombian Red Cross Society
- Comoros Red Crescent
- Congolese Red Cross
- Cook Islands Red Cross
- Costa Rican Red Cross
- Croatian Red Cross
- Cuban Red Cross
- Cyprus Red Cross Society
- Czech Red Cross
- Danish Red Cross
- Dominica Red Cross Society
- Dominican Red Cross
- Ecuadorian Red Cross
- Egyptian Red Crescent Society
- Estonia Red Cross
- Ethiopian Red Cross Society
- Fiji Red Cross Society
- Finnish Red Cross
- French Red Cross
- Gabonese Red Cross Society
- Gambia Red Cross Society
- German Red Cross
- Ghana Red Cross Society
- Grenada Red Cross Society
- Guatemalan Red Cross
- Guyana Red Cross Society
- Haiti Red Cross Society
- Hellenic Red Cross
- Honduran Red Cross
- Hungarian Red Cross
- Icelandic Red Cross
- Indian Red Cross Society
- Indonesian Red Cross Society
- Iraqi Red Crescent Society
- Irish Red Cross Society
- Italian Red Cross
- Jamaica Red Cross
- Japanese Red Cross Society
- Jordan National Red Crescent Society
- Kazakh Red Crescent
- Kenya Red Cross Society
- Kiribati Red Cross Society
- Kuwait Red Crescent Society
- Lao Red Cross
- Latvian Red Cross

- Lebanese Red Cross
- Lesotho Red Cross Society
- Liberian Red Cross Society
- Libyan Red Crescent
- Liechtenstein Red Cross
- Lithuanian Red Cross Society
- Luxembourg Red Cross
- Magen David Adom in Israel
- Malagasy Red Cross Society
- Malawi Red Cross Society
- Malaysian Red Crescent Society
- Maldivian Red Crescent
- Mali Red Cross
- Malta Red Cross Society
- Mauritanian Red Crescent
- Mauritius Red Cross Society
- Mexican Red Cross
- Micronesia Red Cross
- Mongolian Red Cross Society
- Moroccan Red Crescent
- Mozambique Red Cross Society
- Myanmar Red Cross Society
- Namibia Red Cross
- Nepal Red Cross Society
- Netherlands Red Cross
- New Zealand Red Cross
- Nicaraguan Red Cross
- Nigerian Red Cross Society
- Norwegian Red Cross
- Pakistan Red Crescent Society
- Palau Red Cross Society
- Palestine Red Crescent Society
- Papua New Guinea Red Cross Society
- Paraguayan Red Cross
- Peruvian Red Cross
- Philippine Red Cross
- Polish Red Cross
- Portuguese Red Cross
- Qatar Red Crescent Society
- Red Crescent Society of Azerbaijan
- Red Crescent Society of Djibouti
- Red Crescent Society of Kyrgyzstan
- Red Crescent Society of Tajikistan
- Red Crescent Society of the Islamic Republic of Iran
- Red Crescent Society of the United Arab Emirates
- Red Crescent Society of Turkmenistan
- Red Crescent Society of Uzbekistan
- Red Cross of Benin
- Red Cross of Cape Verde
- Red Cross of Chad
- Red Cross of Equatorial Guinea
- Red Cross of Monaco
- Red Cross of Montenegro
- Red Cross of Serbia
- Red Cross of the Democratic Republic of the Congo
- Red Cross of The Former Yugoslav Republic of Macedonia
- Red Cross of the Republic of San Marino
- Red Cross Society of Bosnia and Herzegovina
- Red Cross Society of China
- Red Cross Society of Côte d'Ivoire
- Red Cross Society of Eritrea
- Red Cross Society of Georgia
- Red Cross Society of Guinea
- Red Cross Society of Guinea-Bissau
- Red Cross Society of Niger
- Red Cross Society of Panama
- Red Cross Society of the Democratic People's Republic of Korea
- Red Cross Society of the Republic of Moldova
- Republic of Korea National Red Cross
- Romanian Red Cross
- Russian Red Cross Society

- Rwandan Red Cross
- Saint Kitts and Nevis Red Cross Society
- Saint Lucia Red Cross
- Saint Vincent and the Grenadines Red Cross
- Salvadorean Red Cross Society
- Samoa Red Cross Society
- Sao Tome and Principe Red Cross
- Saudi Red Crescent Authority
- Senegalese Red Cross Society
- Seychelles Red Cross Society
- Sierra Leone Red Cross Society
- Singapore Red Cross Society
- Slovak Red Cross
- Slovenian Red Cross
- Solomon Islands Red Cross
- Somali Red Crescent Society
- South African Red Cross Society
- South Sudan
- Spanish Red Cross
- Sri Lanka Red Cross Society
- Sudanese Red Crescent
- Suriname Red Cross
- Swedish Red Cross
- Swiss Red Cross
- Syrian Arab Red Crescent
- Tanzania Red Cross National Society
- Thai Red Cross Society
- Timor-Leste Red Cross Society
- Togolese Red Cross
- Tonga Red Cross Society
- Trinidad and Tobago Red Cross Society
- Tunisian Red Crescent
- Turkish Red Crescent Society
- Tuvalu Red Cross Society
- Uganda Red Cross Society
- Ukrainian Red Cross Society
- Uruguayan Red Cross
- Vanuatu Red Cross Society
- Venezuelan Red Cross
- Vietnam Red Cross Society
- Yemen Red Crescent Society
- Zambia Red Cross Society

Your Focus

Question 9

What do you hope to get out of this course?

Question 10

Why did you choose to apply for this course?

- [ ] It is related to my work
- [ ] It is related to my volunteering
- [ ] I have a personal interest
- [ ] It was required by my manager
- [ ] Other. Please explain.

Question 11

How much time do you expect to spend on this course per week?

- ◯ Less than 1 hour
- ◯ 1-2 hours
- ◯ 2-4 hours
- ◯ More than 4 hours

Question 12

Your line manager ...

- ☐ Has been informed that you are taking this course
- ☐ Supports you taking this course
- ☐ Has allocated work time that you can dedicate to the course work
- ☐ Has not approved taking this course
- ☐ Tell us more…

Your Familiarity with Online Environments

Question 13

What online media to you use?

	Never	Occasionally	Frequently	Every day
Facebook	◯	◯	◯	◯
Twitter	◯	◯	◯	◯
Google Drive (Google Docs)	◯	◯	◯	◯
Online Shopping (e.g. Amazon, e-Bay)	◯	◯	◯	◯
Photography (e.g. Flickr, Instagram)	◯	◯	◯	◯
Blogging (posting or commenting on posts)	◯	◯	◯	◯

Tell us more ...

Question 14

How would you rate your level of experience and comfort with e-learning environments?

- ◯ Very comfortable, considerable experience
- ◯ Quite comfortable, some experience
- ◯ Limited experience in e-learning environments
- ◯ I am new to e-learning

Question 15

Tell us about your experience using online platforms, name specific platforms in which you have worked.

Your Background

Question 16

What is your nationality?

Question 17

What is your ethnic background?

Question 18

What is your age?

- ◯ Under 18
- ◯ 18-29
- ◯ 30-45
- ◯ 45-60
- ◯ Over 60

Question 19

What is your gender?

- ◯ Female
- ◯ Male

Question 20

My first language (mother tongue) is…

- ◯ English
- ◯ French
- ◯ Spanish
- ◯ Arabic
- ◯ Russian
- ◯ Chinese
- ◯ Other. What?

Question 21

I have completed ...

- [ ] Primary school
- [ ] Secondary school
- [ ] Some university courses
- [ ] Bachelor's degree
- [ ] Master's degree
- [ ] Doctorate (Ph.D.)
- [ ] Other. Please explain.

Now go to Scholar and update you profile information.This is important to build relationships with other members of your course.

back

Appendix B - Pilot study: Post-course survey

Wednesday, March 12, 2014 2:50:13 PM CDT Signed in as *Katia Muck* Help | Sign Out

Scholar Survey

Main | My Content | Edit Survey | Survey Preview

Title: FACT/ERU Learning Post-Course Survey (Dez/2013)

Question 1

Dear Volunteer Participant:

Thank you for your interest in participating in a pilot short course on FACT/ERU Learning through the IFRC. We are a team of education researchers based at the University of Illinois examining ways to improve how global volunteers and members of National Societies learn IFRC policies and procedures in diverse local contexts. We would like to collect data about your participation to be used for education research, journal articles, and the improvement of online learning for humanitarian action.

The IFRC will be using a writing platform called Scholar to complete assignments for the course. With your consent, your writing artifacts (for example, weekly posts, case studies, and reviews) will be collected through Scholar. We also ask that you complete an anonymous survey about your interests in FACT/ERU Learning, your motivations for learning, and your experiences with online learning. A sample of volunteer participants will be asked to participate in individual or group interviews on the subject.

All data, feedback, and observations will be saved in a secure and private place, accessible only by course admins and our research team. All information collected will be identifiable only by confidential identification numbers created by the research team. Pseudonyms or codes will be substituted for the names of participants, interview subjects and the National Societies to protect confidentiality. Group-interview participants will be asked to honor the confidentiality of the shared responses and keep the sessions private, however, we cannot guarantee that one or more group members won't relate 'who said what' after the session is over.

Risk to volunteer participants is typically no greater than what would normally be experienced through the course of participation in an online training course. Most of the data collected is part of regular coursework. Other data collection (interviews and surveys) is optional.

Your participation in this project is completely voluntary, and you may stop taking part at any time. In cases where participants do not consent to data collection, volunteer participants will still use Scholar for their course assignments, but the research team will collect no data and the volunteer participant will not participate in surveys or interviews. Participation/non-participation will have no effect on your future relationship with the IFRC or your assessment in this online training course.

If you have any questions about the project, please feel free to contact the Scholar Research Team by mail, e-mail, or telephone:

Dr. William Cope, *Principal Investigator/Professor* & Katia E. Muck, *Investigator*

#171 Children's Research Center, 51 Gerty Drive, Champaign, IL, 61820 USA

217-418-6000 / muck@illinois.edu / billcope@illinois.edu

Please respond YES or NO.

My writing and data surrounding my writing may be anonymously used for research purposes.

- ◯ Yes
- ◯ No

Your experience with the course in general

Question 2

How much time did you spend on the course per week?

- ◯ Less than 1 hour
- ◯ 1-2 hours
- ◯ 2-4 hours
- ◯ More than 4 hours

Question 3

I am satisfied that I achieved my goals with the online course.

- ◯ Strongly agree
- ◯ Agree
- ◯ Disagree
- ◯ Strongly disagree

Question 4

What was the most beneficial thing you learned from this course? (For example, skills, knowledge, understanding, contacts, resources, other?)

Question 5

How confident did you feel with your English skills during class activities? (For instance, Live Learning Moments, writing the Case Study and peer reviews).

Question 6

I am satisfied with the FACT/ERU Learning course overall.

- ◯ Strongly agree
- ◯ Agree
- ◯ Disagree
- ◯ Strongly disagree

Question 7

How was it similar/different to other courses you have taken? Which did you prefer? Why?

Your experience with the writing and reviewing process

Question 8

I enjoyed the experience of writing the case study.

- ◯ Strongly agree
- ◯ Agree
- ◯ Disagree
- ◯ Strongly disagree

Question 9

Describe your experience in writing your case study. How did it go for you? What did you discover?

Question 10

I enjoyed the experience of providing feedback through peer reviews to my colleagues.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

Question 11

Identify 3 things that you learned through giving feedback to your colleagues.

Question 12

The feedback I received from my reviewers were helpful.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

Question 13

Describe the most and the least valuable feedback you received.

Question 14

Providing feedback to my colleagues through peer reviews helped me to think about my own case study.

- Strongly agree
- Agree
- Disagree
- Strongly disagree

Question 15

After receiving the feedback from your colleagues you revised your case study. What aspects of the Scholar environment helped you when revising your own case study.

Question 16

You used rubrics to write your case study and to revise your colleague's case study. How did the rubrics support you case writing?

Your experience using Scholar

Question 17

I became comfortable using the Scholar e-learning environment.

- ○ Strongly agree
- ○ Agree
- ○ Disagree
- ○ Strongly disagree

Question 18

What was challenging? What was easy? (For instance, in Community, Creator, Peer Review). Please comment on any technical issues you experienced in the course.

Question 19

Was the discussion in Community useful? Why/why not? If yes, how did it help you?

Your contribution for future courses

Question 20

Would you be willing to participate in a follow-up interview? (May be audio or video recorded).

- ○ Yes
- ○ No

Question 21

How would you like to see this course improved in the future?

Question 22

Would you like to take additional courses in which you review each other's case study?

- ○ Yes

No
Select one of the above responses and comment on your response.

Question 23

Would you like to have Live Learning Moments to share lessons learned with people coming back from emergency operations like the current one in the Philippines?

Yes
No
Select one of the above responses and comment on your response.

Question 24

Would you like to stay connected through the Scholar community for open discussion of humanitarian issues?

Yes
No
Select one of the above responses and comment on your response.

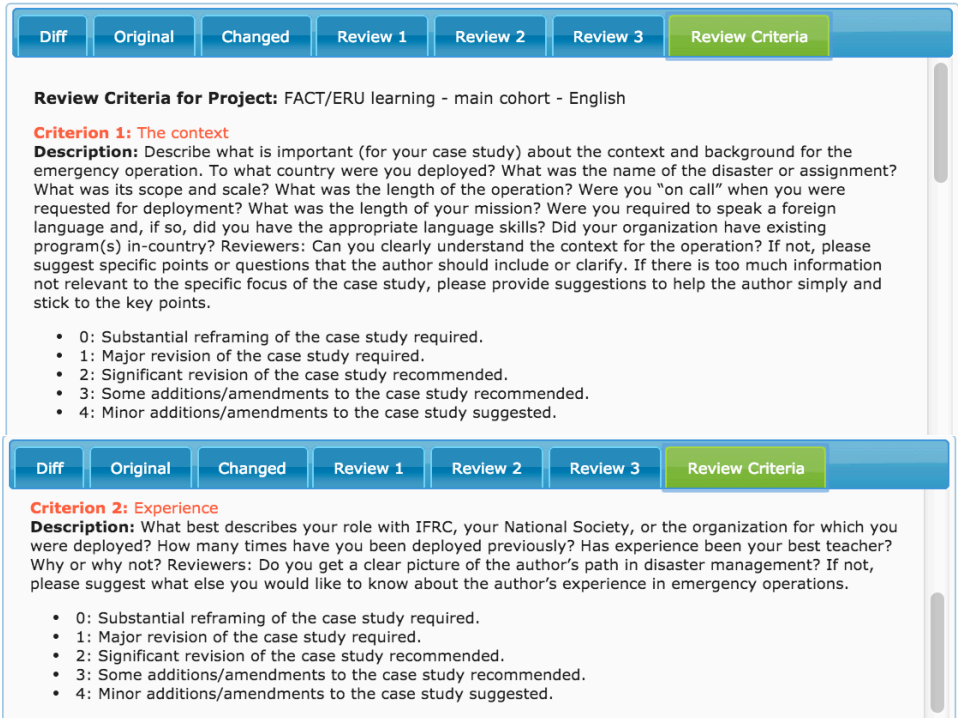
Question 25

Would you like to take an online course in a language other than English?

Yes
No
If yes, specify which one.

back

Appendix C - Pilot Study: Review criteria for the case study



Diff | Original | Changed | Review 1 | Review 2 | Review 3 | Review Criteria

Criterion 3: Training and preparedness

Description: Describe how you trained and prepared specifically for the operation. Summarize the formal (classroom, online) training and preparation you received or attended as preparation for this operation. In addition, describe the informal learning that helped you prepare for the operation (examples: briefings, phone calls, web searches, secondary data analysis, etc.). Describe the relevance and quality of your pre-deployment briefings and the information you were provided for relevant areas (ex : security, region/program, operations, communications, information resources, technical). You may also consider how your training and preparedness addressed: foundational knowledge (basic everyone needs to know), current knowledge (up-to-date information, skills, techniques, etc.), and technical skills (in your area of work). Reviewers: Does the author clearly distinguish between formal and informal learning? As informal learning is more difficult to assess or describe, please provide suggestions or questions to the author to ensure that all forms of learning are included.

- 0: Substantial reframing of the case study required.
- 1: Major revision of the case study required.
- 2: Significant revision of the case study recommended.
- 3: Some additions/amendments to the case study recommended.
- 4: Minor additions/amendments to the case study suggested.

Diff | Original | Changed | Review 1 | Review 2 | Review 3 | Review Criteria

Criterion 4: Field-based learning

Description: Tell us what you learned once you got to the field. Did you encounter any major issues or concerns upon your arrival in-country ? Was an orientation meeting/operational briefing held upon your arrival ? Did you have a National Society or other community/organizational counterpart? What sector or role were you deployed in? How did you apply your knowledge, skills and competencies (behaviors)? To what extent were you truly prepared? When did experience not prove helpful, but instead you had to adapt or learn something new? What were the unexpected challenges/problems that you had to solve, and how did you do it? How did you actually fill in the gaps in your knowledge, skills and behaviors (competencies)? Who helped you do it (Other delegates? Beneficiaries? National/local staff and volunteers? Partner agencies? HQ/secretariat? Other stakeholders?) and how did you work together? How did you fit into the team? Did you understand your team's organization/roles and the field operation structure? How frequently were information and activity reports generated by you or your team? How frequently were team meetings held? What did you learn in the field about leadership and team work (with colleagues, community, beneficiaries)? Review the IFRC Team Leadership Competencies (available in Shares) and identify specific indicative strategic, relational, or operations skills that you developed. Reviewers: Does the author clearly identify the gap(s) between training/preparedness and the field-based learning? Is the learning process described? Please provide suggestions and inputs to relate the training/preparedness section to what happened in the field. Does the author focus on how they developed specific skills and behaviors as they learned? If not, please ask the author to describe how the skills and behaviors were developed.

- 0: Substantial reframing of the case study required.
- 1: Major revision of the case study required.
- 2: Significant revision of the case study recommended.
- 3: Some additions/amendments to the case study recommended.
- 4: Minor additions/amendments to the case study suggested.

- 0: Substantial reframing of the case study required.
- 1: Major revision of the case study required.
- 2: Significant revision of the case study recommended.
- 3: Some additions/amendments to the case study recommended.
- 4: Minor additions/amendments to the case study suggested.

Criterion 5: How to improve

Description: Share your insights, analysis and reflection as to how training/preparedness could have been improved for you in this operation. What were the lessons learned for you personally from this operation? How did your learning in this operation lead to changes in your behavior or performance in other operations? Were you able to share your learnings with your line manager and/or the rest of your team? What was missing from your initial training and preparedness? If you were asked how to improve future training and preparedness for similar operations, what would you recommend? Did you get a sense that medium-long term programming will be established following your deployment? Did you hold a handover/transition meeting prior to your departure? Did the training your previously received prepare you for your deployment? Do you feel that what you learned during the operation became part of the "institutional memory"? Reviewers: Does the author clearly link the training and preparedness with the field-based learning? Are the analysis and conclusions drawn logical and clearly expressed? If you have gained insights from your own experience or from reading the case studies, please provide them as inputs to the author.

- 0: Substantial reframing of the case study required.
- 1: Major revision of the case study required.
- 2: Significant revision of the case study recommended.
- 3: Some additions/amendments to the case study recommended.
- 4: Minor additions/amendments to the case study suggested.

Syllabus

Help

e-Learning Ecologies: An Introduction

On this page:

Course Description

This course is an introduction to innovative approaches to learning and teaching, with a focus on the use of e-learning and social web technologies. Here's an overview of the ideas we will be addressing in the course, in a single graphic.

Course Goals and Objectives

The aims of this course are to:

- Analyze the ways in which e-learning environments can and do change the dynamics from learning in traditional classroom settings (*blended learning*) to more expansive sites, including out-of-class and informal learning (*ubiquitous learning*).
- Explore the range of possibilities in e-learning environments, from what we call *didactic/mimetic teaching* to *collaborative/reflexive learning*.
- Analyze and map e-learning technologies using the *seven affordances* framework.
- Collaboratively locate and document current and emerging e-learning technologies and spaces.

Textbook

If you want to know more about our theory of *new learning*, you may be interested in this book (though there is **no need to purchase it for this course**): *New Learning: Elements of a Science of Education*.

Course Outline

The course consists of 8 weekly modules, each of which will be released to you shortly before the module begins.

Week 1: Conceptualizing Learning

Laying some theoretical foundations. We can do a whole range of different things with learning technologies, ranging from *didactic/mimetic teaching* to *collaborative/reflexive learning*. In this course we're interested in exploring the affordances offered by learning technologies. However, in drawing a distinction between traditional modes of teaching and learning, we don't mean simply to say "out with the old, in with the new." Rather, we want to develop an approach in which didactic/mimetic and collaborative/reflexive pedagogies each have a place. In this perspective we might strategically choose to supplement, extend, and enrich the old with the new.

Week 2: Spatio-Temporal Dimensions of Learning

(Affordance: Ubiquitous Learning)

From learning bounded by the 4 walls of the classroom and cells of the timetable (e.g., classroom-centered blended learning) to learning anywhere, anytime, anyhow.

Week 3: Epistemic Dimensions of Learning

(*Affordance: Active Knowledge Making*)

From passive knowledge consumption, learner-as-knowledge-consumer, absorbing/replicating meanings (e.g., eTextbooks) to learner-as-knowledge-producer, designing meanings.

Week 4: Discursive Dimensions of Learning

(*Affordance: Multimodal Meaning*)

From traditional “academic literacies” (e.g., isolated digital spaces for text, image, video, data, etc.) to new media texts, and multimodal knowledge representations.

Week 5: Evaluative Dimensions of Learning

(*Affordance: Recursive Feedback*)

From retrospective judgment and a managerialist focus on summative assessment (e.g., standardized machine assessments) to formative assessment, prospective, and constructive feedback, big data, and learning analytics.

Week 6: Social Dimensions of Learning

(*Affordance: Collaborative Intelligence*)

From individualized learning (e.g., machine-teaching, intelligent tutors, and self-regulated learning) to collaborative knowledge production and peer-to-peer learning.

Week 7: Cognitive Dimensions of Learning

(*Affordance: Metacognition*)

From single-layered cognition and memory work (e.g., stuff to be e-learned: information, routines, definitions) to thinking about thinking and mnemonic work where external representations are created to assist recall.

Week 8: Diversity Dimensions of Learning

(*Affordance: Differentiated Learning*)

From homogenizing, one-size-fits-all curriculum (e.g., self-paced eTextbooks, week-by-week learning management systems) to differentiated instruction where each learns according to one's need, interest, and identity.

Elements of This Course

Platforms

The course will be mirrored in the Coursera and Scholar platforms. You can choose to participate in either or both platforms. For more information on Scholar, see the **Scholar Platform Information** page.

Note: In order to qualify for a Verified Certificate in this course, you must submit all graded activities through the Coursera platform.

Activities

The course is comprised of the following elements:

- **Lecture videos.** Each week we discuss key concepts through short video lectures. You may either stream these videos for playback within the browser by clicking on their titles, or you can download each video for later offline playback by clicking the download icon.
- **In-lecture questions.** Each lecture has questions associated with it so you can express your opinion and see what others in the course are also thinking. These questions will automatically appear while watching the video if you stream the video through your browser. The questions are

available as a separate downloadable text file for those who prefer to download the videos. These questions do not contribute toward your final assessment in the class.

- **Weekly discussions.** All participants, including Overview (O) participants, are encouraged to comment on the weekly post by the instructor, and the posts made by Intermediate (I) and Advanced (A) participants in the course. The instructor will post the same weekly post in both the Coursera and Scholar platforms. You are welcome to participate in either or both platforms. If you have chosen the Advanced (A) option, you are required to make a post each week. Again, you can do this in either or both platforms. However, if you choose to make your posts in Scholar, in order to receive credit towards passing the class, you should also post the URL of your Scholar post in Coursera. The community, *e-Learning Ecologies MOOC*, in Scholar is public, so others not working in Scholar will be able to access these links. It is very important you add these Scholar links into Coursera, because this is how we track your formal participation. The reason we encourage you to make posts in Scholar is so you can explore more than one e-learning environment and also provide us feedback as part of our own R&D development. You will be contributing valuable feedback as part of these R&D processes. To make an update in Scholar, go to the *e-Learning Ecologies MOOC* community, pull down the menu behind the yellow name bar in the top left, select **Updates**, and add your update.
- **Case Study.** If you choose to participate in the Advanced (A) option, you are required to write a case study. You will explore and document a case study of an e-learning innovation—something in which you have been involved, or which you have observed in a place where you have studied or worked, or an interesting intervention somewhere else that you would like to study in more detail. This may be a piece of software or hardware, a teaching and learning activity that uses technology, or a case study of a class, school, or person using technologies in learning in an innovative way. You will use the *seven affordances* framework to analyze the dynamics of the e-learning ecology that you are investigating. For detailed advice and suggestions about this activity, see the **Case Study Details** page.

Support Our Research!

As we are researchers actively designing and evaluating e-learning environments, we would very much appreciate both your responses to the beginning and end-of-course surveys and your permission to use your data in our research.

Information About Lectures

The lectures in this course contain the most important information you need to know. You can access these lectures via the **All Videos** link in the main menu or via the weekly overview pages (preferred). The following resources accompany each video:

- ▶ The play button will open the video up in your browser window and stream the lecture to you. The duration of the video (in hours-minutes-seconds format) is also listed. Some lectures may include in-video questions as described above. Within the player that appears, you can click the CC button to activate closed captions. English captions are available for all videos. In some cases, the captions have been translated by your peers into other languages and made available to you. Learn more about translating captions into other languages.

- The Lecture Notes or Lecture Slides provide you with a reference of the key points raised in the lecture. In some cases, when the Lecture Notes are presented in a wiki format, you will have the ability to edit the Lecture Notes to provide more details and help out your follow student.
- The Transcript provides you with the text of the speaker's words. It is provided in English only.
- The Download link allows you to download a copy of the file in MP4 format (which most video player software can handle). This option may be useful if you are on a slower Internet connection or prefer to view the videos when not connected to the Internet. Each file is automatically numbered in the order it appears in the course and includes the duration (in hours-minutes-seconds format) in the file name as well.
- If you choose to download the video, you may optionally wish to download the closed-caption SRT file to accompany it. Consult your video player's documentation on how to load the SRT file with your video. SRT files are only available in English.
- Downloaded video files do not include in-lecture questions embedded within them like streamed videos do. However, you can download the in-lecture questions as a separate file.
- Most videos have a discussion forum dedicated to them. This is a great place to discuss any questions you have about the content of the video or share your ideas and responses to the video.

Multiple Ways to Complete This Course (And Multiple Potential Benefits)

This course offers a free, no-risk Signature Track Trial. To qualify for a Verified Certificate, simply start verifying your coursework at the beginning of the course (with no upfront charges), and pay the $49 Signature Track registration fee anytime before the last week of the course. You can delay payment until you're confident you'll pass. Coursera Financial Aid is available to offset the registration cost for students with demonstrated economic needs. If you have questions about this trial, please post here.

If you choose not to verify your work, you can still participate in the complete course. While your final grade will be recorded on your Course Records page, **this course will not offer a Statement of Accomplishment.**

Only those who complete the Advanced (A) level described below will have the chance to receive a Verified Certificate.

This course supports 3 levels of participation:

	Participation Level	Time Estimate	Tasks
	**e-Learning Ecologies Overview (O)**	1 hour per week	• Watch the videos and view the material marked (O) • Comment on each week's post, made by the course admin
	e-Learning Ecologies	3 hours	• Watch the videos and view the material marked (O) and (I) • Comment on each week's post, made

	**Intermediate (I)**	per week	by the course admin • Make a post of your own
	**e-Learning Ecologies Advanced (A)**	8–10 hours per week	• Watch the videos and view the material marked (O), (I), and (A) • Comment on each week's post, made by the course admin • Make a post of your own • Create a Case Study; peer review 3 others' Case Studies; revise your Case Study for web publication • If you are working in Scholar, you can choose to make your personal profile page and published Case Study public and permanently visible on the web.

No matter what level of participation you choose, feel free to explore all of the materials in the course. If you decide you only have time to participate at the Overview level, you can still access Intermediate or Advanced materials that may be of interest to you. Or, if you start off at the Advanced level but find that it is too much of a commitment, you can always drop down to the Intermediate or Overview level.

Shortly after the completion of the course, we will send you an email with a badge corresponding to the level of participation you demonstrated throughout the course.

How to Pass this Course

Participants who complete all the activities required for the Advanced (A) level of this course will be eligible to receive a Verified Certificate. The following table explains what assignments will be graded and when they are due. You should note that the Rough Draft submission in the Scholar Platform is optional, but we hope that it will give you the opportunity to receive valuable feedback that will help you improve your Case Study. Also, while we greatly encourage participants to interact in Scholar, don't forget that participation in the Coursera Discussion Forums is what will be counted for participation towards passing the course. You are welcome to post the URL for your Scholar Posts into the Coursera Discussion Forums as a means of getting credit.

Out of the 100 possible points outlined below, you must earn at least **70 points** to pass the class. Furthermore, you must authenticate yourself when submitting your Case Study submission and pass the class in order to earn a Verified Certificate.

Participation Level	Name of Activity	Total Points	Due Date*
	Complete the Getting to Know Your	Not	Sunday,

A	Classmates Activity (encouraged)	Graded	July 6
O I A	Reply to the Admin Post in the Weekly Discussion Forums	16 (2 points per week)	Sunday, each week
I A	Compose an Original Post in the Weekly Discussion Forums	16 (2 points per week)	Sunday, each week
A	Post Your Ideas for the Case Study in the Forums	2	Sunday, July 6
A	Respond to 3 Forum Posts on Classmates' Ideas for Case Studies	6	Sunday, July 13
A	Submit Your Case Study Rough Draft for Peer Review in Coursera (and optionally, Scholar)	60†	Sunday, July 27
A	Peer Review 3 Classmates' Case Studies in Coursera (and optionally, Scholar if you submitted there)	20% penalty if not completed	Sunday, August 3
A	Revise Your Case Study (and optionally Publish Your Case Study in Scholar)	Not Graded	Sunday, August 10
A	Submit Your Case Study in Coursera	60†	Sunday, August 10
A	Peer Review at least 3 Classmates' Case Studies in Coursera	20% penalty if not completed	Sunday, August 17

† The higher of these 2 scores will be used when calculating your final grade.

* All deadlines are at 11:55 PM Central Time (time zone conversion) unless otherwise noted. While the deadlines are strongly encouraged to keep the class moving, we will give opportunities to learners who join this class late or fall behind to catch up. All Discussion Forums will remain open until August 24, so make sure you submit your posts by that date to receive credit. However, if you are an Advanced (A) participant, you **HAVE** to meet the deadlines for the Case Study submissions and evaluations.

Gaining an Illinois Participation Badge

Quite separately from Coursera's verified certificate, we will be offering recognition for three levels of participation in e-Learning Ecologies: Overview, Introductory and Advanced. This will take the form of 'badges' recording your level of participation in the course. If you would like an Illinois badge, here's what to do: Keep a 'Learning Log' in the form of a diary of posts, comments, feedback etc. that you

have made. At the top of the first page, put your name and email address, as well as the level of participation you felt you achieved (Overview, Introductory and Advanced). Include links and/or cut paste screen images in the order in which you made your contributions. You can do this in any electronic medium you wish (e.g. a Word, HTML), however best you convert to PDF before you send it to us. After the course ends, email your learning log to us at elearningecologies@gmail.com - but no later than by 31 August. We will verify your log and email you your badge by 8 September.

Discussion Forums

Admin Help

The discussion forums are a key element of this course. Be sure to read more about the discussion forums and how you can make the most of them in this class.

Getting and Giving Help

If you need help, you have options! You can get help via any of the following means:

- You can report a specific problem by clicking on the **Help** link at the top right of any course page.
- Use the Course Materials Errors forum for problems with course materials such as typos, factual errors, or grading errors.
- Use the Technical Issues forum for problems related to the Coursera platform such as broken links, error messages, and other technical issues.

Edit Page

Created Fri 13 Jan 2012 11:33 PM CST

Last Modified Sun 13 Jul 2014 8:52 AM CDT

Week 1: Conceptualizing Learning

Help

Conceptualizing Learning

On this page:

Instructional Activities

Below is a list of the activities and assignments available to you this week. See the Syllabus to know which assignments pertain to the level of participation you are pursuing. Click on the name of each activity for more detailed instructions.

Participation Level	Activity	Due Date*	Estimated Time Required
O I A	Week 1 Video Lectures	Sunday, July 6	1 hour
O I A	Week 1 Readings	Sunday, July 6	1–3 hours
O I A	(Optional) Explore the Scholar Platform	Sunday, July 6	0.5 hours
O I A	Respond to the Admin Post in Week 1 Discussion Forum	Sunday, July 6	1 hour
I A	Compose an Original Post in Week 1 Discussion Forum	Sunday, July 6	0.5 hours
A	Create a Forum Post with your ideas for the Case Study	Sunday, July 6	4 hours

* All deadlines are at 11:55 PM Central Time (time zone conversion) unless otherwise noted.

Overview

Laying some theoretical foundations: We can do a whole range of different things with learning technologies, ranging from *didactic/mimetic teaching* to co[illegible] *ive learning*. In this course we're interested in exploring the affordances offered by learning technologies. However, in drawing a distinction between traditional modes of teaching and learning, we don't mean simply to say "out with

Admin Help

the old, in with the new." Rather, we want to develop an approach in which didactic/mimetic and collaborative/reflexive pedagogies each has its place. In this perspective we might strategically choose to supplement, extend, and enrich the old with the new.

Time

This module will last **7 days** and should take **approximately 1–10 hours** of dedicated time to complete, with its readings and assignments, depending on the level of participation you have chosen:

- O Overview (O): 3 hours
- I Intermediate (I): 4 hours
- A Advanced (A): 8–10 hours

Readings & Resources

- O I A Dewey on Progressive Education
- O I A St Benedict on the Teacher and the Taught
- O I A James Gee, Video Games are Good for Your Soul
- I A Aristotle on Mimesis
- I A Confucius on Becoming a Learned Person
- I A Jean-Jacques Rousseau on Emile's Education
- I A Maria Montessori on 'Free, Natural' Education
- A Ivan Illich on 'Deschooling'
- A Skinner's Behaviourism
- A Paulo Freire on Education that Liberates
- A Children Learning on their Own (Mitra on self-motivated learning)

Video Lectures

Participation Level	Video Lecture	Transcript	Video Download	SRT Caption File	Forum
O I A	**From Didactic Pedagogy to New Learning** (00:14:46)		(30.9 MB)		
O I A	**What's the Use of Technology in Learning? Introducing Seven e-Affordances** (00:04:33)		(10.3 MB)		

I A	Can Education Lead Technology? The PLATO Story (00:11:10)		(29.2 MB)		
A	New Technologies, New Social Relationships and Learning (00:13:19)		(37.4 MB)		
A	Society or School: What Determines Educational Outcomes? (00:09:56)		(27.4 MB)		

Tips for Success

To do well this week, I recommend that you do the following:

- Review the video lectures a number of times to gain a solid understanding of the key questions and concepts introduced this week.
- When possible, provide tips and suggestions to your peers in this class. As a learning community, we can help each other learn and grow. One way of doing this is by helping to address the questions that your peers pose. By engaging with each other, we'll all learn better.
- It's always a good idea to refer to the video lectures and chapter readings we've read during this week and reference them in your responses. When appropriate, critique the information presented.
- Take notes while you read the materials and watch the lectures for this week. By taking notes, you are interacting with the material and will find that it is easier to remember and to understand. With your notes, you'll also find that it's easier to complete your assignments. So, go ahead, do yourself a favor; take some notes!

Getting and Giving Help

If you need help, you have options! You can get help via any of the following means:

- You can report a specific problem by clicking on the **Help** link at the top right of any course page.
- Use the Course Materials Errors forum for problems with course materials such as typos, factual errors, or grading errors.
- Use the Technical Issues forum for problems related to the Coursera platform such as broken links, error messages, and other technical issues.

As a reminder, the instructor is not able to answer emails sent directly to his account. Rather, all questions should be posted to one of the above forums. You are encouraged to help your fellow students out by responding to posts made in these forums with solutions and by "voting up" the most important posts. University of Illinois staff and/or Community TAs will monitor these forums and will focus their attention on those that have been voted up the most.

204

Edit Page

Created Tue 11 Dec 2012 12:59 PM CST

Last Modified Mon 30 Jun 2014 1:41 PM CDT

EPSY408 (2014) Learning and Human Development with Technologies

Instructor: Dr. William Cope <billcope@illinois.edu>
TA (technical assistant): Da Ye Lee dayelee2@illinois.edu

Synchronous Session: Mondays, 7.00-8.30PM (US Central time). 8 weeks, commencing January 27, 2014.

Reference:

Kalantzis, Mary and Bill Cope. 2012. *New Learning: Elements of a Science of Education*. Cambridge UK: Cambridge University Press. Chapter 6 has been posted in the Shares area in Scholar. Support materials can be found at: http://newlearningonline.com/

Course Introduction

This course sets out to provide an understanding of theories of learning and development and how these theories relate to educational technology. It has two components. The first is theoretical, in which we attempt to develop an overall frame of reference, locating approaches to the psychology of learning in terms of large paradigm shifts, from 'behaviorism' to 'brain developmentalism' to 'social cognitivism'. The second component is practical, in which we will use these theoretical concepts to 'parse' a technology-mediated learning environment for its underlying presuppositions.

The learning philosophy of our program is 'collaborative knowledge production'. Instead of lectures, you can read synopses of Mary's and my thinking in our recent books, the most relevant of which is listed above. In the spirit of the 'flipped classroom', we can then devote all our interaction time to dialogue based on work you have undertaken in your own classrooms, or research you have done about other educational practices. These interactions take various forms:

- Comments on the discussion topic update for each week.
- Create 7 updates, to be posted in the Community area of Scholar.
- Comments on several others' updates each week.
- Write two 'works' in the Creator area of Scholar and offer constructive peer reviews of others' works.
- Revision of these works, based on feedback, then reading and discussing published works shared with the class.
- Oral presentations and discussions in weekly synchronous sessions.

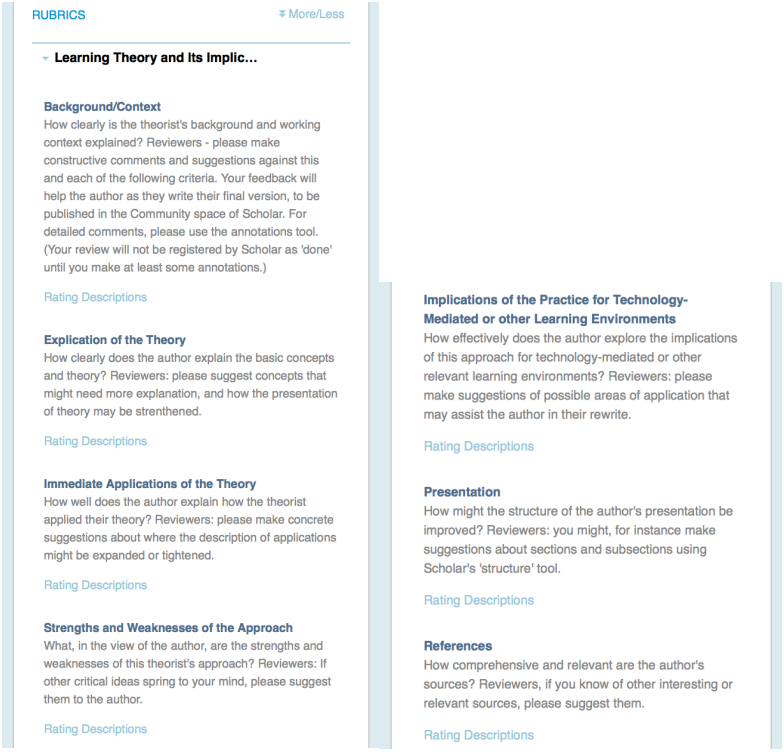
Except for the class sessions, the majority of these interactions are asynchronous. The time for synchronous discussion will be the session on

Monday evenings (US Central time). Those unable to attend these sessions should listen to the recording of the session to stay up to date with the program.

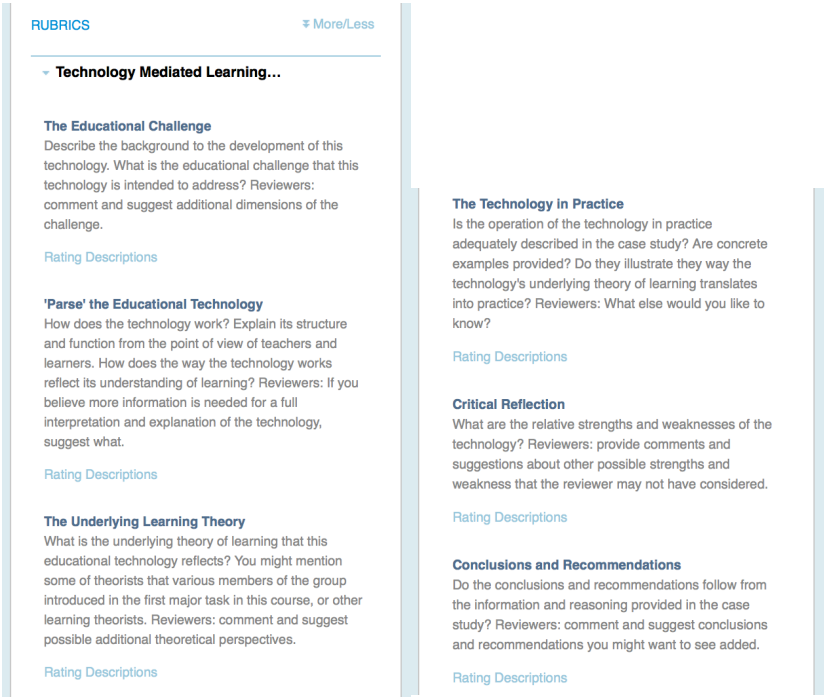
Weekly Updates
You will find seven topics, or seven perspectives for weekly updates in the timeline below (every week except the first week of the course). Each week, you will make comments in the discussion update for that week. You will also make an update of your own on each topic. Please make updates by about the middle of the weekend before the next Monday's class, then make comments in response to others' posts by the end of the weekend. Note: Post updates on the Community page (so they appear in the Activity Stream of all Community Members—if you post on your personal page, updates will only go to people you have selected as peers).

Works
Note: you can start researching either of these works as soon as you wish, however the Scholar project will not be started until after the first class, when we have a final list of who will be participating in this course, and everyone has created Scholar accounts.

Work 1: Outline a Theory of Human Development and Learning
Write a wiki-style entry outlining the work and approach of a leading learning theorist or educational psychologist, or a group of theorists or school of thought. What understanding do they have of the ways in which learning occurs? What paradigmatic approach to education do they represent? What are the implications of this approach for the design and implementation of learning technologies? As we are going to create a class resource of capturing a wide range of theories, please message your instructor with your proposed theorist/theory to avoid duplication. Possible examples include (or feel free to choose your own focus): *Behaviorism:* Watson, Thorndike, Pavlov, Skinner, the 'Direct Instruction' approach; *Brain Developmentalism:* Piaget, Chomsky, Pinker, Davidson; *Social Cognitivism:* Vygotsky, Deacon, Gee, Lave and Wenger, Gardner.



Work 2: A Technology Mediated Learning Analysis
'Parse' a learning technology - what is its underlying theory of learning and how is this reflected by the way it works in practice? When discussing the theory of learning read and cite (with links) the theorist works (Work 1) of other course participants.



RUBRICS

More/Less

Technology Mediated Learning...

The Educational Challenge
Describe the background to the development of this technology. What is the educational challenge that this technology is intended to address? Reviewers: comment and suggest additional dimensions of the challenge.

Rating Descriptions

'Parse' the Educational Technology
How does the technology work? Explain its structure and function from the point of view of teachers and learners. How does the way the technology works reflect its understanding of learning? Reviewers: If you believe more information is needed for a full interpretation and explanation of the technology, suggest what.

Rating Descriptions

The Underlying Learning Theory
What is the underlying theory of learning that this educational technology reflects? You might mention some of theorists that various members of the group introduced in the first major task in this course, or other learning theorists. Reviewers: comment and suggest possible additional theoretical perspectives.

Rating Descriptions

The Technology in Practice
Is the operation of the technology in practice adequately described in the case study? Are concrete examples provided? Do they illustrate they way the technology's underlying theory of learning translates into practice? Reviewers: What else would you like to know?

Rating Descriptions

Critical Reflection
What are the relative strengths and weaknesses of the technology? Reviewers: provide comments and suggestions about other possible strengths and weakness that the reviewer may not have considered.

Rating Descriptions

Conclusions and Recommendations
Do the conclusions and recommendations follow from the information and reasoning provided in the case study? Reviewers: comment and suggest conclusions and recommendations you might want to see added.

Rating Descriptions

Timeline

	Weekly Update, Suggested Focus
Week 1, January 27 • 6.30pm session: introduction to the technology, and the Scholar working environment (no need to attend if you are already familiar with Scholar). • 7.00pm session: Introductions, main themes of the course	The following are suggested topics, but do feel free to change the subject if something else, interesting or significant, has come up for you. Make comments on the discussion topic updates as well as your updates by the end of Saturday before the class, and your comments on others' updates by the end of Sunday.
Week 2, February 3 • 7.00pm session: Community update discussion • Draft of Work 1 due, 11.00pm, 2 February	**Behaviorism and Conditioned Response** • Comment on the discussion topic update. • Find an example of a learning technology that exemplifies this idea. Post an update that briefly describes the technology and the approach at work.
Week 3, February 10 • 7.00pm session: Community update discussion • Peer review 3 others' Work 1, due 11.00pm, 9 February	**Notions of Innate Intelligence** • Comment on the discussion topic update. • Find an example of a learning technology that exemplifies this idea. Post an update that briefly describes the technology and the approach at work.
Week 4, February 17 • 7.00pm session: Community update discussion • Revised version of Work 1, with self-review, due 11.00pm, 16 February	**Constructivism** • Comment on the discussion topic update. • Find an example of a learning technology that exemplifies this idea. Post an update that briefly describes the technology and the approach at work.
Week 5, February 24 • 7.00pm session: Community update discussion; Work 1 presentations • Draft of Work 2 due, 11.00pm, 23 February	**Neuroscience** • Comment on the discussion topic update. • Find an example of a learning technology that exemplifies this idea. Post an update that briefly describes the technology and the approach at work.
Week 6, March 3 • 7.00pm session: Community update discussion; Work 1 presentations (cont.) • Peer review of 3 others' Work 2, due 11.00pm, 2 March	**The Social Mind** • Comment on the discussion topic update. • Find an example of a learning technology that exemplifies this idea. Post an update that briefly describes the technology and the approach at work.
Week 7, March 10 • 7.00pm session: Community update discussion; Work 2 presentations • Revised version of Work 2, with self-review, due 11.00pm, 9 March	**Distributed Cognition** • Comment on the discussion topic update. • Find an example of a learning technology that exemplifies this idea. Post an update that briefly describes the technology and the approach at work.
Week 8, March 17 • 7.00pm session: Community update discussion; Work 2 presentations (cont.)	**Communities of Practice** • Comment on the discussion topic update. • Find an example of a learning technology that exemplifies this idea. Post an update that briefly describes the technology and the approach at work.

Assessment and Grading
Course participants will be required to write to:

- Write two works in the Creator space of Scholar (each 30% of grade), approximately the size of an average Wikipedia entry.
- In each of the two writing cycles, peer review three other participants' works (15% of grade)
- Revise their work in the light of peer review comments and write a self review of the changes made to new version in the light of peer comments and further reflection.
- Comment on the seven, weekly discussion topic updates.
- Post at least 7 weekly updates to the Community space, and read others' updates, commenting upon three of four of these (25% of grade).

Grades are negotiable. If you are unhappy with your grade, you are welcome to revise work in order to improve your grade.

Technical Matters
Some important things to note:

- We will be using the 'Scholar' environment. If you are not familiar with it already (and of course you will be if you have already take courses which have used Scholar), I will introduce it to you in the first session of the course. If you do not already have a Scholar account, create one at http://cgscholar.com Everyone, including people with existing logins, should request to join the community 'EPS408 (2014) Learning and Human Development with Technologies'
- We won't use Moodle a great deal, however you will also find this syllabus there and a link to Scholar.
- Our synchronous sessions will use Adobe Connect. http://connect.education.illinois.edu/cope/

Appendix G - Scholar: Analytics

Main | My Publishers | Publisher Projects | Project Overview

Project: Case Study of An Educational Technology

Description: 'Parse' a learning technology - what is its underlying theory of learning and how is this reflected by the way it works in practice? When discussing the theory of learning read and cite (with links) the theorist works (Work 1) of o her course par icipants.

State: started

Date: Tuesday, February 18, 2014 9:57 AM

Items/Page: 100 Search Reset

Name	Num Vers	Avg Ver Len	Avg Ver % Edited	Academic Lang Lvl	Avg Peer Rev Rating (Num)	Avg Self Rev Rating (Num)	Avg Pub Rev Rating (Num)	Avg Overall Rev Rating (Num)	Num Rev Auth	Avg Rev Auth Len	Num Annots	Overall Score %
[redacted]	3	1,656	11.8	11.9	3.4/4 (3)	3.3/4 (1)	--	3.4/4 (4)	3	148	8	91.5
[redacted]	0	0	0.0	0.0	--	--	--	0.0/0 (0)	0	0	0	0.0
[redacted]	1	0	0.0	0.0	--	--	--	0.0/4 (0)	0	0	0	0.0
[redacted]	1	0	0.0	0.0	--	--	--	0.0/4 (0)	0	0	0	0.0
[redacted]	4	3,096	0.0	10.4	4.0/4 (2)	4.0/4 (1)	--	4.0/4 (3)	3	101	3	96.7
[redacted]	4	2,966	0.7	12.9	3.5/4 (2)	4.0/4 (1)	--	3.7/4 (3)	3	139	4	93.9
[redacted]	4	3,116	6.1	11.1	3.8/4 (3)	4.0/4 (1)	--	3.9/4 (4)	3	362	17	95.6
[redacted]	3	2,561	10.4	13.9	3.1/4 (3)	3.5/4 (1)	--	3.2/4 (4)	4	145	7	90.1
[redacted]	4	2,245	16.5	13.1	1.7/4 (3)	3.8/4 (1)	--	2.2/4 (4)	3	313	13	82.1
[redacted]	4	2,925	20.1	11.0	1.8/4 (2)	--	--	1.8/4 (2)	3	152	3	78.6
[redacted]	4	2,469	3.3	11.9	3.1/4 (2)	3.8/4 (1)	--	3.3/4 (3)	3	354	2	91.1
[redacted]	4	2,603	36.5	10.5	2.3/4 (3)	3.0/4 (1)	--	2.5/4 (4)	4	577	6	83.8
[redacted]	3	2,121	44.8	9.5	2.4/4 (3)	1.3/4 (1)	--	2.1/4 (4)	3	694	2	81.0
[redacted]	3	1,301	26.6	10.1	1.8/4 (2)	3.5/4 (1)	--	2.4/4 (3)	3	205	11	83.2
[redacted]	15	1,491	15.1	13.6	1.9/4 (3)	--	--	1.9/4 (3)	2	179	11	79.1
[redacted]	3	2,113	33.2	12.8	1.9/4 (3)	4.0/4 (1)	--	2.4/4 (4)	3	294	4	83.5
[redacted]	3	3,218	25.0	8.7	3.3/4 (3)	3.7/4 (1)	--	3.4/4 (4)	3	261	12	91.5
[redacted]	4	2,670	12.1	10.9	3.5/4 (3)	--	--	3.5/4 (3)	3	287	21	92.5
[redacted]	3	1,131	5.9	11.1	3.2/4 (1)	3.7/4 (1)	--	3.4/4 (2)	3	138	3	91.8
[redacted]	4	1,867	17.3	11.3	2.5/4 (3)	--	--	2.5/4 (3)	2	255	38	84.2
[redacted]	4	2,873	10.4	10.7	3.1/4 (3)	4.0/4 (1)	--	3.3/4 (4)	4	229	5	90.8
[redacted]	1	0	0.0	0.0	--	--	--	0.0/4 (0)	0	0	0	0.0
[redacted]	3	1,906	18.1	13.4	2.9/4 (3)	3.0/4 (1)	--	3.0/4 (4)	3	301	18	88.0
[redacted]	3	2,235	27.6	11.3	2.3/4 (3)	4.0/4 (1)	--	2.7/4 (4)	3	302	4	85.9
[redacted]	3	818	34.0	12.6	1.6/4 (3)	4.0/4 (1)	--	2.2/4 (4)	3	183	4	81.4
[redacted]	5	1,819	1.1	11.4	3.8/4 (1)	--	--	3.8/4 (1)	1	235	1	95.3
[redacted]	4	2,629	28.1	13.0	2.8/4 (2)	3.3/4 (1)	--	2.9/4 (3)	1	153	1	87.9
[redacted]	1	0	0.0	0.0	--	--	--	0.0/4 (0)	0	0	0	0.0
[redacted]	4	2,202	10.9	11.3	2.2/4 (2)	3.7/4 (1)	--	2.7/4 (3)	3	122	10	86.0
[redacted]	4	1,665	13.1	11.3	2.7/4 (3)	3.8/4 (1)	--	3.0/4 (4)	3	119	7	88.0
[redacted]	5	1,066	7.3	8.8	2.2/4 (2)	--	--	2.2/4 (2)	2	207	27	81.4
[redacted]	4	1,279	23.0	10.2	1.8/4 (3)	3.2/4 (1)	--	2.2/4 (4)	3	121	2	81.4
[redacted]	4	1,957	18.9	8.2	2.4/4 (3)	3.7/4 (1)	--	2.8/4 (4)	4	466	8	86.2
[redacted]	3	4,263	42.0	14.1	2.8/4 (2)	3.7/4 (1)	--	3.1/4 (3)	4	419	6	88.8
[redacted]	4	1,222	21.2	11.3	2.0/4 (2)	--	--	1.3/4 (3)	3	274	3	74.4
[redacted]	4	1,503	9.9	12.7	2.4/4 (3)	--	--	2.4/4 (3)	3	133	30	83.7
[redacted]	3	2,339	25.3	11.5	3.2/4 (2)	--	--	3.2/4 (2)	3	414	10	89.7
[redacted]	4	2,866	19.1	10.7	2.0/4 (3)	--	--	2.0/4 (3)	2	157	32	80.0
[redacted]	1	0	0.0	0.0	--	--	--	0.0/4 (0)	0	0	0	0.0
[redacted]	3	2,275	5.4	12.4	2.3/4 (1)	4.0/4 (1)	--	3.2/4 (2)	3	459	4	89.7
[redacted]	1	3,850	0.0	10.7	--	3.3/4 (1)	--	3.3/4 (1)	3	365	0	91.1
[redacted]	4	1,002	15.5	7.9	2.8/4 (2)	3.2/4 (1)	--	2.9/4 (3)	3	132	2	87.9
[redacted]	3	1,411	11.9	9.1	1.4/4 (3)	3.7/4 (1)	--	2.0/4 (4)	3	180	7	80.0

[redacted]	3	1,411	14.9	9.1	1.4/4 (3)	3.7/4 (1)	--	2.0/4 (4)	3	160	7	80.0
[redacted]	4	1,640	7.0	12.6	3.5/4 (2)	3.8/4 (1)	--	3.6/4 (3)	3	323	7	93.4
[redacted]	4	2,009	6.3	13.3	3.2/4 (1)	4.0/4 (1)	--	3.6/4 (2)	4	193	2	93.2
[redacted]	4	1,897	18.4	11.3	2.1/4 (3)	3.7/4 (1)	--	2.5/4 (4)	3	313	59	84.2
[redacted]		1,014	0.0	8.9	1.9/4 (2)	--	--	1.9/4 (2)	3	217	4	79.3
[redacted]		3,188	6.3	14.0	3.6/4 (2)	3.8/4 (1)	--	3.7/4 (3)	4	379	1	93.9
[redacted]	1	0	0.0	0.0	--	--	--	0.0/4 (0)	3	147	0	0.0
[redacted]	3	1,817	45.4	10.2	1.5/4 (3)	--	--	1.5/4 (3)	3	143	14	75.8
[redacted]	3	2,156	25.6	10.7	3.1/4 (3)	3.7/4 (1)	--	3.2/4 (4)	3	241	7	90.1
[redacted]	3	3,803	41.2	9.8	3.7/4 (2)	4.0/4 (1)	--	3.8/4 (3)	4	314	18	94.8
[redacted]	4	1,714	4.7	11.3	3.2/4 (2)	3.7/4 (1)	--	3.3/4 (3)	4	322	9	91.1
[redacted]	3	1,130	45.5	9.1	0.4/4 (2)	2.0/4 (1)	--	0.9/4 (3)	4	32	3	71.2
[redacted]	3	1,429	22.1	12.9	2.2/4 (3)	--	--	2.2/4 (3)	2	290	23	81.9
[redacted]	4	1,392	8.7	14.0	2.8/4 (3)	4.0/4 (1)	--	3.1/4 (4)	4	161	27	89.4
[redacted]	3	3,284	35.2	10.4	3.2/4 (2)	3.7/4 (1)	--	3.3/4 (3)	4	555	5	91.1
[redacted]	0	0	0.0	0.0	--	--	--	0.0/0 (0)	0	0	0	0.0
[redacted]	0	0	0.0	0.0	--	--	--	0.0/0 (0)	0	0	0	0.0
[redacted]	3	2,367	11.4	12.1	3.2/4 (2)	2.8/4 (1)	--	3.1/4 (3)	3	317	4	88.8
[redacted]	4	1,276	13.8	12.6	3.1/4 (3)	--	--	3.1/4 (3)	2	123	6	88.8
[redacted]	3	49	0.0	7.3	0.9/4 (2)	3.2/4 (1)	--	1.7/4 (3)	3	119	0	75.6
[redacted]	4	2,479	13.3	12.3	3.2/4 (3)	3.7/4 (1)	--	3.3/4 (4)	3	350	14	90.8
[redacted]	4	1,576	5.9	13.4	3.1/4 (2)	4.0/4 (1)	--	3.4/4 (3)	4	230	5	91.6
[redacted]	4	844	0.0	10.8	--	0.7/4 (1)	--	0.7/4 (1)	4	28	0	68.9
[redacted]	4	2,088	1.2	12.0	2.2/4 (3)	4.0/4 (1)	--	2.6/4 (4)	3	154	7	85.2
[redacted]	4	3,339	0.9	11.6	2.7/4 (2)	--	--	2.7/4 (2)	3	86	39	85.6
[redacted]	1	0	0.0	0.0	--	--	--	0.0/4 (0)	0	0	0	0.0

qualtrics

Default Question Block

CONSENT

Dear Course Participant:

I am an education researcher, based at the University of Illinois and affiliated with the Federal University of Santa Catarina (Brazil), examining ways to improve the learning-teaching process in online education in diverse local contexts. I would like to collect data about your participation in the course EPSY 408 to be used for a dissertation, education research, journal articles, conference presentations, and the improvement of online learning and teaching.

With your consent, your writing artifacts for the course EPSY 408 (for example, weekly posts, case studies, and reviews) will be collected through the *Scholar* online platform. I also ask that you complete a confidential survey. It will take around 20 minutes of your time.

You will not receive points, credits or any compensation for participation in this study. The data will be coded so that you remain confidential. All information collected will be identifiable only by confidential identification numbers. Pseudonyms or codes will be substituted for the names of participants to protect confidentiality. All data, feedback, and observations will be saved in a secure and private place.

Risk to volunteer participants is typically no greater than what would normally be experienced through the course of participation in an online course. Most of the data collected is part of regular coursework.

Your participation in this project is completely voluntary, and you may stop taking part at any time. Participation/non-participation will have no effect on your future relationship with the Professor or your assessment in this online course.

If you have any questions about your rights as a participant in this study or any concerns or complaints, please contact the University of Illinois Institutional Review Board at 217-333-2670 (collect calls will be accepted if you identify yourself as a research participant) or via email at irb@illinois.edu.

If you have any questions about the project, please feel free to contact me by mail, e-mail, or telephone:

Kátia Muck
#171 Children's Research Center, 51 Gerty Drive, Champaign, IL, 61820 USA
217-418-6000 / muck@illinois.edu / katiamuck@gmail.com

I authorize my writing artifacts and my answers for the survey to be confidentially used for research purposes.

- ○ Yes
- ○ No

Write your complete name. It will remain confidential. It is necessary that you provide your name to guarantee your consent.

How much time did you spend on the course per week? (EXCLUDING the weekly class time)

What were your goals for this course?

I anticipate a good grade in this e-Learning course.

Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
○	○	○	○	○

Your experience regarding EPSY 408:

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree

I found flexibility in time and place (e.g., at work, at home etc) of this e-Learning course better than other courses	○	○	○	○	○
This e-Learning course was better when I compared it with an off-line course	○	○	○	○	○
I am satisfied with this e-Learning course	○	○	○	○	○

Tell us more about your experience regarding EPSY 408:

Your experiences concerning the interaction with the instructor:

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
When I need advice from my instructor, I can easily get in contact with him via message, community, etc	○	○	○	○	○
My instructor has a high level of expertise in the implementation of e-learning courses	○	○	○	○	○
My instructor gives fast feedback via e-mail, community and/or other communication facilities	○	○	○	○	○
My instructor supports and guides me with regard to my learning	○	○	○	○	○
I miss face-to-face contact with my	○	○	○	○	○

instructor					
Due to the online communication in the course, personal interactions are neglected	○	○	○	○	○

Tell us more about your experience concerning the interaction with the instructor:

Your experiences concerning the interaction with other participants in the course:

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
I can exchange knowledge easily and quickly with other course participants via e-mail, community, etc.	○	○	○	○	○
There are ample opportunities in the course to establish contact with other participants	○	○	○	○	○
The online communication tools facilitate establishing new contact with other course participants	○	○	○	○	○
Learning in groups and collaboration with other participants are fostered in the course (e.g., by peer reviewing, discussions etc.)	○	○	○	○	○
Using the computer-mediated communication complicates group work (e.g., peer reviewing activity,	○	○	○	○	○

discussions etc.)	

Tell us more about your experiences concerning the interaction with other participants in the course:

Your experiences concerning individual learning processes:

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
I can decide on my own at what times and where I am learning (e.g., at work, at home etc.)	○	○	○	○	○
I can decide on my own about the pace of learning	○	○	○	○	○
The learning environment offers opportunities to increase my knowledge (e.g., via writing and revising works)	○	○	○	○	○
I find it difficult to motivate myself and to maintain my learning motivation in the course	○	○	○	○	○
The learning environment offers opportunities to be successful (e.g., via rewriting my work based on feedback)	○	○	○	○	○

Tell us more about your experiences concerning individual learning processes:

Your experiences concerning course outcomes:

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
I acquired knowledge and skills about "Learning and Human Development with Technologies"	○	○	○	○	○
I acquired skills on how to apply the knowledge	○	○	○	○	○
I acquired skills in communication and collaboration	○	○	○	○	○
I acquired skills in self-regulated learning	○	○	○	○	○
I acquired skills in using the Internet for academic research	○	○	○	○	○

Tell us more about your experiences concerning course outcomes:

Rate your level of satisfaction with the following experiences:

	Very Satisfied	Satisfied	Neither Satisfied nor Dissatisfied	Dissatisfied	Very Dissatisfied
Writing the case study	○	○	○	○	○
Providing feedback through peer reviews to other	○	○	○	○	○

participants of the course					
Receiving feedback through peer reviews from other participants of the course	○	○	○	○	○
Achieving my goals with the online course	○	○	○	○	○

Identify 3 things that you learned through giving feedback to other participants of the course.

Identify 3 things that you learned through receiving feedback from other participants of the course.

The feedback I received from my reviewers was helpful.

Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
○	○	○	○	○

What was the most and the least valuable feedback you received.

Providing feedback to other participants of the course through peer reviews helped me to think about my own case study.

Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
○	○	○	○	○

The rubrics (in the Creator space) were helpful to:

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Write my works	○	○	○	○	○
Provide feedback to other participants' works	○	○	○	○	○
Revise my own works	○	○	○	○	○

You used rubrics to write your works and to revise other participants' works. How did the rubrics support you case writing?

After receiving the feedback from other participants of the course, you revised your works. What aspects of the online environment helped you when revising your own works?

I became comfortable using the Scholar e-Learning environment.

Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree

What was challenging in using Scholar? What was easy? (For instance, in Community, Creator, Peer Review etc).

Was the discussion in Community useful?
Why/why not?
If yes, how did it help you? / If not, how could it be more useful?

Regarding Scholar usefulness:

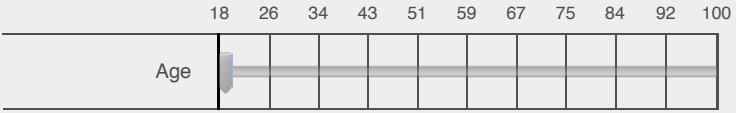
	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Scholar improves the quality of learning	○	○	○	○	○
Scholar improves learning performance	○	○	○	○	○
Scholar promotes effective learning	○	○	○	○	○
Scholar makes it easier to understand the learning process	○	○	○	○	○
Scholar is useful	○	○	○	○	○

How would you like to see this course improved in the future?

I would like to take additional courses which include a process of peer review.

Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
○	○	○	○	○

What is your age?



What is your gender?

- ○ Female
- ○ Male

My first language (mother tongue) is...

The highest educational qualification I have achieved is...

What is your field of work?

Do you have experience in teaching?

- ○ Yes
- ○ No

Please, try to be as precise as possible regarding your past/present teaching experience. How long have you been teaching? What subject(s) do you teach? To which level do you teach?

Is this your first course in Scholar?

- ○ Yes
- ○ No

How many online courses have you participated in Scholar?

What online media do you use?

	Never	Occasionally	Frequently	Every day
Facebook	○	○	○	○

Twitter	○	○	○	○
Google Drive (Google Docs)	○	○	○	○
Online Shopping (e.g. Amazon, e-Bay)	○	○	○	○
Photography (e.g. Flickr, Instagram	○	○	○	○
Blogging (posting or commenting on posts)	○	○	○	○

In general, how many e-Learning courses have you taken and completed?

How would you rate your level of experience and comfort with e-Learning environments?

- ○ Very comfortable, considerable experience
- ○ Quite comfortable, some experience
- ○ Limited experience in e-Learning environments
- ○ I am new to e-Learning

Tell us about your experience using e-Learning platforms; name specific platforms in which you have worked.
What is the difference between using these platforms and using Scholar?

Please add any other comments.

Appendix I - Coursera Pre-course survey

e-Learning Ecologies: A draft of the questions that were inserted in Qualtrics

P2: What is your interest in this course?

1) How important were the following considerations in your decision to enroll in this course?

	Not important at all	Slightly important	Moderately important	Very important	Extremely important
This subject is relevant to my academic field of study.	( )	( )	( )	( )	( )
This class teaches skills that will help my job or career.	( )	( )	( )	( )	( )
I want to earn some sort of credential that I can use to enhance my ability to get a job in the future.	( )	( )	( )	( )	( )
This course is offered by the University of Illinois at Urbana-Champaign.	( )	( )	( )	( )	( )
I think taking this course will be fun and enjoyable.	( )	( )	( )	( )	( )
I'm curious about what it's like to take an online course or a Coursera course.	( )	( )	( )	( )	( )
I'm preparing for a degree program in this field.	( )	( )	( )	( )	( )
I want to take a course from this particular professor.	( )	( )	( )	( )	( )
I want to know more about this area of study.	( )	( )	( )	( )	( )

2) Which of the following best describes your previous experience in the subject area of this course?

( ) I am mostly new to this subject.
( ) I like to explore this subject on my own.
( ) I have completed some coursework or have some work experience in this field.
( ) I have a degree or significant work experience in this field.

P3: Please tell us about yourself.

3) What is your sex?
( ) Male
( ) Female

Validation: Must be numeric Whole numbers only Using custom RegEx pattern

4) In what year were you born?
Please enter a 4-digit year.
_____

P4: Languages you speak

Logic: Show/hide trigger exists.

5) What is your native language (mother tongue or first language spoken)?
( ) Arabic
( ) Bengali
( ) Chinese (Mandarin)
( ) English
( ) German
( ) Hindi or Urdu
( ) Japanese
( ) Portuguese
( ) Russian
( ) Spanish
( ) Another language *(What is it?)*: _____

Logic: Hidden by default; Dynamically shown
If "What is your native language (mother tongue or first language spoken)?" = (Arabic, Bengali, Chinese (Mandarin), German, Hindi or Urdu, Japanese, Portuguese, Russian, Spanish, Another language)

Please rate your English language ability in each of the following areas:

	No ability at all	**Poor**	**Fair**	**Good**	**Equivalent to a native speaker**
Reading English	( )	( )	( )	( )	( )
Writing English	( )	( )	( )	( )	( )
Understanding Spoken English	( )	( )	( )	( )	( )
Speaking English	( )	( )	( )	( )	( )

P5: Your nationality

6) Are you a citizen of the United States?
( ) Yes
( ) No

P6: Your education

Logic: Show/hide trigger exists.

7) Are you currently enrolled in school, *not including this or other Coursera courses*?
( ) Yes
( ) No

Logic: Hidden by default Dynamically shown if "Are you currently enrolled in school, *not including this or other Coursera courses*?" = Yes

Are you enrolled in...
( ) A public school
( ) A private school
( ) Home school
( ) Something else *(What is it?)*: _____

P7: Your education

8) What is the highest degree or level of schooling you have completed so far?
If you are currently enrolled in school do not include the level you are currently enrolled in.
( ) No formal schooling completed
( ) Some primary or elementary school (nursery school thru 8th grade)
( ) 1 year of secondary or high school (9th grade)
( ) 2 years of secondary or high school (10th grade)
( ) 3 or more years of secondary or high school, *but not a graduate* (11th or 12th grade)
( ) Secondary or high school graduate or GED
( ) Some post-secondary training or college but no degree
( ) 2-year degree, post-secondary certificate, or Associate's degree
( ) Bachelor's degree (BA, BS, etc.)
( ) Post-Bachelor's certificate or diploma
( ) Master's or professional degree (MA, MS, MBA, MSW, MEd, law degree, etc.)
( ) Doctoral degree (PhD, EdD, MD, DDS, DVM, LLM, etc.)
( ) Something else *(What is it?)*: _____

P8: Your employment status

9) What is your primary employment status?
( ) Employed for salary or wages (either full or part-time)
( ) Self-employed, free-lancer, or farmer
( ) Working at an NGO, as a volunteer, or as a religious worker
( ) Out of work and looking for a job
( ) Not working and not looking for a job
( ) A homemaker, taking care of a family member, or on maternity leave
( ) A student
( ) Retired
( ) Unable to work, disabled, or convalescing
( ) Something else *(What is it?)*: _____

P9: Reasons for taking this course

10) What are your reasons for taking this course? What do you hope to get out of it?

***11) Have you ever taken an online course before? Please include both free courses like Coursera, as well as courses in more formal educational settings.**
(1) No
(2) Yes

Show the following question only if the answer to question "11) Have you taken an online course before?" is "(2) Yes"
***00) Tell us more about your experiences in online course(s):**
_____

***12) How often do you use the follow types of social media?**

	Never	Less often than once per month	A few times per month	A few times per week	Every day
Social Networks like Facebook, Google+, MySpace, RenRen, Badoo, LinkedIn, Sina Weibo, Hi5, Orkut, etc.	(1)	(2)	(3)	(4)	(5)
Microblogging sites likeTwitter, Snapchat, Tumblr, Foursquare, etc.	(1)	(2)	(3)	(4)	(5)
Social News sites like Digg, Reddit, etc.	(1)	(2)	(3)	(4)	(5)
Online Shopping	(1)	(2)	(3)	(4)	(5)
Media Sharing sites like Flickr, Instagram, Fotki, Fotolog, Pinterest, Youtube, Vimeo, etc.	(1)	(2)	(3)	(4)	(5)
Blogging and Forums	(1)	(2)	(3)	(4)	(5)
Bookmarking sites like Delicious, StumbleUpon, Tagged, etc.	(1)	(2)	(3)	(4)	(5)

Do you use any other social media sites? *What are they?* _____

***13) Which level of participation do you plan to pursue in this course?**
(1) *Overview (O) - estimated time commitment, 1 hour per week*
Watch the videos and view the material marked (L)
Comment on each week's post, made by the course admin
(2) *Introductory (I) - estimated time commitment, 3 hours per week*
Watch the videos and view the material marked (L) and (I)
Comment on each week's post, made by the course admin.
Make a post of your own.
(3) *Advanced (A) - estimated time commitment, 8-10 hours per week*
Watch the videos and view the material marked (L), (I) and (A)
Comment on each week's post, made by the course admin.
Make a post of your own.
Create one "Work"; peer review three others' works; revise your work for web publication.
(4) None of the above (Please explain:) _____

Appendix J - Coursera Post-course survey

e-Learning Ecologies: A draft of the questions that were inserted in Qualtrics

---

1) How likely are you to take another Coursera course in the future?
(1) Not likely at all
(2) Slightly likely
(3) Moderately likely
(4) Very likely
(5) Extremely likely

2) How likely are you to take another Coursera course from the University of Illinois at Urbana-Champaign?
(1) Not likely at all
(2) Slightly likely
(3) Moderately likely
(4) Very likely
(5) Extremely likely

3) How has your experience in this course affected your perception of the University of Illinois at Urbana-Champaign?
(1) Worsened my opinion very much
(2) Worsened my opinion somewhat
(3) It has not changed my opinion
(4) Improved my opinion somewhat
(5) Improved my opinion very much
(9998) *I did not know anything about the University of Illinois before this course.*

---

4) How satisfied were you with each of the following?

	Not at all satisfied	**Slightly satisfied**	**Moderately satisfied**	**Very satisfied**	**Extremely satisfied**	***Not applicable to me***
Ease of navigating the course website	(1)	(2)	(3)	(4)	(5)	(9997)
Ease of accessing the videos	(1)	(2)	(3)	(4)	(5)	(9997)
Ease of participation in forums	(1)	(2)	(3)	(4)	(5)	(9997)
Ability to get technical help	(1)	(2)	(3)	(4)	(5)	(9997)
Quality of the videos	(1)	(2)	(3)	(4)	(5)	(9997)

---

5) How important were the following considerations in your decision to enroll in this course?

	Not	**Slightly**	**Moderately**	**Very**	**Extremely**

	important at all	important	important	important	important
This subject is relevant to my academic field of study.	(1)	(2)	(3)	(4)	(5)
This class teaches skills that will help my job or career.	(1)	(2)	(3)	(4)	(5)
I wanted to earn some sort of credential that I can use to enhance my ability to get a job in the future.	(1)	(2)	(3)	(4)	(5)
This course is offered by the University of Illinois at Urbana-Champaign.	(1)	(2)	(3)	(4)	(5)
I thought taking this course would be fun and enjoyable.	(1)	(2)	(3)	(4)	(5)
I was curious about what it is like to take an online course or a Coursera course.	(1)	(2)	(3)	(4)	(5)
I wanted to take a course from this particular professor.	(1)	(2)	(3)	(4)	(5)
I wanted to know more about this area of study.	(1)	(2)	(3)	(4)	(5)
I am preparing for a degree program in this field.	(1)	(2)	(3)	(4)	(5)

6) How would you rate the usefulness of the following aspects of the course given your reasons for taking this course?

	Not useful at all	Slightly useful	Moderately useful	Very useful	Extremely useful	*Not applicable to me*
Lectures	(1)	(2)	(3)	(4)	(5)	(9999)
Readings	(1)	(2)	(3)	(4)	(5)	(9999)
Discussion forums	(1)	(2)	(3)	(4)	(5)	(9999)
Assignments (quizzes, projects, etc.)	(1)	(2)	(3)	(4)	(5)	(9999)

Social networking outside Coursera (Facebook, Google+, etc.)	(1)	(2)	(3)	(4)	(5)	(9999)

Understanding of English

Logic: Show/hide trigger exists.

7) Is English your native language (mother tongue or first language spoken)?
(1) Yes
(0) No

Logic: Hidden by default Dynamically shown if "Is English your native language (mother tongue or first language spoken)?" = No

How easy or difficult did you find it to understand the level of English that was used in the following areas?

	Very difficult	Somewhat difficult	Neither easy nor difficult	Somewhat easy	Very easy
Video lectures	(1)	(2)	(3)	(4)	(5)
Course webpages	(1)	(2)	(3)	(4)	(5)
Forum posts	(1)	(2)	(3)	(4)	(5)
Assignments	(1)	(2)	(3)	(4)	(5)

8) How much were you able to get what you wanted out of this course?
(5) I got all that I wanted
(4) I got a large part of what I wanted
(3) I got a moderate amount of what I wanted
(2) I got a small part of what I wanted
(1) I got nothing at all that I wanted
(9997) *Not applicable, I had no expectations for this course*

9) How did the feedback of other students in the course compare to your expectations?
(1) Much less helpful than expected
(2) Somewhat less helpful than expected
(3) About as helpful as expected
(4) Somewhat more helpful than expected
(5) Much more helpful than expected
(9996) *I did not pay attention to the feedback from other students in this course*
(9997) *I did not receive any feedback from other students*

10) To what extent did this course provide you with the options you need to learn the way that best suits <u>you</u>?
(1) Not at all
(2) To a small extent
(3) To a moderate extent
(4) To a great extent
(5) To the fullest extent

11) How easy or difficult was it to do the following things in the course?

	Very easy	Somewhat easy	Neither easy nor difficult	Somewhat difficult	Very difficult
Learn the material covered in this course using the assignments, activities, discussions, and readings	(5)	(4)	(3)	(2)	(1)
Achieve your personal goals with the given assignments, activities, discussions, and readings	(5)	(4)	(3)	(2)	(1)
Keep up with the assignments	(5)	(4)	(3)	(2)	(1)

12) Overall, how easy or difficult did you find this course?
(5) Very easy
(4) Somewhat easy
(3) Neither easy nor difficult
(2) Somewhat difficult
(1) Very difficult

---

13) On average, how many hours per week did you spend on this course?
Enter a number of hours.
_____

14) How would you rate the overall quality of this course?
(1) Very poor
(2) Poor
(3) Fair
(4) Good
(5) Excellent

Logic: Show/hide trigger exists.

15) To what extent do you feel you took advantage of this learning opportunity?
(1) Not at all
(2) To a small extent
(3) To a moderate extent
(4) To a great extent
(5) To the fullest extent

Logic: Hidden by default Dynamically shown if "To what extent do you feel you took advantage of this learning opportunity?" = Not at all, To a small extent, To a moderate extent, or To a great extent

What were the factors that limited the extent to which you took advantage of this Coursera opportunity? *For example, perhaps you felt a lack of interest or time, or something else limited your participation.*
_____
_____
_____
_____

---

16) What is one suggestion for improvement you would make about this course?

_____
_____
_____
_____

***17) Which Platform did you primarily use?**
(1) Mostly Coursera
(2) Mostly Scholar
(3) Equally Coursera and Scholar

***18) Which level of participation did you take in this course?**
(1) *Overview (O) - estimated time commitment, 1 hour per week*
Watch the videos and view the material marked (O)
Comment on each week's post, made by the course admin
(2) *Introductory (I) - estimated time commitment, 3 hours per week*
Watch the videos and view the material marked (O) and (I)
Comment on each week's post, made by the course admin.
Make a post of your own.
(3) *Advanced (A) - estimated time commitment, 8-10 hours per week*
Watch the videos and view the material marked (O), (I) and (A)
Comment on each week's post, made by the course admin.
Make a post of your own.
Create one "Work"; peer review three others' works; revise your work for web publication.
(4) None of the above.

***19) Was this different from your original intentions?**
(1) No
(2) Yes

Show the following question only if the answer to question "19) Was this different from your original intentions?" is "(2) Yes"
***00) Why did your intentions change?**_____

Show the following options only if the answer to question "*17) Which Platform did you use?" is "(3) Both Coursera and Scholar":

The Coursera platform facilitaties interaction with other participants in the course	(5)	(4)	(3)	(2)	(1)	(9999)
The Scholar platform facilitaties interaction with other participants in the course	(5)	(4)	(3)	(2)	(1)	(9999)

***20) What was your prefered mode of engagement in this course?**
a) Independent individual study in your course materials
b) Group interaction with other participants

Show the following question only if the answer to question "20) What was your prefered mode of engagement in this course?" is "(2) Group interaction with other participants"
***00) How many opportunities did you have to establish contact with other participants?**

a) **Very many opportunities**
b) **Many opportunities**
c) **A moderate amount of opportunities**
d) **A small amount of opportunities**
e) **No opportunities**

20b) How well were learning in groups and collaboration with other participants fostered in this course (for example, by peer reviewing, discussions etc.)?

a) **Extremely well**
b) **Very well**
c) **Moderately well**
d) **Not very well**
e) **Not at all**

20c) How well did the computer-mediated communication facilitate group work (for example, peer reviewing activity, discussions etc.)

a) **Extremely well**
b) **Very well**
c) **Moderately well**
d) **Not very well**
e) **Not at all**
f) ***I did not participate in group work.***

20d) How well did the Coursera platform facilitate interaction with other participants in the course?

a) **Extremely well**
b) **Very well**
c) **Moderately well**
d) **Not very well**
e) **Not at all**

20e) How well did the Scholar platform facilitate interaction with other participants in the course?

a) **Extremely well**
b) **Very well**
c) **Moderately well**
d) **Not very well**
e) **Not at all**

***21) Tell us more about your experience concerning the interaction with other participants in the course:**

_____
_____
_____
_____

***22) Tell us more about your experience concerning your learning processes:**

_____
_____
_____
_____

***23) How useful was this course in helping you do the following things?**

	Extremely Useful	**Very useful**	**Moderately useful**	**Slightly useful**	**Not at all useful**
Developing new knowledge and	(5)	(4)	(3)	(2)	(1)

skills in the area of "e-Learning Ecologies"					
Developing skills in communication and collaboration	(5)	(4)	(3)	(2)	(1)
Developing skills in self-regulated learning	(5)	(4)	(3)	(2)	(1)
Developing skills in using the Internet for research	(5)	(4)	(3)	(2)	(1)
Acquiring knowledge and understanding that I can practically apply	(5)	(4)	(3)	(2)	(1)

***24) Tell us more about your experience concerning course outcomes:**

_____
_____
_____
_____

Show the following questions (25-34) only if the answer to question "*18) Which level of participation did you take in this course?" is "(3) *Advanced*"

***25) Rate your experience with the following aspects of the course:**

	Excellent	**Good**	**Fair**	**Poor**	**Very poor**
Writing the case study	(5)	(4)	(3)	(2)	(1)
Receiving feedback through peer reviews from other participants of the course	(5)	(4)	(3)	(2)	(1)
Providing	(5)	(4)	(3)	(2)	(1)

feedback through peer reviews to other participants of the course					
Achieving my goals with the online course	(5)	(4)	(3)	(2)	(1)

***26) Identify 3 things that you learned through giving feedback to other participants of the course:**

_____
_____
_____
_____

***27) Identify 3 things that you learned through receiving feedback from other participants of the course:**

_____
_____
_____
_____

***28) How helpful was the feedback you received from your reviewers?**

(1) Not at all helpful
(2) Slightly helpful
(3) Moderately helpful
(4) Very helpful
(5) Extremely helpful
(9996) *I did not pay attention to the feedback from other students in this course*
(9997) *I did not receive any feedback from other students*

***29) What was the most and the least valuable feedback you received?**

_____
_____
_____
_____

***30) You provided feedback to other participants of the course through peer review process. How helpful was this process when it came to revising your own case study?**

(1) Not at all helpful
(2) Slightly helpful
(3) Moderately helpful
(4) Very helpful
(5) Extremely helpful
(9996) *I did not pay attention to the feedback from other students in this course*
(9997) *I did not receive any feedback from other students*

***31) How helpful did you find the rubrics?**

(1) Not at all helpful
(2) Slightly helpful
(3) Moderately helpful
(4) Very helpful

(5) Extremely helpful
(9996) *I did not pay much attention to the rubrics*
(9997) *I did not read them at all*

***32) You used rubrics to write your work and to revise other participants'works. In what ways did the rubrics support writing your work?**

_____
_____
_____
_____

***33) After receiving feedback from other participants in the course, you revised your work. What aspects of the online environment did you find either helpful or unhelpful when revising your own work?**

_____
_____
_____
_____

***34How likely would you be to take additional courses which include a process of peer review?**
(1) Very unlikely
(2) Somewhat unlikely
(3) It would not affect my decision
(4) Somewhat likely
(5) Very likely

Thank You!

Thank you for helping us to improve the Coursera experience.

Sincerely,
University of Illinois at Urbana-Champaign Coursera Team

Case Study Details

Help

Case Study of an e-Learning Ecology

Overview

Explore and document a case study of an e-learning innovation—something in which you have been involved, or which you have observed in a place where you have studied or worked, or an interesting intervention somewhere else that you would like to study in more detail. This may be a piece of software or hardware, a teaching and learning activity that uses technology, or a case study of a class, a school, or person using technologies in learning in an innovative way. Use the *seven affordances* framework to analyze the dynamics of the e-learning ecology that you are investigating.

Instructions

Include the following elements in your case study:

The Educational Challenge

Describe the background to the development of this e-learning practice or technology. What is the educational challenge that the practice or technology is intended to address?

'Parse' the Ecology

How does the e-learning practice or technology work? Explain its structure and function from the point of view of teachers and learners. How does the way the practice or technology works reflect its understanding of learning?

The Underlying Learning Theory

What is the underlying theory of learning that this educational practice technology reflects? Use the seven affordances framework to analyze this e-learning environment or technology.

The Technology or Learning Process in Practice

Is the operation of the technology in practice and associated learning practices adequately described in the case study? Are concrete examples provided? Do they illustrate the way the environment's underlying theory of learning translates into practice?

Critical Reflection

What are the relative strengths and weaknesses of the tech Admin Help ce from the perspectives of teaching and learning?

Conclusions and Recommendations

Do the conclusions and recommendations follow from the information and reasoning provided in the case study?

Options for the Case Study

Kinds of Feedback for your Case Study. You can choose the level of peer engagement with your writing and the platform you want to use. You can go through the peer review process for a draft (Weeks 4–6), or you can submit your final Case Study directly (Week 6). Note that going through the peer review process before posting the final draft of your Case Study may increase your chances of passing the course.

Option 1: In this approach you submit your Case Study for peer review evaluation in Coursera only.

Option 2: In this approach, you submit your Case Study for peer review in Scholar (for constructive feedback), and afterwards, you post your final work in Coursera (for formative feedback). Scholar's focus is on prospective and constructive feedback before the evaluation (formative assessment). Some of the advantages of choosing Option 2 are: you will have an opportunity to engage in a new and different use of technology to provide feedback (Scholar), you will have the opportunity to improve your writing skills, and you will have the privilege of providing feedback through 2 different platforms.

Here are some more details on the differences between Options 1 and 2 to help you make your choice:

Platform	Option 1: Coursera Only	Option 2: Scholar and Coursera
	• **Week 4** (Optional): Write your Case Study Rough Draft and submit it for peer review in Coursera (by July 27). • **Week 5** (Optional): Review 3 classmates' Case Study Rough Drafts and submit the evaluations in Coursera (by August 3). If you do not submit the 3 peer assessments, your own Case Study Rough Draft will be penalized	• **Week 3:** Join the Scholar 'E-learning Ecologies MOOC' community before 13 July - go to the 'Your Communities' area and sign up there, then check that your name is in the members list for this community. (And please wait to until 14 July before you start entering your work into Scholar - this is the day this project will be opened and you will be able to start.)

Activities and Deadlines for the Case Study	by 20%. • **Week 6**: Revise your Case Study based on the feedback you received from your peers (Optional) and submit your final draft in Coursera as a PDF or plain text file (Mandatory by August 10). • **Week 7** (Mandatory): Evaluate 3 other participants' Case Studies in Coursera (by August 17). If you do not submit the 3 peer assessments, your own Case Study Final Draft will be penalized by 20%.	• **Week 4**: Write your Case Study Rough Draft and submit it for peer review in Scholar (by July 27). • **Week 5**: Review 3 participants' Case Study Rough Drafts and submit the evaluation in Scholar (by August 3). • **Week 6**: Revise your Case Study based on the feedback you received from your peers, publish your final draft in Scholar, and submit the PDF output in Coursera (Mandatory by August 10). • **Week 7**: Evaluate 3 other participants' Case Studies in Coursera (by August 17).
Advantages	Everything you need to do will stay contained within the Coursera platform.	Opportunity to engage in a new and different use of technology to provide feedback.
Disadvantages	You will experience only one educational technology.	Your name may be visible to reviewers in Coursera (in the PDF) unless you edit the file to remove it.

Be sure to keep the following in mind:

- Use fair grading when evaluating the submissions of your peers. While the instructor simply cannot review all of the grading done due to the large number of participants in this course, University of Illinois staff will run analyses of scores. In the past, these analyses have clearly identified when reviewers have given scores unfairly. Such actions "dishonestly improve/hurt the results of others," which is a violation of the Coursera Honor Code and is grounds for dismissal from the course.
- Giving feedback to and receiving feedback from others is an important skill in life. Seize this

opportunity to not only earn points in this course but to also practice this important skill.

Optional Submission of Case Study Rough Draft via Coursera and/or Scholar (July 27)

In order to give you the most flexibility to get feedback via a variety of sources and to use that feedback to improve your Case Study, you are strongly encouraged to submit a rough draft via either the Coursera and/or Scholar platforms. If you submit a draft via Scholar, that submission will not earn you any points toward the passing of this class, but will give you the chance to engage with new technology and get feedback from different peers. If you submit a draft via Coursera, you will earn points which *may* contribute to your final grade. We will keep the higher of your 2 scores from the Rough Draft and Final Draft submissions.

So, take your pick:

- Do not submit a rough draft at all, but realize you will miss out on any helpful feedback from your peers and your Case Study grade will be based entirely upon your final submission.
- Submit a rough draft via Coursera, collect feedback, and earn points which may contribute to your final grade.
- Submit a rough draft via Scholar, collect feedback, and engage with a new technology.
- (**Recommended**) Submit a rough draft via both Coursera and Scholar, collect *even more* feedback, and earn points via your Coursera submission which may contribute to your final grade.

It is entirely up to you!

Note: If you submit a draft via Coursera, you must complete an evaluation of your peers to avoid a 20% penalty to your own submission.

1. You will need to upload the document containing, or paste the text of, your Case Study Rough Draft to the **Case Study Rough Draft Submission**. You may choose to export the PDF from Scholar and upload that.
2. By the Sunday of Week 4 at 11:55 PM Central Time, submit your draft to the **Case Study Rough Draft Submission** below.

Access Case Study Rough Draft Submission

Evaluation of Case Study Rough Draft in Coursera (August 3)

1. On Monday of Week 5 at 12:30 AM Central Time, you can begin reviewing the submissions of your peers. These submissions are available via the **Case Study Rough Draft Evaluations** link below. The system will present you with 3 submissions from your peers. You should review all 3 submissions first before scoring any of them, to help make sure you grade each of them more fairly. Then, return to the first submission and use the form provided on the screen to score each submission.

2. By Sunday of Week 5 at 11:55 PM Central Time, you must submit your evaluation of all 3 submissions from your peers, as well as a self-assessment. You are allowed to submit more than 3, but you must submit at least 3. If you do not submit the 3 peer assessments and the self-assessment, your own assignment will be penalized by 20%.
3. On Monday of Week 6 at 12:30 AM Central Time, the system will release your score to you. By that time your submission will have been reviewed by 3 or more of your peers. Your score (before any penalties, if applicable) will be the median of the scores provided by your peers on your submission.

Access Case Study Rough Draft Evaluations

Submission of Case Study (August 10)

1. You will need to upload the document containing, or paste the text of, your Case Study to the **Case Study of an e-Learning Ecology Submission**. You may choose to export the PDF from Scholar and upload that.
2. By the Sunday of Week 6 at 11:55 PM Central Time, submit your final Case Study to the **Case Study of an e-Learning Ecology Submission** below.

Access Case Study of an e-Learning Ecology Submission

Evaluation of Case Study (August 17)

1. On Monday of Week 7 at 12:30 AM Central Time, you can begin reviewing the submissions of your peers. These submissions are available via the same **Case Study of an e-Learning Ecology Evaluations** page link below. The system will present you with 3 submissions from your peers. You should review all 3 submissions first before scoring any of them, to help make sure you grade each of them more fairly. Then, return to the first submission and use the form provided on the screen to score each submission.
2. By Sunday of Week 7 at 11:55 PM Central Time, you must submit your evaluation of all 3 submissions from your peers, as well as a self-assessment. You are allowed to submit more than 3, but you must submit at least 3. If you do not submit the 3 peer assessments and the self-assessment, your own assignment will be penalized by 20%.
3. On Monday of Week 8 at 12:30 AM Central Time, the system will release your score to you. By that time your submission will have been reviewed by 3 or more of your peers. Your score (before any penalties, if applicable) will be the median of the scores provided by your peers on your submission.

Access Case Study of an e-Learning Ecology Evaluations

Edit Page

Created Tue 24 Jun 2014 2:00 PM CDT

Last Modified Tue 15 Jul 2014 10:52 AM CDT

Appendix L. Coursera and Scholar: Review criteria for the case study

Criterion 1: The Educational Challenge
Description: Describe the background to the development of this technology. What is the educational challenge that this technology is intended to address? Reviewers: comment and suggest additional dimensions of the challenge.

- 4: A substantial and very significant challenge
- 3: A very significant challenge.
- 2: An important challenge
- 1: A moderately important challenge
- 0: A routine challenge

Criterion 2: 'Parse' the Educational Technology
Description: How does the technology work? Explain its structure and function from the point of view of teachers and learners. How does the way the technology works reflect its understanding of learning? Reviewers: If you believe more information is needed for a full interpretation and explanation of the technology, suggest what.

- 4: Excellent information coverage
- 3: Good information coverage
- 2: Enough information
- 1: Just enough information
- 0: Not enough information

Criterion 3: The Underlying Learning Theory
Description: What is the underlying theory of learning that this educational technology reflects? You might mention some of theorists that various members of the group introduced in the first major task in this course (cite and link to these in your references), or other learning theorists. Reviewers: comment and suggest possible additional theoretical perspectives.

- 4: Excellent connections made with learning theories
- 3: Good connections made with learning theories
- 2: Adequate connections made with learning theories
- 1: Very little or no connections made with learning theories
- 0: Insufficient connections made with learning theories

Criterion 4: The Technology in Practice
Description: Is the operation of the technology in practice adequately described in the case study? Are concrete examples provided? Do they illustrate they way the technology's underlying theory of learning translates into practice? Reviewers: What else would you like to know?

- 0: Poor description
- 1: Adequate description
- 2: Good description
- 3: Very good description
- 4: Excellent description

Criterion 5: Critical Reflection
Description: What are the relative strengths and weaknesses of the technology? Reviewers: provide comments and suggestions about other possible strengths and weakness that the reviewer may not have considered.

- 4: Comprehensive analysis of strengths and weaknesses
- 3: Good analysis of strengths and weaknesses
- 2: Adequate analysis of strengths and weaknesses
- 1: Partial analysis of strengths and weaknesses
- 0: Minimal analysis of strengths and weaknesses

Criterion 6: Conclusions and Recommendations
Description: Do the conclusions and recommendations follow from the information and reasoning provided in the case study? Reviewers: comment and suggest conclusions and recommendations you might want to see added.

- 0: Unclear conclusions and impractical recommendations
- 1: Poor conclusions and limited recommendations
- 2: Partial conclusions and incomplete recommendations
- 3: Strong conclusions and recommendations
- 4: Very clear conclusions and strong, comprehensive recommendations

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Office of Vice Chancellor for Research

Institutional Review Board
528 East Green Street
Suite 203
Champaign, IL 61820

January 23, 2014

William Cope
Ed Organization and Leadership
326 Education Bldg
1310 S Sixth St
M/C 708

RE: *The teaching-learning process in online education: new paths for English language teacher formation*
IRB Protocol Number: 14439

EXPIRATION DATE: January 22, 2017

Dear Dr. Cope:

Thank you for submitting the completed IRB application form for your project entitled *The teaching-learning process in online education: new paths for English language teacher formation*. Your project was assigned Institutional Review Board (IRB) Protocol Number 14439 and reviewed. It has been determined that the research activities described in this application meet the criteria for exemption at 45CFR46.101(b)(1).

This determination of exemption only applies to the research study as submitted. Please note that additional modifications to your project need to be submitted to the IRB for review and exemption determination or approval before the modifications are initiated.

We appreciate your conscientious adherence to the requirements of human subjects research. If you have any questions about the IRB process, or if you need assistance at any time, please feel free to contact me or the IRB Office, or visit our website at http://www.irb.illinois.edu.

Sincerely,

Dustin L. Yocum, Human Subjects Research Exempt Specialist, Institutional Review Board

c: Katia Muck

Appendix N - Coursera: Ethics Committee's authorization to conduct research

IRB #14439 Amendment Approved

Yocum, Dustin Leroy
Sent: Wednesday, July 02, 2014 3:51 PM
To: Muck, Katia Eliane
Cc: Samaa Haniya (samaa90@hotmail.com); Cope, William

Dear Katia:

This message serves to supply UIUC IRB approval for the minor modifications being made to your and Dr. Cope's exempt application <IRB #14439- The Teaching-Learning Process in Online Education: New Paths for English Language Teacher Formation>. The modifications adding research activities for two additional courses EPS 590 ML entitled "Learning with Mobile Technologies" and the course "e-Learning Ecologies" (Coursera). The IRB-1 application was updated in various sections to reflect this change, pre-post surveys and a brief survey for dropouts was supplied, the three related online consent letters were provided and recruitment material/messages were submitted.

The changes were documented satisfactorily and you are now free to conduct research in the new courses as proposed.
This amendment does not affect the exempt status of your application.

Dustin

Dustin L. Yocum, MA
Human Subjects Research Specialist / Institutional Review Board
Suite 203, MC-419 / 528 E. Green Street, Champaign, IL 61820
Phone: 217-300-4403 / email: dyocum@illinois.edu

Appendix O - Scholar: Recruiting e-mail

Recruiting e-mail (#8A-2)

Dear Student,

You are being invited to take part in a PhD research that will investigate ways to improve the learning-teaching process in online education in diverse local contexts.

The following link will take you to a complete explanation of how would be your participation in the research. If you agree to take part in it, you will be redirected to take a survey.

Your participation is very important to indicate new paths to online education.

Thanks for your attention!

Dr. William Cope, *Principal Investigator/Professor* & Katia E. Muck, *Investigator*
University of Illinois at Urbana-Champaign

Appendix P – Scholar: Consent form

Waiver Form (#19A)

CONSENT

Dear Student:

We are a team of education researchers based at the University of Illinois examining ways to improve the learning-teaching process in online education in diverse local contexts. We would like to collect data about your participation to be used for a dissertation, education research, journal articles, conference presentations, and the improvement of online learning and teaching.

With your consent, your writing artifacts for the course _____(for example, weekly posts, case studies, and reviews) will be collected through the online platform _____. We also ask that you complete a confidential survey. It will take around 20 minutes of your time.

You will not receive points, credits or any compensation for participation in this study. The Principal Investigator, Professor of the course, will have access to the data only after the course has ended and the grades were all assigned. Besides, the data will be coded by the other Investigator so that the participants remain confidential. The Professor will not know who participated on the investigation.

All data, feedback, and observations will be saved in a secure and private place, accessible only by course admins and the Investigators. All information collected will be identifiable only by confidential identification numbers created by the Investigator. Pseudonyms or codes will be substituted for the names of participants to protect confidentiality.

Risk to volunteer participants is typically no greater than what would normally be experienced through the course of participation in an online course. Most of the data collected is part of regular coursework.

Your participation in this project is completely voluntary, and you may stop taking part at any time. Participation/non-participation will have no effect on your future relationship with the Professor or your assessment in this online course.

If you have any questions about the project, please feel free to contact the Investigators by mail, e-mail, or telephone:

Dr. William Cope, *Principal Investigator/Professor* & Kátia Muck, *Investigator*

#171 Children's Research Center, 51 Gerty Drive, Champaign, IL, 61820 USA

217-418-6000 / billcope@illinois.edu / muck@illinois.edu

Please respond YES or NO.

I authorize my writing artifacts and my answers for the survey to be confidentially used for research purposes.

- Yes

- No

Appendix Q - Coursera: Consent pre-course survey

Hello Coursera/Scholar Student!

Thank you for enrolling in the Coursera and/or Scholar course e-Learning Ecologies offered through the University of Illinois at Urbana-Champaign taught by Dr. William Cope and Dr. Mary Kalantzis. You are being invited to participate in research about the educational opportunity we are providing you through Coursera and Scholar. This research is being conducted by the College of Education and the College of Liberal Arts and Sciences at the University of Illinois at Urbana-Champaign in partnership with Applied Technologies for Learning in the Arts and Sciences (ATLAS). In order to participate, you have to be an adult, at least 18 years of age.

If you choose to participate in this research, you should experience no risks outside of those you would encounter in everyday life. Your participation gives you the opportunity to directly impact the improved quality of Coursera courses offered through the University of Illinois at Urbana-Champaign and will also provide valuable insight into the significance of this emergent educational phenomenon. Additionally, your participation will provide data to be used for a dissertation, a PhD research project, a guide for future improvements in Scholar, education research, journal articles, conference presentations, and the improvement of online learning-teaching process.

If you agree to take part in this research, your writing artifacts for the course (for example, weekly posts, case studies, and reviews) will be collected through the online platforms Coursera and Scholar. Moreover, you will be asked to complete two internet-based survey questionnaires: one now and the other at the end of the course. The surveys consist of multiple choice and open ended questions and should take about 10 minutes to complete each. Participation in this research is completely voluntary and can be discontinued at any time without consequence to your relationship with the course instructor or the University of Illinois. The instructor will have access to the data only after the course has ended. Besides, the data will be coded by other Investigators so that the participants remain confidential. The instructor will not know who participated on the investigation. Your answers will be kept strictly confidential. Only University and ATLAS personnel, who are under strict confidentiality guidelines, will have access to your individual responses.

You will not receive points or credits for participation in this study. However, as a compensation for taking part in this research, upon completion of both surveys you will participate in a raffle for the book if you answer both surveys, you will be part on a raffle of the book New Learning: Elements of a Science of Education, 2nd Edition, autographed by the authors.

All data will be saved in a secure and private place, accessible only by course admins and the Investigators. All information collected will be identifiable only by confidential identification numbers created by the Investigators. Pseudonyms or codes will be substituted for the names of participants to protect confidentiality.

If you have any questions about your rights as a participant in this study, please contact the University of Illinois' Institutional Review Board at 217-333-2670 (collect calls accepted if you identify yourself as a research participant) or via email irb@illinois.edu. If you have any other questions, please contact: Dr. Jim Witte at jwitte@illinois.edu or 217-333-9776; Dr. William Cope, at billcope@illinois.edu, Kátia Muck at muck@illinois.edu, or Samaa Haniya at haniya1@illinois.edu.

If you are taking this survey using a smart phone or a tablet, you may need to use landscape mode to see each question fully.

Sincerely,
The Investigators and the Coursera team at the University of Illinois at Urbana-Champaign

Please print a copy of this consent form for your records, if you so desire.

I have read and understand the above consent form, and by clicking the consent button to enter the survey, I indicate my willingness to voluntarily take part in the study.

Action: Javascript: Custom button text

Appendix R - Coursera: Consent post-course survey

Hello Coursera/Scholar Student!

Now that we have reached the conclusion of the Coursera and/or Scholar course e-Learning Ecologies, offered through the University of Illinois at Urbana-Champaign taught by Dr. William Cope and Dr. Mary Kalantzis, we would like to invite you to participate in the post-course survey. We appreciate your feedback regardless of your level of participation in the course.

You are being invited to participate in research about the educational opportunity we are providing you through Coursera and Scholar. This research is being conducted by the College of Education and the College of Liberal Arts and Sciences at the University of Illinois at Urbana-Champaign in partnership with Applied Technologies for Learning in the Arts and Sciences (ATLAS). In order to participate, you have to be an adult, at least 18 years of age.

If you choose to participate in this research, you should experience no risks outside of those you would encounter in everyday life. Your participation gives you the opportunity to directly impact the improved quality of Coursera courses offered through the University of Illinois at Urbana-Champaign and will also provide valuable insight into the significance of this emergent educational phenomenon. Additionally, your participation will provide data to be used for a dissertation, a PhD research project, a guide for future improvements in Scholar, education research, journal articles, conference presentations, and the improvement of online learning-teaching process.

If you agree to take part in this research, your writing artifacts for the course (for example, weekly posts, case studies, and reviews) will be collected through the online platforms Coursera and Scholar. Moreover, you will be asked to complete two internet-based survey questionnaires: one at the begining of the course and the other now, at the end of the course. The surveys consist of multiple choice and open ended questions and should take about 10 minutes to complete each. Participation in this research is completely voluntary and can be discontinued at any time without consequence to your relationship with the course instructor or the University of Illinois. The instructor will have access to the data only after the course has ended. Besides, the data will be coded by other Investigators so that the participants remain confidential. The instructor will not know who participated on the investigation. Your answers will be kept strictly confidential. Only University and ATLAS personnel, who are under strict confidentiality guidelines, will have access to your individual responses.

You will not receive points or credits for participation in this study. However, as a compensation for taking part in this research, upon completion of both surveys you will participate in a raffle for the book if you answer both surveys, you will be part on a raffle of the book *New Learning: Elements of a Science of Education*, 2nd Edition, autographed by the authors.

All data will be saved in a secure and private place, accessible only by course admins and the Investigators. All information collected will be identifiable only by confidential identification numbers created by the Investigators. Pseudonyms or codes will be substituted for the names of participants to protect confidentiality.

If you have any questions about your rights as a participant in this study, please contact the University of Illinois' Institutional Review Board at 217-333-2670 (collect calls accepted if you identify yourself as a research participant) or via email irb@illinois.edu. If you have any other questions, please contact: Dr. Jim Witte at jwitte@illinois.edu or 217-333-9776; Dr. William Cope, at billcope@illinois.edu, Kátia Muck at muck@illinois.edu, or Samaa Haniya at haniya1@illinois.edu.

If you are taking this survey using a smart phone or a tablet, you may need to use landscape mode to see each question fully.

Sincerely,
The Investigators and the Coursera team at the University of Illinois at Urbana-Champaign

Please print a copy of this consent form for your records, if you so desire.

I have read and understand the above consent form, and by clicking the consent button to enter the survey, I indicate my willingness to voluntarily take part in the study.

Action: Javascript: Custom button text

Appendix S - Intra Class Correlation results - ICC (agreement) and ICC (consistency) - for reviewers in Coursera and Scholar

Participant C2 – Coursera

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	-.304[a]	-.357	.153	.113	5	10	.987
Average Measures	-2.333	-3.737	.351	.113	5	10	.987

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	-.420[a]	-.480	-.093	.113	5	10	.987
Average Measures	-7.875	-36.595	-.341	.113	5	10	.987

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant C3 – Coursera

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.154[a]	-.251	.751	1.556	5	10	.258
Average Measures	.353	-1.510	.900	1.556	5	10	.258

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.156[a]	-.267	.756	1.556	5	10	.258
Average Measures	.357	-1.723	.903	1.556	5	10	.258

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant C4 – Coursera

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.051[a]	-.104	.537	1.371	5	10	.313
Average Measures	.140	-.395	.777	1.371	5	10	.313

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.110[a]	-.291	.729	1.371	5	10	.313
Average Measures	.271	-2.089	.890	1.371	5	10	.313

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant C7 – Coursera

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.500[a]	-.172	.902	4.000	5	5	.077
Average Measures	.667	-.415	.948	4.000	5	5	.077

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.600[a]	-.282	.932	4.000	5	5	.077
Average Measures	.750	-.787	.965	4.000	5	5	.077

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant C8 – Coursera

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.000[a]	-.754	.754	1.000	5	5	.500
Average Measures	.000	-6.146	.860	1.000	5	5	.500

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.000[a]	-.264	.599	1.000	5	5	.500
Average Measures	.000	-.717	.749	1.000	5	5	.500

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Participant C10 – Coursera

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.273[a]	-.173	.810	2.154	5	10	.141
Average Measures	.529	-.794	.927	2.154	5	10	.141

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.278[a]	-.196	.815	2.154	5	10	.141
Average Measures	.536	-.967	.930	2.154	5	10	.141

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant C11 – Coursera

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.250[a]	-.063	.773	6.000	5	5	.036
Average Measures	.400	-.136	.872	6.000	5	5	.036

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.714[a]	-.087	.954	6.000	5	5	.036
Average Measures	.833	-.191	.977	6.000	5	5	.036

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant C12 – Coursera

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.273[a]	-.199	.813	2.125	5	10	.145
Average Measures	.529	-.993	.929	2.125	5	10	.145

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.118[a]	-.066	.610	2.125	5	10	.145
Average Measures	.286	-.227	.824	2.125	5	10	.145

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Participant S1 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.205[a]	-.267	.788	1.711	5	10	.220
Average Measures	.435	-1.713	.918	1.711	5	10	.220

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.191[a]	-.248	.775	1.711	5	10	.220
Average Measures	.415	-1.476	.912	1.711	5	10	.220

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S2 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.667[a]	-.030	.943	6.000	5	5	.036
Average Measures	.800	-.062	.971	6.000	5	5	.036

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.714[a]	-.087	.954	6.000	5	5	.036
Average Measures	.833	-.191	.977	6.000	5	5	.036

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S3 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.286[a]	-.137	.810	2.333	5	10	.119
Average Measures	.545	-.566	.928	2.333	5	10	.119

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.308[a]	-.176	.828	2.333	5	10	.119
Average Measures	.571	-.815	.935	2.333	5	10	.119

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S4 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.118[a]	-.103	.644	1.789	5	10	.203
Average Measures	.286	-.387	.845	1.789	5	10	.203

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.208[a]	-.238	.783	1.789	5	10	.203
Average Measures	.441	-1.367	.916	1.789	5	10	.203

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S5 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.034[a]	-.063	.425	1.383	5	10	.309
Average Measures	.096	-.218	.690	1.383	5	10	.309

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.113[a]	-.290	.731	1.383	5	10	.309
Average Measures	.277	-2.063	.891	1.383	5	10	.309

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S6 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.444[a]	-.164	.883	4.333	5	5	.067
Average Measures	.615	-.393	.938	4.333	5	5	.067

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.625[a]	-.245	.937	4.333	5	5	.067
Average Measures	.769	-.649	.968	4.333	5	5	.067

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S7 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	-.250[a]	-.500	.500	.400	5	5	.831
Average Measures	-.667	-1.997	.667	.400	5	5	.831

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	-.429[a]	-.894	.482	.400	5	5	.831
Average Measures	-1.500	-16.866	.650	.400	5	5	.831

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S8 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.033[a]	-.199	.603	1.149	5	10	.397
Average Measures	.094	-.995	.820	1.149	5	10	.397

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.047[a]	-.321	.688	1.149	5	10	.397
Average Measures	.129	-2.688	.868	1.149	5	10	.397

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S9 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.123[a]	-.163	.690	1.592	5	10	.248
Average Measures	.296	-.724	.870	1.592	5	10	.248

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.165[a]	-.263	.761	1.592	5	10	.248
Average Measures	.372	-1.662	.905	1.592	5	10	.248

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S10 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.444[a]	.017	.867	5.000	5	10	.015
Average Measures	.706	.050	.951	5.000	5	10	.015

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.571[a]	.057	.915	5.000	5	10	.015
Average Measures	.800	.153	.970	5.000	5	10	.015

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S12 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	-.038[a]	-.430	.656	.905	5	10	.515
Average Measures	-.122	-9.206	.851	.905	5	10	.515

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	-.033[a]	-.355	.624	.905	5	10	.515
Average Measures	-.105	-3.682	.833	.905	5	10	.515

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S13 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	-.529[a]	-.917	.375	.308	5	5	.889
Average Measures	-2.246	-22.194	.546	.308	5	5	.889

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	-.577[a]	-1.087	.437	.308	5	5	.889
Average Measures	-2.723	25.062	.608	.308	5	5	.889

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Participant S15 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.865[a]	.394	.979	13.800	5	5	.006
Average Measures	.928	.566	.990	13.800	5	5	.006

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.865[a]	.318	.980	13.800	5	5	.006
Average Measures	.928	.482	.990	13.800	5	5	.006

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S16 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.005[a]	-.024	.174	1.143	5	10	.399
Average Measures	.014	-.074	.387	1.143	5	10	.399

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.045[a]	-.322	.686	1.143	5	10	.399
Average Measures	.125	-2.707	.868	1.143	5	10	.399

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S17 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.643[a]	-.068	.938	6.400	5	5	.031
Average Measures	.783	-.145	.968	6.400	5	5	.031

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.730[a]	-.055	.957	6.400	5	5	.031
Average Measures	.844	-.117	.978	6.400	5	5	.031

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S18 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.474[a]	.015	.882	4.130	5	10	.027
Average Measures	.730	.045	.957	4.130	5	10	.027

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.511[a]	-.008	.898	4.130	5	10	.027
Average Measures	.758	-.026	.963	4.130	5	10	.027

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S19 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.320[a]	-.019	.799	7.130	5	10	.004
Average Measures	.585	-.059	.922	7.130	5	10	.004

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.671[a]	.186	.939	7.130	5	10	.004
Average Measures	.860	.406	.979	7.130	5	10	.004

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S20 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.554[a]	-.400	.924	3.214	5	5	.113
Average Measures	.713	-1.336	.961	3.214	5	5	.113

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.525[a]	-.380	.917	3.214	5	5	.113
Average Measures	.689	-1.223	.956	3.214	5	5	.113

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S21 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.000[a]	-.094	.381	1.000	5	5	.500
Average Measures	.000	-.208	.551	1.000	5	5	.500

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.000[a]	-.754	.754	1.000	5	5	.500
Average Measures	.000	-6.146	.860	1.000	5	5	.500

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S22 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.130[a]	-.173	.702	1.600	5	10	.246
Average Measures	.310	-.793	.876	1.600	5	10	.246

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.167[a]	-.262	.762	1.600	5	10	.246
Average Measures	.375	-1.648	.906	1.600	5	10	.246

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S23 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.643[a]	-.359	.943	4.000	5	5	.077
Average Measures	.783	-1.120	.971	4.000	5	5	.077

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.600[a]	-.282	.932	4.000	5	5	.077
Average Measures	.750	-.787	.965	4.000	5	5	.077

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S25 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.390[a]	-.321	.875	2.524	5	5	.166
Average Measures	.561	-.947	.933	2.524	5	5	.166

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.432[a]	-.478	.895	2.524	5	5	.166
Average Measures	.604	-1.832	.945	2.524	5	5	.166

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S26 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.211[a]	-.263	.786	1.889	5	5	.251
Average Measures	.348	-.713	.880	1.889	5	5	.251

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.308[a]	-.582	.862	1.889	5	5	.251
Average Measures	.471	-2.783	.926	1.889	5	5	.251

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S27 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.000[a]	-.847	.766	1.000	5	5	.500
Average Measures	.000	-11.108	.868	1.000	5	5	.500

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.000[a]	-.754	.754	1.000	5	5	.500
Average Measures	.000	-6.146	.860	1.000	5	5	.500

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S28 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.286[a]	-.642	.858	1.750	5	5	.277
Average Measures	.444	-3.581	.924	1.750	5	5	.277

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.273[a]	-.607	.852	1.750	5	5	.277
Average Measures	.429	-3.084	.920	1.750	5	5	.277

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S29 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	-.053[a]	-.313	.570	.829	5	10	.557
Average Measures	-.176	-2.508	.799	.829	5	10	.557

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	-.061[a]	-.366	.599	.829	5	10	.557
Average Measures	-.207	-4.113	.818	.829	5	10	.557

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S30 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.058[a]	-.258	.670	1.211	5	10	.371
Average Measures	.156	-1.603	.859	1.211	5	10	.371

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.066[a]	-.312	.700	1.211	5	10	.371
Average Measures	.174	-2.499	.875	1.211	5	10	.371

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S31 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.478[a]	-.158	.894	4.765	5	5	.056
Average Measures	.646	-.376	.944	4.765	5	5	.056

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.653[a]	-.200	.943	4.765	5	5	.056
Average Measures	.790	-.500	.971	4.765	5	5	.056

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Participant S32 – Scholar

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.024[a]	-.138	.518	1.167	5	5	.435
Average Measures	.048	-.321	.683	1.167	5	5	.435

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.077[a]	-.719	.786	1.167	5	5	.435
Average Measures	.143	-5.125	.880	1.167	5	5	.435

Two-way random effects model where both people effects and measures effects are random.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Appendix T - Coursera: Qualitative analysis

1- The Educational Challenge: Describe the background to the development of this e-learning practice or technology. What is the educational challenge that the practice or technology is intended to address? Reviewer: Comment and suggest additional dimensions of the challenge.

(JC) Score 3: Good choice of topics here.
(JC) Score 3: En mi opinión, esta parte del trabajo está bien structurada y muy detallada.
(AC/S) Score 3: I think the challenge has been articulated very comprehensively. You might also want to additionally the issue of whether learners would actually access the resources and be productively engaged by them or whether it would just be a tick in the box activity.
(AC/S) Score 3: I find this very challenging, as difficult students are difficult to handle in classroom. For sure you intend to extend more on what is the meaning of 'behaviour issues' and 'the right thing' to do. Maybe an explanation of the context of these kids could help: why are they 'all' or 'mostly' behaving that way? What is their social, economical background?
(JC) Score 3: Teachers are using a new method/technology they are not familiar with.
(JC) Score 3: Great I like it
(JC) Score 3: I am glad someone is looking at including this into teacher education
(AC/S) Score 3: Is the diminishing of the f2f hours a financial decision? In which case where does the money and time to implement the elearning component come from? Also does there need to be some consideration given to reducing the learning outcome and amount of content covered (eg the recommended readings) given the reduced hours. Could you explain whether the institution's decision makers advocated the online component as a cheaper alternative to face to face? The challenge seems to be political as much as educational.
(JC) Score 3: The challenge here appears to be the transition from face-to-face to online professional development classes for mental health professionals.

(U) Score 2: Improve behavior of students
(JC) Score 2: Good to care of adults!
(AC/S) Score 2: The challenge seems to be mostly the online translation of f2f courses. Is there anything else?
(AC/S) Score 2: I think you could also comment on what kind of students you have: ages, interests, male/female... I can see that they don't have a math background. Why? And why do you need to teach something that their background doesn't support? I'd also would like to understand better why there is so much data analysis in this subject -I studied introduction to sociology and it was a subject about 'text': explanations, reading of books, history, politic movements... Nothing so related to data analysis. But I also studied 'Econometrics' so I really know what you're talking about. Again, I consider key to have a good math's background.
(JC) Score 2: Students are challenged to motivate and learn themselves.
(AC/S) Score 2: Your topic was of special interest to me. But I think it would be important to explain its importance to others, not familiar with language acquisition. Maybe by comparing it to other innovations? Anyway, I still cant figure out why the importance of this particular example should be graded as a reflection of your skillset.

2- 'Parse' the Ecology: How does the e-learning practice or technology work? Explain its structure and function from the point of view of teachers and learners. How does the way the practice or technology works reflect its understanding of learning? Reviewer: If you believe more information is needed for a full interpretation and explanation of this e-learning environment, suggest what.

(AC/S) Score 3: I'm sure that you'll include the definition of 'class dojo' in your final case study and how a smart TV works. (Even if it sounds as everybody should know this, it's not the case).
(AC/S) Score 3: Se describe bien el proceso, pero no se detallan algunas herramientas, especialmente en lo referente a las interacciones en línea.
(AC/S) Score 3: I would like to have more explanation of the integration of online with class time - how to the weekly assignments fit with the readings and lectures, the class discussions, group work and then what seem to be larger assignments? Just a bit more on the whole process as it's not entirely clear to me.
(JC) Score 3: The technology is used at the basic to be accessible to all students

(U) Score 2: smartTV
(AC/S) Score 2: Not sure what is meant by all learners? Child or Adult?
(AC/S) Score 2: Is it all about the online format or are there substantive issues with course content involved as well?
(AC/S) Score 2: I'd like to hear more about how the e-learning environment actually works. How long is a course, how often do students engage with it? Are they at their own pace or do they have deadlines to keep? What kind of assignments do they do?

(U) Score 1: Using audio feedback instead of text.
(AC/S) Score 1: As you have realized yourself, you were addressing a niche is the greater scheme of all things learning. I think you need to pick up another example if you are to demonstrate knowledge of the material and receive the grade you deserve.

3- The Underlying Learning Theory: What is the underlying theory of learning that this educational practice technology reflects? Use the seven affordances framework to analyze this e-learning environment or technology. Reviewer: Comment and suggest possible additional theoretical perspectives.

(AC/S) Score 3: El texto recoge ideas y conceptos fundamentales en el ámbito de la enseñanza de lenguas extranjeras. Dada la clara orientación constructivista de la metodología aplicada, se echan en falta menciones directas a ámbitos como el TBLL (aprendizaje por tareas), o el CSCL (aprendizaje colaborativo por computador) o el CALL (aprendizaje de lenguas por ordenador). Uso las siglas en inglés ya que son las más usadas.

(AC/S) Score 2: I thought you could give more detail here - you mention a list of learning theories but don't really connect them to what you are proposing. How for example does cognitive theory relate to the approach being taken? Can you define what you mean by constructivism and then illustrate the way it operates in your blended/flipped course? You make good connections with the affordances.
(AC/S) Score 2: Is there an identified learning theory that suits more to the adults?
(JC) Score 2: Getting there, Great start
(AC/S) Score 2: I'm not sure that the reward/punishment system is a learning theory, but it seems more like a psychological theory. It's true that you were dealing with a 'psychological issue', but maybe the real

problem was in the contents explained to those students, how they were explained, or whether the students had enough time to feel free and use their physical energy before sitting them and telling them lots of stuff.

(JC) Score 1: In progress
(AC/S) Score 1: I see very little mentioning of the affordances in this case study. What are the key affordances you think you will be working on? You mention recursive feedback and creativity, can you expand on that?

(JC) Score 0: I did not see anything on this.
(JC) Score 0: Process still developing.
(JC) Score 0: Not explained.

4- The Technology or Learning Process in Practice: Is the operation of the technology in practice and associated learning practices adequately described in the case study? Are concrete examples provided? Do they illustrate the way the environment's underlying theory of learning translates into practice? Reviewer: What else would you like to know?

(JC) Score 3: You do a good job of describing the relationship to technology.

(AC/S) Score 2: This is still a bit skeletal. Maybe you could provide actual examples of courses.
(AC/S) Score 2: Aquí echo en falta más detalles sobre la tecnología utilizada para las interacciones online. Se habla de Skype, pero se intuye que se usan otros medios para la comunicación entre los miembros de la comunidad de aprendizaje. Más concretamente, no se sabe si se utilizaba un LMS (ambiente virtual de aprendizaje), lo cual suele ser habitual en el contexto que se describe. Si no se utliza, encuentro que sería interesante explicar esta decisión.
(AC/S) Score 2: I think this might be the only weak area in your cases study. There is a lot of focus on the learning process but less so on the technology it harnesses and the issues that might arise from it. I would also suggest putting in a graphic that shows the learning process as it happens in a week-wise manner within the body of your case study.
(JC) Score 2: I kinda got where you were going but maybe not quite
(AC/S) Score 2: Would the case study be helped if you supplement this overall picture with a detailed look at just one of the technologies/approaches and its associated learning practices. You're obviously making a lot of changes and implementing a lot of new things but looking at the way the delivery of information is taken out of the class space thus allowing for something else to happen there, the subsequent learning practices and their associated learning theory would help focus on a specific aspect of the whole project.
(AC/S) Score 2: I'd like stronger examples of how the theory of learning is being applied.

(U) Score 1: Behavior improvement.
(AC/S) Score 1: How are you going to select topics for your data exercise? Will it be based on pupil's voice? or have you specific themes in mind that you want to present?
(AC/S) Score 1: I would like to know how this is been received by pupils. I suspect it may be very useful to a few but not the majority.

(AC/S) Score 0: What is the strategy of adult e-learning? Adults learners are supposed to be heterogeneous?

5- Critical Reflection: What are the relative strengths and weaknesses of the technology or practice from the perspectives of teaching and learning? Reviewer: Provide comments and suggestions about other possible strengths and weaknesses that the author may not have considered.

(JC) Score 3: I see that you really like your subject and you feel sad because your students can't really do thorough data analysis. But nothing to add, I think you really do a good effort on this.

(AC/S) Score 2: Why is it bad that your learners behaved appropriately when they got scores for that? It's the way life works... I think you do a good analysis of the strengths and weaknesses of the model, though I'll again add something about the environment surrounding those students, to see if it was also a weakness. I'd also add something about the subject(s) you and other teachers were trying to explain, to see if those could also be weaknesses.
(AC/S) Score 2: Overall, your tone is more descriptive than evaluative. Given the strengths of your essay, I would urge you to analyze the design of the ecology instead of the design of the curriculum where your focus currently lies.
(AC/S) Score 2: How should new teachers handle those with more experience or more influence which are against technology. Often I see new teachers who are quickly disillusioned by the sudden reality of the opposition they may face when trying to ingrate technology.
(AC/S) Score 2: You do go into the creative side of flipping the classroom here. You seem to put the reflection through the case study instead of clearly delineating it, but it is definitely there.
(AC/S) Score 2: Good start of an analysis, especially identifying the need that participants learn skills, not just information. Build out the weaknesses of the method, and incorporate possible solutions into your recommendations.
(AC/S) Score 2: Student agency could be seen as a strength as much as a weakness I think you could explore the work load issue more and make more of the positive impacts of the technology affordances in terms of it supporting your theories of learning. Coming back to the political nature of the challenge - is there anything here that is worth comment Can your approach be duplicated with other courses?

(AC/S) Score 1: Think about how to advance this technology in practice.
(AC/S) Score 1: Se hace un análisis de las fortalezas en términos de beneficios en el aprendizaje, pero falta una revisión de los problemas que sin duda se plantearon en mayor o menor medida.
(AC/S) Score 1: There's not enough explanation how eLearning benefits students from traditional learning in this class.
(AC/S) Score 1: Is peer review really a peer review if adults are coming from diverse horizons?
(JC) Score 1: Good example of the benefits of using the technology.

6- Conclusions and Recommendations
Do the conclusions and recommendations follow from the information and reasoning provided in the case study? Reviewer: Comment and suggest conclusions and recommendations you might want to see added.

(AC/S) Score 3: Maybe switch from Facebook to Edmodo to separate student from personal…
(AC/S) Score 3: You outline some tangible next steps for subsequent courses.

(AC/S) Score 3: I'd be interested in any recommendations that covered the need for transitioning teachers and students from a more conventional to a blended approach.
(U) Score 3: Good start, I like the idea now maybe some clarity?

(AC/S) Score 2: Recommendations are very general; please be more specific.
(JC) Score 2: Keep up the work as you progress to improve the online class.
(AC/S-N) Score 2: The subject chosen is a little to simple for this case study.

(JC) Score 1: As the author has written still there is no conclusion.
(JC) Score 1: Parece que el apartado de conclusiones y recomendaciones se centra en resumir una serie de fortalezas de la experiencia descrita.

(JC) Score 0: I just put '0' because it was compulsory to answer, but I know that you hadn't this part completed -neither have I.

Appendix U - Scholar: Qualitative analysis

Criterion 1: The Educational Challenge
Description: Describe the background to the development of this technology. What is the educational challenge that this technology is intended to address? Reviewers: comment and suggest additional dimensions of the challenge.

A very significant challenge:
(AC/S) **Score:** 3 **Reviewer's Explanation:** You should add the heading as: The Educational Challenge, and start talking about the specific technology you're introducing
(AC/S) **Score:** 3 **Reviewer's Explanation:** I liked your introduction quite a bit and think it seamlessly flowed into the reason for your paper. My only suggestion is that is seems like the largest educational challenge you found was how to make sure mobile devices support learning and not become a distraction. While I think this is definitely valid, I wondered if there was anything else you might've explored that went a little deeper. For example, what is cloud-based collaboration in particular something we want to emphasize?
(JC) **Score:** 3 **Reviewer's Explanation:** LSM is important as it is widely used in nowadays educational organizations.
(AC/S) **Score:** 3 **Reviewer's Explanation:** Clear statement of motivation for starting Mimio with a good, brief and concise explanation. Maybe you could identify the brains by name?
(AC/S) **Score:** 3 **Reviewer's Explanation:** I think the background information is solid. However, I might suggest focusing on an educational challenge specific to the special education classroom given that it seems to be the focus on much of your work.
(JC) **Score:** 3 **Reviewer's Explanation:** You have this pretty well thought out, though (by your own admission) the work is incomplete.
(AC/S) **Score:** 3 **Reviewer's Explanation:** Great introduction. Immediately looked for information about MCedu. Educational connections are listed as problem solving, Physics, writing. Are there any other connections?
(AC/S) **Score:** 3 **Reviewer's Explanation:** Very good background statement, you should also explicitly mention at the end of this section, what particular educational challenge does SMART Board is intended to solve?
(AC/S) **Score:** 3 **Reviewer's Explanation:** I think you've provided great background information on the purpose of Newsela, so much that I want to try it! It sounds great to enhance nonfiction reading skills. You might think about discussing more of the problem and why the change and push towards these shifts. Especially for a non-educators benefit.
(AC/S) **Score:** 3 **Reviewer's Explanation:** Your initial approximation of programming language to traditional language presented an unusual but pleasant background for what turned out to be an informative and interesting paper. You needed to be more explicit and cohesive in describing the challenge that the technology is designed to resolve. I was left to deduce that the challenge is that females are not as much into programming as males and that older children who have had no exposure to coding, have difficulty grasping the languages at high school.
(AC/S) **Score:** 3 **Reviewer's Explanation:** First I apologize for the delay in this review. Your rooting of ibooks author in multiple intelligence theory was very thorough. My only suggestion would be to include a brief introduction or abstract that identifies your purpose before introducing Gardner's theory. I found myself looking ahead to find out what you were going to be describing.
(AC/S) **Score:** 3 **Reviewer's Explanation:** Is the challenge the rise in technology usage in a students non-classroom life and creating a balance? That's a great start, I like it. But, is that really the gap that game-based learning hopes to fill? Or is that just a convenient way to frame them?
(AC/S) **Score:** 3 **Reviewer's Explanation:** I liked your opening, since no one can deny the tides of technologies. It seems like a good start of story. Also, I agree with your idea that educational games are

very promising technologies, but I am somewhat curious about what makes educational games particularly promising among other new technologies. If you provide additional backgrounds for this part, it would be much clear for the readers.
(AC/S) **Score:** 3 **Reviewer's Explanation:** A little more background would be helpful. At what age did Andrew develop this technology? Who were his financiers? Was he gifted in writing code?
(AC/S) **Score:** 3 **Reviewer's Explanation:** There is a lot of background information here but I am not quite sure what the educational challenge is here. What hole in learning are they trying to fix?
(AC/S) **Score:** 3 **Reviewer's Explanation:** You can say previously what kind of skills students are lacking , what level of students pixie are intended to solve the problem with?
(AC/S) **Score:** 3 **Reviewer's Explanation:** Very clear explanation of the goal to reduce reading gaps for students. Concise and well written. I would suggest expanding on a couple of notes (see annotations) to provide a fuller picture of the history and causes of the problem of high numbers (30 %) of students aren't proficiency.
(AC/S) **Score:** 3 **Reviewer's Explanation:** Good explanation of the difficulties with reading skills in the U.S. Your statistic at the end of the work about college athletes was really shocking - your most effective point - might want to use it at the beginning to lay the foundation. You could also expand on our current educational culture of data and assessment and how this need fits with this software.
(AC/S) **Score:** 3 **Reviewer's Explanation:** Good background introduction of Quizlet. However, I think it will be more complete if you can illustrate what is the motivation of the founder for creating or inventing this technology. Did the founder see the disadvantages or drawbacks of the main educational systems that need to be changed or advanced?
(AC/S) **Score:** 3 **Reviewer's Explanation:** Good discussion of engagement and gamification--I'd go beyond that here to also mention that this technology also allows students to help create learning.
(AC/S) **Score:** 3 **Reviewer's Explanation:** I think it would be worthwhile to dig deeper into the question of feedback. You might consider including a discussion of formative vs. summative evaluation. You might also discuss the challenge of making students more engaged in the learning process. Finally, consider adding some visuals (such as a screen shot of Socrative) and hyperlinks to make this section more visually appealing. Overall, I think you explanations are clear and concise.

(AC/S) **Score:** 2 **Reviewer's Explanation:** You discuss some of the challenge that you'll be addressing, but a lot of your explanation is through the words of others, without specifically explaining the problem. You end saying that you want to restore autonomy, relatedness, and connectedness, but you don't necessarily ever explain how those were degraded. Your discussion of testing touches on this but doesn't really explain it sufficiently.
(AC/S) **Score:** 2 **Reviewer's Explanation:** Describe the background to Learning Management Systems (LMS). How did this system come about?
(AC/S) **Score:** 2 **Reviewer's Explanation:** Is there a specific application(s) using digital badges that is part of this project? Consider including this information to offer more specific purpose to the work.
(AC/S) **Score:** 2 **Reviewer's Explanation:** The first three paragraphs explain the educational challenge; however, there are a few confusing areas that could use restructuring. The last paragraph in the section (under the image) seems unnecessary and would need revision to be clearer.
(AC/S) **Score:** 2 **Reviewer's Explanation:** You did not spend enough time discussing SL as a technology, how it works, its origins etc. Instead, you presented a somewhat cursory view. Here is an article that I hope will be able to help you strengthen this aspect of your paper. Second Life: an overview of the potential of 3-D virtual worlds in medical and health education by Maged N. Kamel Boulos, Lee Hetherington, Steve Wheeler
(AC/S) **Score:** 2 **Reviewer's Explanation:** I think you should set up the educational context where this is needed and can be used as a resource. This does not seem like something that could be used K-12, but could be very helpful for higher education. How have the fifty universities that use this program utilize it? What type of courses? What specific instruction? Besides distance, how is this a better opportunity?

(AC/S) **Score:** 2 **Reviewer's Explanation:** What problem does SL address? I do not feel like the idea was sold to me. Why is increasing the social component important, for instance?
(AC/S) **Score:** 2 **Reviewer's Explanation:** It seems that there should be an inclusion here on why memorizing information is important - is this a skill student's need? Or is it something that is just a tool for school?
(AC/S) **Score:** 2 **Reviewer's Explanation:** I would suggest framing your introduction. Tell the reader what your going to tell them in the article.
(AC/S) **Score:** 2 **Reviewer's Explanation:** I gave this a 2 because I don't see that you really drove home the point on why Mind Tools is important to me as an employer. Why do my employees need this? Are they lacking otherwise? The bios of the president were distracting and seemingly unnecessary.
(AC/S) **Score:** 2 **Reviewer's Explanation:** You have a good start to a description here. I'm wondering what the platform looks like, how students access it, and how it directly addresses a problem in the classroom. Maybe you can provide a specific problem - or several problems, since you mention that this can be utilized across the curriculum - that would help me understand why this technology is necessary. Maybe even providing some kind of vignette would be interesting and help explain the technology.
(AC/S) **Score:** 2 **Reviewer's Explanation:** I think this program does more than just assess grade level. It allows schools to measure progress. Our school used this heavily to see if students were meeting growth rates. They would use this data to evaluate individual classes and see if one year has a greater growth than the next. It also allows for students to individualize their growth. A student performing below grade level could make more progress in their individual education than a student who is above grade level. The MAP program allows educators to target individual students and look at populations at large.
(AC/S) **Score:** 2 **Reviewer's Explanation:** I mentioned this in an annotation, but I'll mention it here, as well: This needs to be made more clear that it's taken straight from the website--as it is, it seems like you wrote it (except for the voice, which is clearly that of "Quizlet"). It's a bit long for a quotation. Perhaps you can synthesize some of the information instead of using a straight quote.
(AC/S) **Score:** 2 **Reviewer's Explanation:** You do a good job explaining the technology itself, but I think you might want to spend a bit more time at the beginning discussing more fully the original challenge this is meant to address...you could connect to research about the deficits in science knowledge and education in the US and beyond.
(JC) **Score:** 2 **Reviewer's Explanation:** It is a good beginning, and I am sure there are more to say to respond to the education challenges.
(AC/S) **Score:** 2 **Reviewer's Explanation:** Provide more of an introduction to PhET. You seemed to give in right away and I wasn't sure of why PhET existed. Maybe add something personal if you've used them? You have a good general overview, but I still wondered some things such as: what ages/grades is it targeted toward? Is it based on state standards? Tell us more about who designed it - just Carl Wieman or other physicists?

(AC/S) **Score:** 1 **Reviewer's Explanation:** I understand that you have some more work to do. Your piece is coming together nicely. Good luck editing and revising it. Don't forget to complete the dates for your references.
(AC/S) **Score:** 1 **Reviewer's Explanation:** You give decent background on the tool but you don't talk much about the educational challenge that this technology is intended to address. Maybe strategically merge the first section with bits and pieces with the second to give the educational challenge a little more meat.
(AC/S) **Score:** 1 **Reviewer's Explanation:** The first-two paragraphs suggest that the popularity of videogames allowing the technology to be used in classrooms. However, the paper needs to convince its reader why video games are needed to reduce educational gap or to increase learning performance. What is the current use of video games in classrooms? What is the problem that educators are facing? (Rating 1=a routine/moderately important challenge)

(AC/S) **Score:** 0 **Reviewer's Explanation:** This is a good description of the technology, but what is the educational challenge it is designed to address? What is currently missing in classrooms or curriculum that this addresses, or how does it improve on existing structures?

Criterion 2: 'Parse' the Educational Technology
Description: How does the technology work? Explain its structure and function from the point of view of teachers and learners. How does the way the technology works reflect its understanding of learning? Reviewers: If you believe more information is needed for a full interpretation and explanation of the technology, suggest what.
(AC/S) **Score:** 3 **Reviewer's Explanation:** It seems that you focus on introduce SMART board from teacher's perspective. Try to think from learner's perspective as well.
(AC/S) **Score:** 3 **Reviewer's Explanation:** Pieces of SL are explained in a basic way that is easy to understand. Applicability to learning is still a little unclear.
(AC/S) **Score:** 3 **Reviewer's Explanation:** Some of the scenarios could use more description. Assume your reader is new to this: what do you mean by "build factions" "make them relaxed to think the better option" ?
(AC/S) **Score:** 3 **Reviewer's Explanation:** I have never heard or used Minecraft before. I found your explanation to be off to a great start! Your flow chart is helpful in understanding the basics of the software. Would there be a way to insert some screen shots of what the technology looks like? Again, I don't know anything about the technology, so this may not be possible (or helpful). I'm just thinking if I could 'see' what it looks like, it may assist me in understanding the game and how I might use it. Like you mentioned in your comments, I think you need to add the part about how the technology reflects understanding of learning. I interpreted this as how the teacher is able to evaluate students' progress. Is there a way to monitor success on Minecraft? How do the teachers know that students are learning?
(AC/S) **Score:** 3 **Reviewer's Explanation:** It would be great to include some images of the Quizlet interface here.
(AC/S) **Score:** 3 **Reviewer's Explanation:** As this section tends to introduce the technology from both teachers and learners perspective, maybe you should divide the intro into two separate paragraphs and see the product from both sides. I can see the teacher's view, but not so much information on learners' side.
(AC/S) **Score:** 3 **Reviewer's Explanation:** I loved the way you started this part using scientific research results. I could understand how the Geometer's sketchpad will benefit learning math. I was impressed that its product line was that diverse. I think you did really well present this part, however, if I should suggest something on your work, I would suggest you show detailed instructions at least part of them. I mean, since I have never tried this program, I wondered how it works. Now I knew the products but still I don't know how student can use it or how the program looks like. I tried the link you provided, but for some reasons, it did not work. Hence, if it is possible, I would suggest you to add more descriptions about inside of the product.
(AC/S) **Score:** 3 **Reviewer's Explanation:** I can see clearly how this technology works for learning. However, it will be great to point out some viewpoints of instructors who apply this application as a or part of the course. What should instructors do or consider about when they use this website to enhance their teaching process?
(AC/S) **Score:** 3 **Reviewer's Explanation:** I got a little lost with all the RIT score and analytics. While this is important, maybe adding a summary or layman's term version toward the end to clarify would help.
(AC/S) **Score:** 3 **Reviewer's Explanation:** When our district tried to explain MAP testing to parents, it was very hard for them to understand. I appreciate the more education terminology, but I also think it may help if you break down some of the sentences for those who are not familiar with testing terminology. I remember someone explaining the MAP testing to me as a first year teacher and the content was so dense, I missed a lot of vital information. Is there a link for the DesCartes program? I

relied heavily on the handouts my administration gave us from DesCartes to interpret and analyze student data. Figures 1 and 2 did not show up in my draft.
(AC/S) **Score:** 3 **Reviewer's Explanation:** I think Piaget is probably your strongest theorist. This testing has the capability of measuring the transition from the concrete operational stages and the formal operational stage. Howard's theory does weaken the argument for using MAP testing.
(AC/S) **Score:** 3 **Reviewer's Explanation:** I think there is a big social aspect to this technology as you've described it. Perhaps pull some of the social theory of learning into this section?
(AC/S) **Score:** 3 **Reviewer's Explanation:** This part is nice and clear. Well done. I was wondering how do the instructors think about this technology. What features they like or not? BTW, this application looks so interesting! :)
(AC/S) **Score:** 3 **Reviewer's Explanation:** I would like to learn more about this technology. Is it possible to include more details and/or examples? This section could be a little more developed to provide a better explanation of the technology.
(AC/S) **Score:** 3 **Reviewer's Explanation:** I like what you have done with the explanation, pretty clear for #1-5. #6 and 7 are not as clear to me, as I have never used Mimio. Would it be possible to include a video of some of these components in action?
(AC/S) **Score:** 3 **Reviewer's Explanation:** This Qwizdom looks very usable. You provided enough information to understand what it is. I was curious about how it generate results, and I was impressed after watching the video provided by Qwizdom. There are not many things to suggest you, but if I should do it, I would tell you that I wish you have included pictures of each process. It does not have to show all of the processes, but it will be better to show just some of them. Then, readers will understand the better about Qwizdom.
(AC/S) **Score:** 3 **Reviewer's Explanation:** How does this technology influence teachers and learners? How do they navigate the technology? This may be a place to add in some teacher and learner dialogue about their thoughts on the learning environment. Another way to add more information into this section is through a visual of the site and/or an informative/tutuorial video on LMS (link to video)
(AC/S) **Score:** 3 **Reviewer's Explanation:** This seems interwoven in your paper. I want to know more about Portal and Portal 2, though. I want to know what kind of challenge the teacher poses; what tasks the students participate in, are there any outcomes to target, how is learning assessed?
(AC/S) **Score:** 3 **Reviewer's Explanation:** I love that you included some examples of the simulations and games, but would also love to see some of the lesson plans that contributors have come up with--how are people interacting with the site? It seems to me that the learning community aspect is really critical--this isn't a static site. Am I right in that?
(AC/S) **Score:** 3 **Reviewer's Explanation:** Again, your description is clear and concise. However, I think it would be very helpful to include some visuals, such as screen shots, to make it easier for the reader to understand how Socrative works in practice. I would be interested in seeing how the scree looks when the students provide feedback. It would also be interesting to see how a summary sheet actually looked.
(AC/S) **Score:** 3 **Reviewer's Explanation:** This section was a little confusing to me. I felt that examples were jumped into right away and there was little explanation of how the system generally works.The first image is great, but I would go more in depth of why this relates to PhET. This image may work better added into the section about the underlying learning theory. The visuals are a great addition into this section to show the reader an example of a simulation.
(AC/S) **Score:** 3 **Reviewer's Explanation:** I think you did this well. I'd like to hear or see how this works. The tutorial does show the teacher and student assessment happening. However, I'd like to see all that it can do in terms of classroom lesson. That might be a link that would be better? Just an idea!
(AC/S) **Score:** 3 **Reviewer's Explanation:** I think I understand the principle of the technology, but what are the requirements for use? I had to get on the website to see that it is actual intended as a blended learning instructional tool. Can you use it as an online course replacement, does it operate like an LMS or more like and in class quizzes replacing the clickers? These are some of the question this section left me asking. You may consider answering some of them with an additional paragraph. In the technology

in practice portion I thought I would erase the above questions, but they weren't really answered, but this would be another area to insert them if you felt it necessary.
(AC/S) **Score:** 3 **Reviewer's Explanation:** I think you might here explain more about the quizzes, discussion and survey modes--what can they each accomplish? Also, you could expand this fascinating metacognitive aspect of the technology.

(AC/S) **Score:** 2 **Reviewer's Explanation:** Could you explain the educational resources a little more? What does a virtual museum look like? How can a virtual museum improve education? Does the professor set it up? Why would it be better than a book? I think this section could use specific examples to paint a better picture for readers.
(AC/S) **Score:** 2 **Reviewer's Explanation:** This part of the paper is also in need of support. Your description is not deep enough. Consider adding more details of how the platform works as an educational technology. See: Second Life in higher education: Assessing the potential for and the barriers to deploying virtual worlds in learning and teaching.
(AC/S) **Score:** 2 **Reviewer's Explanation:** I think you do a nice job explaining the technology and give great visuals to help as well. I would suggest adding information from a teacher's or students point of view on the technology. You might also consider being more specific if the articles or leveled or just the quizzes. What lexile ranges are available. Are students able to listen to the articles as well? I love the idea of the binder and find this to be very helpful for educators to keep track of student progress. You might also discuss how you can differentiate using this program.
(AC/S) **Score:** 2 **Reviewer's Explanation:** You give good graphics showing how the technology works. Could you explain more about how the technology works.
(JC) **Score:** 2 **Reviewer's Explanation:** If I understand this correctly, you gain access to all the tools through a subscription. It looks like the All About Mind Tools section was copied and pasted directly from the website. This will help to ensure the accuracy of the information.
(AC/S) **Score:** 2 **Reviewer's Explanation:** Your first paragraph sounds too technical "students vision sensory system"....are you talking about eyes? This section is confusing and choppy. Maybe start off by explaining how a teacher would select and use a lesson and then do the same thing from a students perspective. Nice visuals though. How long are the simulations? Are there questions afterward that assess learning for all simulations (I see there is for the multiplication one)? How does a teacher/parent know if a student learned something?
(AC/S) **Score:** 2 **Reviewer's Explanation:** It gives a brief idea and yet, how could those potential advantages can influence the changes can be further explained.
(AC/S) **Score:** 2 **Reviewer's Explanation:** You have a lot of good information here, and the citation from Gardner is helpful in seating your technology alongside the theory. Further explaining which intelligences Pixie "taps into" would be helpful, and you may want to even define some of the intelligences and specifically explain how the technology addresses these intelligences. You may also want to address how the teacher is involved here. How can the teacher design instruction using this format? Do they create an assignment on the site, or do they incorporate these kinds of activities into their practice regularly?
(AC/S) **Score:** 2 **Reviewer's Explanation:** Another informative and quality start to this section. To expand this area, you may want to provide examples of the lexia system i.e. format of the content or the teacher's "dashboard" for monitoring results. Multi-media approach here may be effective i.e. embedded video clip or testimonials.
(AC/S) **Score:** 2 **Reviewer's Explanation:** In your "nuts and bolts" section, I understand some of the adaptations and the ways the software is used in the classroom, but I'm most confused about the "Assessment Without Testing" part. Do you have more concrete information about what the students do with the software - do the students play games, read passages, answer quizzes, etc? Is this information in the video you linked to? I haven't watched it yet, but will soon.
(AC/S) **Score:** 2 **Reviewer's Explanation:** It was a good to know what a good game and your approach to relate a good game to education seems appropriate. I could understand your intention. However, one

thing I wanted to know more was the example or the case of each factor. If you show some of those educational games in this chapter, the understanding of readers will be increased. In my case, I can understand each of concepts, but I cannot imagine what kinds of game can give me "pleasant frustration." Another suggestion is that you can show the trends of the educational game. I can guess the number of educational games is skyrocketed. It is possible to research the report on it; at least you can go to the apple app store. Then you can count how many educational games are ranked and categorize them.
(AC/S) **Score:** 2 **Reviewer's Explanation:** How does the individual receive the digital badge from completing an off line activity and posting pictures online? Is there a specific application that has projects such as the sun dial activity described that connects an offline experiment to online digital badge reward based on successful completion?
(AC/S) **Score:** 2 **Reviewer's Explanation:** You have a great start here. I'm left with a few questions that maybe you can consider: What are badges, and who controls/awards them? Is there a universal set of badges, or are different ones created and awarded by different websites? Where are they stored or displayed (where are these digital dashboards, and who else will see them)? Can you give more background about where a student might earn a badge? Can you also explain what kind of social capital badges offer?

(JC) **Score:** 1 **Reviewer's Explanation:** Looking forward to the classroom section to be completed. The idea you suggested sounds good.
(AC/S) **Score:** 1 **Reviewer's Explanation:** I guess I don't exactly know what Minecraft is or does. It's not the one I was thinking. So, I would like to see more background information about the game itself and the application in the classroom. You have a lot of potential here!
(AC/S) **Score:** 1 **Reviewer's Explanation:** I understand it somewhat from a learners perspective but what's the teachers point of view? How can this enhance teaching math from a teacher's perspective?
(AC/S) **Score:** 1 **Reviewer's Explanation:** It would be beneficial to focus on a specific type of educational games, e.g., language training, mathematics, English composition, computer programming, etc. The title of the paper is too broad (“Video Games”) to answer the questions asked: “How does the technology work? Explain its structure and function from the point of view of teachers and learners. How does the way the technology works reflect its understanding of learning?” Another suggestion is to find some kind of game development software that helps educators develop games, and then focus the subsequent paragraphs in this section around that game development application. I believe that there are software applications out there that allow educators to write games without too much coding (programming). (Rating 1= not enough information)
(AC/S) **Score:** 1 **Reviewer's Explanation:** I apologize for saying this, but this really felt like an ad for Mind Tools, to the point where parts of your work seemed to be cut and pasted from their website.
(AC/S) **Score:** 1 **Reviewer's Explanation:** You give decent background on the tool but you don't talk much about the educational challenge that this technology is intended to address. Maybe strategically merge the first section with bits and pieces with the second to give the educational challenge a little more meat.

Criterion 3: The Underlying Learning Theory
Description: What is the underlying theory of learning that this educational technology reflects? You might mention some of theorists that various members of the group introduced in the first major task in this course (cite and link to these in your references), or other learning theorists. Reviewers: comment and suggest possible additional theoretical perspectives.
(U) **Score:** 3 **Reviewer's Explanation:** relate to several theory
(JC) **Score:** 3 **Reviewer's Explanation:** Seems pretty good, explained clearly with a mix of theories.
(AC/S) **Score:** 3 **Reviewer's Explanation:** Great background information based on Skinner shared out that helped me further understand the theory. Good connection... The idea behind this early learning technology was that the teacher would be freed-up for other activities that would have more meaning to

the students' education. Years later, B.F. Skinner developed his version of a teaching machine. His variation required the student to provide a written response instead of selecting it from a list. Following his behaviorist ideas, the machine would "lead the students through a series of small steps which moved the student closer to the desired end-product behavior." (Troutner, 1991, p.4) Students could self-assess and self-pace themselves through their learning with this machine. If there needed to be any reinforcement, it could be provided. If there needed to be enrichment, it could be provided. The students would be able to see the correct responses immediately after submitting their response allowing for instant feedback, aligning with concepts based in operant conditioning.
(JC) **Score:** 3 **Reviewer's Explanation:** I didn't see reference to theorists within your work. However, you did refer to Behaviorism and why it promotes that theory.
(AC/S-N) **Score:** 3 **Reviewer's Explanation:** I agree that it seems behaviorist, but I see a disconnect between the answering and the learning. If they get the negative feedback of a wrong answer, how are they to correct it? Guess at another answer? Wait for the next session when the class uses the Mimiovote? What would you say about the other Mimio Technologies and their learning theories?
(AC/S-N) **Score:** 3 **Reviewer's Explanation:** You cited the work of other course participants, but I'm not sure if the references are clear enough. I had an issue with links and citations myself as I was working on my paper. I'm sorry I can't be more help to you in this respect.
(JC) **Score:** 3 **Reviewer's Explanation:** Your paper not only introduces technology but is very informative about the theory beyond the application. At every step of the paper your related your advocacy for this technology to this important educational theory.
(AC/S) **Score:** 3 **Reviewer's Explanation:** This may be the weakest part of your Work and possibly just as function of neuroscience not being able to fully comprehend and communicate games in the learning environment. But, maybe find ways to strengthen this.
(AC/S) **Score:** 3 **Reviewer's Explanation:** I really liked your idea of relating the educational game and neuroscience. I did not think of this kind of approach before. I could understand why the educational game can positively effect on the student's brain. I think, however, that there can be a chance to apply additional learning theories such as behaviorism or constructivism. For example, rewards in the game can strengthen students' knowledge or students can practice or apply their knowledge from classes in the game. It looks like educational games can really benefit learning.
(AC/S) **Score:** 3 **Reviewer's Explanation:** The information you have here is really interesting. I wonder if you can elaborate on the learning theory by including other theories and/or theorists. I would imagine that you discuss aspects of behaviorism with respect to the motivation of students, and given that this is a social experience for students as well, I wonder if there are elements of social cognitivism.
(JC) **Score:** 3 **Reviewer's Explanation:** Good connection to the use of badges matching will specific tasks/skills completed. This can offer a powerful connection to each badge an individual earns.
(JC) **Score:** 3 **Reviewer's Explanation:** Very nice.
(AC/S-N) **Score:** 3 **Reviewer's Explanation:** Were your findings based off a case study? If not, are there any case studies to back up this section?
(AC/S-N) **Score:** 3 **Reviewer's Explanation:** Theories are connected and justified, but again, more specific examples or evidence would make this stronger.
(AC/S) **Score:** 3 **Reviewer's Explanation:** Self determination theory and situated cognition theory identified as the educational theory connected with this learning technology. Video games can offer complex problem solving situations and the situated cognition theory ties in well.
(AC/S) **Score:** 3 **Reviewer's Explanation:** May want to tie more into the theory and its educational application. Maybe more on the theorist who developed behaviorism.
(AC/S-N) **Score:** 3 **Reviewer's Explanation:** I would like to see how Glogster meets those seven different types of intelligences that are laid out by Gardener.
(AC/S-N) **Score:** 3 **Reviewer's Explanation:** The theories have been identified. But the citation of these seems not to follow the APA style. However, this could be easily improved.

(AC/S-N) **Score:** 3 **Reviewer's Explanation:** This section is straight-forward, but I'm curious about Gee's research. Could you talk more about the projects he's researched, the age groups he studied, or the types of video games he used. Just a suggestion... still a strong section.
(AC/S) **Score:** 3 **Reviewer's Explanation:** Good tie to the two learning theories. This also sounds like constructivism to me...students are constructing knowledge from previous information and making connections, maybe examine John Dewey's work as well. I might also add that there is an element of play in some of the simulations, that is related to Piaget.
(AC/S-N) **Score:** 3 **Reviewer's Explanation:** I wonder if there's something else you could connect to in terms of having the simulations produced via technology--is that better or worse than a hands-on experiment? The divide between the simulations and the gamified multiplication is a bit awkward to me, because they seem very different to me. Is most of the content simulation or games? Good discussion of behaviorism and situated learning theory, but I think you could definitely expand, especially situated learning theory.
(AC/S) **Score:** 3 **Reviewer's Explanation:** This would be where I might put in the link to how it's used in a classroom lesson to show how Vygotsky's theories are displayed.
(AC/S) **Score:** 3 **Reviewer's Explanation:** I think you could elaborate more on this. Could you cite a classmate who wrote a work on Vygotsky?
(AC/S-N) **Score:** 3 **Reviewer's Explanation:** Maybe I don't understand the constructivist learning theory well, but I don't understand how clickers help students construct knowledge. Is it the question and discussion that promotes constructivist thinking, or is it the clicker? Like you mention later, if the instructor is not skilled in offering questions/discussion opportunities, then the clicker is not effective. I do, however, see how clickers make learning more interactive and engaging.
(AC/S-N) **Score:** 3 **Reviewer's Explanation:** It seems that this section could be a little more developed. I would like to see more reference to other theoretical perspectives. Playing video games appeals to learners with diverse learning styles, interests, strengths and abilities. Video games can easily provide for differentiation as they come with different levels of mastery.

(AC/S-N) **Score:** 2 **Reviewer's Explanation:** I like the discussion of Maslow, but I think you might be just a bit more clear about how this technology really leads to self-actualization. I think your flow argument is also really interesting, but I think you need more evidence that Kahoot! actually helps students achieve this state. I'd put the behaviorism piece first--it's the simplest and most clear connection to educational psychology, so you can move from that to your more innovative arguments...just a thought. You could expand this a bit--I think just making the argument about the fixed-interval timing doesn't cover all the ground you could here! How does the game reward students for correct answers, and challenge them to try harder if they miss?
(AC/S-N) **Score:** 2 **Reviewer's Explanation:** I think you cover a lot of good ground here; I like that you address multiple intelligences, constructivism, and the ZPD. I think that you might have room to discuss each in a little more depth and to provide some more analysis of the quotations that you've chosen to include. In your second paragraph, for instance, it's not totally clear to me how the quotation and your topic sentence relate, so you may want to elaborate to clarify. You may also make clear how students are constructing knowledge when you refer to constructivism, since it doesn't have to be limited to just producing a representation of knowledge.
(AC/S-N) **Score:** 2 **Reviewer's Explanation:** Remove the "much of what we covered" and describe how innate intelligence and development influence the creation and use of lexia. You provided a good tertiary description of the multiple theories that influence lexia. i wonder if choosing the most relevant. Diving deeper into the theory and how it connects directly with the Lexia pedagogy will demonstrate exactly how a student builds knowledge.
(AC/S-N) **Score:** 2 **Reviewer's Explanation:** Is there any positive or negative reinforcement or rewards with Quizlet? When you made the leap from explaining what behaviorism is to the modern classroom, I missed the link between Quizlet and behaviorism.

(AC/S-N) **Score:** 2 **Reviewer's Explanation:** My suggestion here would be to tie this to a specific theorist(s). You make some really good points, but they need some more punch. I am confused by the testimonials as well...they are very distracting.
(AC/S-N) **Score:** 2 **Reviewer's Explanation:** I agree, it does seem to be behaviorist. Is the fact that the social connection will keep them coming back also a behaviorist element of Mind Tools?
(AC/S-N) **Score:** 2 **Reviewer's Explanation:** You mentioned direct instruction but what other theorists apply to this learning technology? Give examples of them and add details. You may look at others Work 1 to find resources for theorists or search for another resource.
(AC/S) **Score:** 2 **Reviewer's Explanation:** I agree with your idea. This gadget looks like a perfect tool for behaviorism based learning. I wonder how you will connect this tool to constructivism. Looking forward to seeing your final draft! Way to go!
(AC/S-N) **Score:** 2 **Reviewer's Explanation:** It looks like this section is still "under construction." I think those two theories are right on with this type of software. To be honest with you, this was the section I was most "iffy" about. I wasn't sure how much information was too much without straying from the topic at hand.
(AC/S) **Score:** 2 **Reviewer's Explanation:** This section is very brief. You could consider elaborating a bit. Here's a link to an article that very similar to yours. Do look at the author's sources and read some of the original work yourself. See: http://jolt.merlot.org/vol5no2/berge_0609.htm
(AC/S) **Score:** 2 **Reviewer's Explanation:** Constructivism is another theory you could use. I think behavorism is a decent theory to discuss, but I think social learning and constructivism would be good theories too. Use other users' work to help support this section.
https://cgscholar.com/community/cg_community/profiles/keri-dean/publications/29078
(AC/S-N) **Score:** 2 **Reviewer's Explanation:** I totally understand the challenges that you may be facing. Here are some questions that I hope will help you in completing this section. It would be interesting to see how you'll tie in behaviorist theories. Is there any aspect of operant conditioning, stimulus- response, reward etc? Do these theories have anything to do with why children like certain aspects of the games? What other formal learning theories may also be a key factor to the app's success. Also, are you only viewing options for ios users,but what about other platforms? Aren't there numerous android apps that achieve this exact effect?
(AC/S-N) **Score:** 2 **Reviewer's Explanation:** This section can be expanded greatly. Why do the students crave the awards? Why do they like to create their own quizzes? etc
(AC/S-N) **Score:** 2 **Reviewer's Explanation:** What other theorists does this learning environment relate to? Explain using Pavlov's stimulus, conditioned stimulus, unconditioned stimulus, etc. This could be done in a bullet point, chart format, or indented. I feel that this section could use more explanation and relation to theorists.

(AC/S-N) **Score:** 1 **Reviewer's Explanation:** Requires further explanation. Could there be other learning theories here? In the beginning, you seem to point out a necessity for leaders to be better trained in their (behavioral) responses.
(AC/S-N) **Score:** 1 **Reviewer's Explanation:** Again, you are aware that you need to tie the learning theory into the game and its use in the classroom.
(JC) **Score:** 1 **Reviewer's Explanation:** It looks like you have some good ideas that are a work in progress. I look forward to seeing how they develop and tie together.
(AC/S-N) **Score:** 1 **Reviewer's Explanation:** Please explain computer science programming. Also, cite a source. You go right into explaining the ipad app but there is very little explanation about the background of the problem of language structure.
(AC/S) **Score:** 1 **Reviewer's Explanation:** The underlying theory, especially Gee's principle can be used to articulate the technology presented in the previous section. Please see the rubric/comment #2. Vygotky is too broad to be useful or applicable in the paper's current form. (Rating 1 = very little or no connection made with learning theories).

(AC/S-N) **Score:** 1 **Reviewer's Explanation:** More descriptions should be needed to explain how these learning theories are behind the games in greater details.
(AC/S) **Score:** 1 **Reviewer's Explanation:** I feel like this section really needs development given that the course focuses on learning theorists. Vygotsky is a great choice, however I think that you should also examine behaviorists in your response. It seems like there is a conditioned response element at work. See annotations for other ideas.
(AC/S-N) **Score:** 1 **Reviewer's Explanation:** I really think this section is well-written, but It seems that you talked about the general educational technology instead of the specific one you should elaborate with its underlying learning theory and you should refer to at least one of our peer's work 1 in your article.
(AC/S) **Score:** 1 **Reviewer's Explanation:** This section seems to be the weakest, especially given that we are taking a course of learning theorists. On the one hand, it is not clear why you're only focusing on one aspect of Mimio given that you provide board background in the "parse' section Further, it seems that there should be references to specific educational theorists and include references from our classmates. I believe there is an opportunity to talk about social learning theorists here because so much of the use is indeed interactive.

(AC/S-N) **Score:** 0 **Reviewer's Explanation:** You list three theorist and school's of thought but you did not elaborate. Please elaborate on at least one and briefly explain another.
(AC/S-N) **Score:** 0 **Reviewer's Explanation:** Again, some examples here would be helpful. How does the technology promote the process and not the product? How do the students make decisions? Does the teacher create the projects and then adjust for the students? Do students use templates or create things from scratch? "large amount of practice with a wide variety of skills, both technology and subject matter related."--such as?? This is vague. Your link here did not work for me.

Criterion 4: The Technology in Practice
Description: Is the operation of the technology in practice adequately described in the case study? Are concrete examples provided? Do they illustrate they way the technology's underlying theory of learning translates into practice? Reviewers: What else would you like to know?
(AC/S) **Score:** 3 **Reviewer's Explanation:** Good explanation, you can also use screenshot to illustrate several steps to use SMART board.
(AC/S) **Score:** 3 **Reviewer's Explanation:** This section could use more information than just the graph. Additionally the graph is a little unclear if higher order thinking skills were developed or if this just led to great cognitive accountability.
(AC/S) **Score:** 3 **Reviewer's Explanation:** You listed the technology in practice and you gave a great example. Please explain a bit more.
(AC/S) **Score:** 3 **Reviewer's Explanation:** You could have discussed, with relevant citations from studies, whether or not the younger children had a much stronger chance of accurate retention due to neuroplasticity.
(AC/S) **Score:** 3 **Reviewer's Explanation:** I really like the content area list you provided and the links. But I would like more narrative about how Portal is used in the classroom. Maybe cite one specific project with information on assessment possibilities. Maybe you could add some images here too?
(AC/S) **Score:** 3 **Reviewer's Explanation:** This part is clear and direct. I find this section very useful to help understand the reality of practice.
(AC/S) **Score:** 3 **Reviewer's Explanation:** I like hearing from teachers who are using this, but relying only on a single testimonial from a teacher posted on the company's website seems a little too little--what subject does she teach? Does she use the simulations or games?. Could you mine the facebook page for a little more about how it's used in classrooms? Do you have evidence parents are using it to help their children, or that students are using it outside of class? Is it being used in flipped classrooms? How does the community of practice make this a more useful technology?

(AC/S) **Score:** 3 **Reviewer's Explanation:** You do a great job explaining how one can start to use the technology, and how teachers who've used it see a benefit. Very clear demonstrations from the teachers--although it feels a little awkward that these are testimonials from the company's website. Again, I'd like to see a bit more about how the discussion and survey tools work and expand the capability of the quizzes.
(AC/S) **Score:** 3 **Reviewer's Explanation:** Like I said earlier, I'd like to know what else it could be used for? I mentioned the mathematics classrooms, but perhaps you could explain a group activity from a regular classroom in which you might use this. With the MimioView device, I could see projecting some neat items for manipulation, if that's how it works.
(AC/S) **Score:** 3 **Reviewer's Explanation:** I see you provided a list of how this technology is applied to learn some professional knowledge. It would be great if you can illustrate one example with the details about how learners learn and how instructors teach by this technology.
(AC/S) **Score:** 3 **Reviewer's Explanation:** In this section I would like to read more about technologies built into LMS. You mentioned video-conferencing. Are there any other examples?
(AC/S) **Score:** 3 **Reviewer's Explanation:** You only give two examples of gaming styles here. I think it would be worthwhile to re-explore the others that you initially introduced before and find examples that fit what you've already communicated about them.
(AC/S) **Score:** 3 **Reviewer's Explanation:** If you can use screenshot to illustrate some key features or give an example, then it would be easier for audience to understand.
(AC/S) **Score:** 3 **Reviewer's Explanation:** Some pictures in this portion would be really illuminating and would help your reader literally see what you mean when you refer to the technology. You might also consider linking the projects and activities that you list as options with the learning theories that you discussed so that it's completely clear how the two relate. I would love to know the structure of these types of projects. Is the teacher assigning something specific, or is it entirely up to the learning how they technology is used? What are the timelines on these kind of projects that you list; are they involved, necessitating several days to complete, or are they brief activities? How does the teacher access the finished product? How does the student share?
(AC/S) **Score:** 3 **Reviewer's Explanation:** Is the operation of the technology in practice adequately described in the case study? Are concrete examples provided? Do they illustrate they way the technology's underlying theory of learning translates into practice? Is there further research that shows that this technology is successful? Is there data that supports this? Is there feedback that highlights this?

(AC/S) **Score:** 2 **Reviewer's Explanation:** With provided lots of videos, I could understand how the program works in the classes. Those videos were fair enough to understand the application of the program, however, I feel like that if you explained with your words, instead of providing videos and the descriptions of those videos, it would be better. This part is filled with video guides the company provides.
(AC/S) **Score:** 2 **Reviewer's Explanation:** The Testimonials are good evidence of the technology in practice. Is it possible to show a screen shot of the website and show some of the Q and A from the Career Café, for example? Or maybe a video segment of one of the interviews?
(AC/S) **Score:** 2 **Reviewer's Explanation:** It would be great to see some examples of how the data from MAPs testing could be used (Grouping, differentiating, etc.)
(AC/S) **Score:** 2 **Reviewer's Explanation:** Can you add some concrete examples of successful implementation of this tool or your vision of what it would look like utilizing Quizlet in the classroom? In what ways does this tool transform the instruction or is it simply replacing an old way of doing things?
(AC/S) **Score:** 2 **Reviewer's Explanation:** It is surprising that the student response opportunities were decreased. Wouldn't MimioVote increase that? Is there a way that you could comment on the behaviorist theory here? The study you reference does not mention it.
(AC/S) **Score:** 2 **Reviewer's Explanation:** I liked this part because it has an obviously noticeable graph so I could grasp easily what you will tell in this part. However, as I looked into the description, I had a

question about the experiment. I could understand that the achievement of Qwizdom group is greater than that of control group, but the initial percentage (from the pretest) were too different between two groups. I think the initial conditions such as students' competency level or..previous knowledge was not identical or at least similar, so it seems like a bit unreasonable to directly compare the two groups. Also, the results from the posttest are almost same. It is hard to say both groups' posttest scores are that different (there were only 3 percentage of difference). The participants of control group were already knowledgeable in that math test or something... so they could not show big improvements like the participants of Qwizdom group did. I suggest you to look at this issue, if you agree with me. Lastly, I think it was good to show teachers' usage or.. using patterns, since in this way we could know how this gadget plays a role in practice. However, at some point, I think you made too general suggestions about this technology such as.. "professional development is encouraged to help merge teaching strategies and student response system technologies." I could see that significant percentage of teachers did not use Qwizdom frequently. There could be some obvious reasons for this. They might do not have to use Qwizdom, I mean the teachers no need to use it. Hence, I would tell you that it will be much nicer if you revise this finding part to be more specific.
(AC/S) **Score:** 2 **Reviewer's Explanation:** You touch on this in earlier sections, but I wonder if you can find some more concrete examples of systems that use badging. Maybe you can even include a picture of badges? I'm picturing icons, but I don't have any clue what they look like. Seeing them and understanding how they are earned would be most helpful if you could seat in the context of an actual instance in which a student may receive a badge. If you could find quotations from students who have sought badges, that would be interesting, too.
(AC/S) **Score:** 2 **Reviewer's Explanation:** You did well provide the example of educational game. Those practices were interesting. If there were supplementary pictures of game, I could be able to understand them better. Also, I guess that there will be other kinds of educational game in practice. I totally understand your topic is really broad, but if you categorize them and show which kinds of educational game exist or get popular, readers can grasp better on the subject.
(AC/S) **Score:** 2 **Reviewer's Explanation:** The rubric asks for concrete examples on how clickers are used in practice. Could you add more specific instructional strategies? How are teachers making the most of this technology? Perhaps you could give a scenario that matches the ConcepTest process. That would be a great concrete example.
(AC/S) **Score:** 2 **Reviewer's Explanation:** I would add in some more quotes from teachers who use the program. What about parents? What do they think? Provide some supporting dialogue of what these parents say and also the students. Are there any specific case studies on PhET? If not, I would find reviews to place in this section.
(AC/S) **Score:** 2 **Reviewer's Explanation:** Basic good overview. Maybe add some more specifics such as what is needed in a classroom to access this - one computer per students? high speed internet? How long does a teacher provide this kind of lesson? How does the teacher know the student has learned something? It seems like there needs to be more specifics here.
(AC/S) **Score:** 2 **Reviewer's Explanation:** You have briefly described some uses for SL, but I'm still unsure of what an SL learning experience would look and feel like. Giving a specific example of how this is being used would make things a lot clearer.
(AC/S) **Score:** 2 **Reviewer's Explanation:** More discussions on the results should be included rather than putting the statistical results and ending it there.
(AC/S) **Score:** 2 **Reviewer's Explanation:** You could strengthen this section by going into detail with how a program uses this technology. Walk us through what a course or how a lesson would look like with this technology.
(AC/S) **Score:** 2 **Reviewer's Explanation:** Here, you were off to a great start but fell short because you only discussed social learning theory, but failed to apply it specifically to Second Life and its use in education. For this aspect of your paper, you need to demonstrate how the instructional design and pedagogical underpinnings of Second Life are governed by or epitomize social learning theory.

Synthesis of all that you know of Second Life and all that you know about social learning theory is what is required for this section.
(AC/S) **Score:** 2 **Reviewer's Explanation:** Dr. Dunning's final survey seems pretty informal. If it was a formal study, I would expand the explanation of the study. You state that very little experimentation has been done with Fortune 100 companies, but then give more results. How significant is this research if few were involved? Could you wrap up this section with some research takeaways? Or something else?
(AC/S) **Score:** 2 **Reviewer's Explanation:** Your 'in the classroom' section is incomplete, but you have great ideas on how to finish it. I think the chart will be a nice visual representation and a clean way to organize your ideas. I find this section very helpful as a person who has never used the technology. I appreciate practical examples on how to incorporate the game in the classroom. Also, the pictures/screen shots are helpful here! This is what I meant in the other section.
(AC/S) **Score:** 2 **Reviewer's Explanation:** I understand it somewhat from a learner's perspective but what's the teacher's point of view? How can this enhance teaching math or English from a teacher's perspective?
(AC/S) **Score:** 2 **Reviewer's Explanation:** May want to add more text in this section. Case study? Is this used in elementary only? What about post secondary applications? Last sentence is incomplete thought.

(JC) **Score:** 1 **Reviewer's Explanation:** Is this going to be added as a separate section?
(AC/S) **Score:** 1 **Reviewer's Explanation:** Again, it looks like you have great ideas on how to develop this section! I like how you're going to bring in specific examples of this technology being used. Therefore, you might not need them where I said above.
(AC/S) **Score:** 1 **Reviewer's Explanation:** I feel like I sort of know how the game is being used in the classroom, but you need to explain more about the advantages and benefits for both students and teachers. Furthermore, from a woman's perspective, do you think this technology will be embraced by both genders?
(AC/S) **Score:** 1 **Reviewer's Explanation:** I'm assuming this section isn't done? There should be more summarizing the videos.
(AC/S) **Score:** 1 **Reviewer's Explanation:** Providing 'Portal' and 'Portal Puzzle Maker' as the technology in practice is a good start. Please relate them to the previous sections. Their website shows (https://developer.valvesoftware.com/wiki/Portal_2_Puzzle_Maker) that it is an application for game development. In this case, the paper needs to explain the technology ('Portal') as an educational tool, and articulate how educators can develop and design games for educational purposes or to support specific educational theories. Please view the reviewer's previous comments—the previous sections may have to be rewritten accordingly. (Rating 1 = adequate description)
(AC/S) **Score:** 1 **Reviewer's Explanation:** Was this directly from the website? I want to know about a user experience without the sales pitch.
(AC/S) **Score:** 1 **Reviewer's Explanation:** I would like to see a case study. Is there a section about this? I'm a little lost.
(AC/S) **Score:** 1 **Reviewer's Explanation:** I may be missing this section, but I cannot find any reflection on case studies.

(AC/S) **Score:** 0 **Reviewer's Explanation:** This section wasn't discussed. Maybe you can take a screen shot or find an image of people performing specific tasks and then talk about how that fits into your two learning theories!
(AC/S) **Score:** 0 **Reviewer's Explanation:** This section is missing. Providing a real world case analysis of lexia in use would be very interesting.
(AC/S) **Score:** 0 **Reviewer's Explanation:** How is Pixie different than just using software like iMovie or Photo Story? Is this free software? I noticed that there were buttons to click for "free quotes".
(JC) **Score:** 0 **Reviewer's Explanation:** No section for Technology In Practice.

Criterion 5: Critical Reflection
Description: What are the relative strengths and weaknesses of the technology? Reviewers: provide comments and suggestions about other possible strengths and weakness that the reviewer may not have considered.
(AC/S) **Score:** 3 **Reviewer's Explanation:** Strengths and weaknesses are addressed. I can see this being a stepping stone for leadership development; however, can a computer replace real-life situations with real emotions, human connections, etc.? Can Virtual Leader stand on its own for leadership training? How should it be used with other training?
(AC/S) **Score:** 3 **Reviewer's Explanation:** Cost seems to always be an underlying drawback when introducing technology. Class license seems reasonable at 335, but when you are told "we have $ 0.00 to spend it can be a challenge. Do the positives outweigh the drawbacks?
(AC/S-N) **Score:** 3 **Reviewer's Explanation:** The list of pros and cons is good. But, maybe you can explain them more?
(AC/S-N) **Score:** 3 **Reviewer's Explanation:** In this part, I especially liked that I could hear other qualified researchers opinions. However, like the previous part, I think you did not voice your opinion about the program. I think you wonderfully presented different opinions, but did not wrap up those various opinions with your own perspective.
(AC/S) **Score:** 3 **Reviewer's Explanation:** This is a great tool that can help manipulate the use of geometric principles in the classroom. It looks to engaging and if a student has a tablet, this could be a great hands on resource to utilize in class. It might stimulate the reluctant learner. What is the cost per student and how much would the additional hardware cost for the student? What type of professional development is also needed?
(AC/S) **Score:** 3 **Reviewer's Explanation:** Nicely stated, that the technology is a good starting point, but should be (I assume that the author is saying this) used in tandem with other, more comprehensive kinds of assessment for overall academic performance. I would have liked to have seen this section expanded, as the author had my attention, and obviously might have some ideas as to how the technology could be improved or what other sources could be of value.
(AC/S) **Score:** 3 **Reviewer's Explanation:** For weaknesses, I found that students would rush through the test so they could enjoy the free time. Students knew they could test out. Our school created a reward system for students who increased their performance on MAP testing. A strength is if you have students become familiar with the scoring system, you can use this for student lead conferences. I know once the students were familiar with the scores and their scores on the test, they would be able to converse with virtually anyone about their scores.
(AC/S) **Score:** 3 **Reviewer's Explanation:** Perhaps you could elaborate on the social nature of the tool and how that collaborates to its success a bit more here (if you feel that is important).
(AC/S) **Score:** 3 **Reviewer's Explanation:** Many Middle school students need learning to be very similar to video game 21st century learning. Throw in learning a new world language and you can already hear the groans. This technology engages students and shares out/monitors their progress... Does everyone have internet access at home?
(AC/S) **Score:** 3 **Reviewer's Explanation:** You have great supporting thoughts in this section, but could you display your strengths and weaknesses in a chart? Is this section about direct instruction and LMS or just one of them?
(AC/S-N) **Score:** 3 **Reviewer's Explanation:** Benefits seem like reasons from a salesperson, not reasons based on educational best practices.
(AC/S-N) **Score:** 3 **Reviewer's Explanation:** I think you nicely presented cons and pros of the product. I agree with your opinions. If you should suggest one thing, I would say it would be way nicer if you add an overall reflection about this product.

(AC/S) **Score:** 3 **Reviewer's Explanation:** I like the bulleted lists--I think these are always easier to read and follow. You put cost as a weakness--did you find a ballpark figure? This might be helpful here. If not a number, maybe a comparison to another similar program.
(AC/S) **Score:** 3 **Reviewer's Explanation:** I appreciate the critical analysis you put forth. You are obviously a techno-realists in understand that technology is only as useful as the knowledge of the person who is interacting with it. Therefore, as schools are drawn more and more to technology in one to one programs, flipped classroom, and project based learning, the teacher becomes a critical facilitator that supports learning. It will be a much more difficult job to do effectively than teachers of the 20th century were used to.
(AC/S-N) **Score:** 3 **Reviewer's Explanation:** I would suggest reversing the order. By discussing the weaknesses first and strengths last, you would end this section on a more positive note.
(U) **Score:** 3 **Reviewer's Explanation:** Case study or survey related results?
(AC/S) **Score:** 3 **Reviewer's Explanation:** See annotations, your pros are very well laid out, I would like to see how Glogster increases engagement and helps people participate in a social network of learners.
(AC/S-N) **Score:** 3 **Reviewer's Explanation:** It is a good reflection, and it could be extended easily to share more about the experience in learning these.
(AC/S) **Score:** 3 **Reviewer's Explanation:** Again, nice chart. Easy to read and straight-forward. However, what about cost of games? It seems like many games out there are not free. Also, what about assessment? Finally, could you find some quotes from someone who has used video games in the classroom? Have you used them? If so, some narrative would be great.
(AC/S) **Score:** 3 **Reviewer's Explanation:** Good box of strengths and weaknesses. Add some personal opnion on what you as a teacher think is the biggest strength and biggest weakness. Would you use this as a teacher? as a parent? as a student?
(AC/S) **Score:** 3 **Reviewer's Explanation:** I was surprised that students need to purchase their own iClicker. I did not know that. How much does these typically run for? Either way, this section is well written and involves many issues I was wondering about.
(AC/S) **Score:** 3 **Reviewer's Explanation:** The bullet points you have here will be pretty comprehensive once you expand them into full paragraphs. I would make sure to take up the question of to what extent a technology that is limited to creating four-choice answers can also stimulate deep and complex learning...
(AC/S-N) **Score:** 3 **Reviewer's Explanation:** Nicely done but I think you have too many testimonials.
(AC/S) **Score:** 3 **Reviewer's Explanation:** Strength: matches the state or the nation's common core standards, good stimulus for students to gain knowledge. Weakness: it's good to use personal experience. Another weakness I think is it requires wifi environment in class for all the students to participate, but most schools don't have this environment.
(AC/S) **Score:** 3 **Reviewer's Explanation:** You have a lot of interesting information here, and that you have used this in your classroom gives you unique and thorough insight into the technology's usefulness and shortcomings. Could you elaborate on some of the shortcomings/benefits in light of learning theory?

(AC/S-N) **Score:** 2 **Reviewer's Explanation:** I think you have talked pretty clearly about strengths, but I didn't find your discussion of weaknesses. Is there a separate section for this? Again, I'm a little lost.
(AC/S-N) **Score:** 2 **Reviewer's Explanation:** You have strengths and weaknesses, but they are lacking detail.
(JC) **Score:** 2 **Reviewer's Explanation:** Agreed, it seems very expensive. Seems like a collection of motivational, strategical and organizational suggestions and it seems a high price to pay for that. Yes, lack of concrete feedback is a big negative. Sort of undermines the behaviorist nature of the site, no reward to shape behavior.
(AC/S-N) **Score:** 2 **Reviewer's Explanation:** You should divide this section into two separate paragraphs and talk about its strength and weakness from both teachers and students' perspective.

(AC/S-N) **Score:** 2 **Reviewer's Explanation:** Good start here, too. I'm not sure that I see how the badges help to match students with the appropriate path and pace. I'm sure a lot of people have more exposure to the concept of badging than I do, for me, this is still unclear. Maybe consider doing a list of pros and list of cons for this section?
(AC/S-N) **Score:** 2 **Reviewer's Explanation:** You have a great start. I would also look into adding behaviorism and Skinners contributions about the analysis of learning.
(AC/S-N) **Score:** 2 **Reviewer's Explanation:** You need to explain exactly what is meant by "Fair Learning Environment" I suppose that this section would have been very challenging to complete given the weaknesses in the rest of the paper. You have selected a very interesting technology. There's a lot of information and studies out there to substantiate your claims. Try to find and utilize them. I've provided some for you.
(AC/S-N) **Score:** 2 **Reviewer's Explanation:** Could use a deeper analysis of strengths and weakness. The examples you have given seem to just be on the surface. What are some limitations and strengths when looking at this technology deeper?
(AC/S-N) **Score:** 2 **Reviewer's Explanation:** You have obviously put a lot of thought into this and have done quite a bit of research on the topic. I would like to you drill further down into the game itself, while covering some learning theory.
(AC/S-N) **Score:** 2 **Reviewer's Explanation:** This could be stronger if you could supply some recommendations for how Quizlet could be stronger in handling higher order thinking. This could then be combined with a stronger conclusion statement.
(AC/S) **Score:** 2 **Reviewer's Explanation:** I would definitely expand this section beyond the bullet list here--I think you have the beginning of a great argument for this technology, but I'm not sure I fully understand the weaknesses to which you point. How do teachers use it if there are no results (is that for the simulations as well as the games)?

(AC/S) **Score:** 1 **Reviewer's Explanation:** Are there any laws governing things happening in the virtual world? I'm a little concerned with the allowance of child pornography - is this virtual? I think there needs to be more explanation about the things that can be done in this virtual world that aren't legal in reality? How does this program allow for these things without any regulation? Are there any studies to show that this program does help with real life situations?
(AC/S) **Score:** 1 **Reviewer's Explanation:** This section seems to be missing. Comments: The intent of this app's makers are very good but I am worried that this will not be developed in a way to continuously foster advanced level programming. So in essence, this should be a programme which should cover everything that children need to know and beyond. Is it? Do you see this as a weakness?
(AC/S-N) **Score:** 1 **Reviewer's Explanation:** Brief reflection of the use of digital badges. What could be some pros and cons of implementing this technology?

(AC/S-N) **Score:** 0 **Reviewer's Explanation:** The examples of the technologies ("Portal" and "Portal 2 Puzzle Maker") do not fit the content here. The table represents the view of learners while the proposed technologies demonstrate the capabilities in educational game development (for educators). (Rating 0 = minimal analysis of strengths and weaknesses)
(U) **Score:** 0 **Reviewer's Explanation:** NA Nothing to mention here
(AC/S) **Score:** 0 **Reviewer's Explanation:** In theory Lexia seems like a great tool. Interactive, student driven, teacher monitored. What are the drawbacks of using this system in reading instruction.
(AC/S) **Score:** 0 **Reviewer's Explanation:** Are the students really constructing new knowledge here, or is this just a new way to present learning (i.e. rather than drawing and writing a book or presenting a readers theater in class, the students do it using the technology)? Another issue I encountered was that completing the whole project was out off reach for some students.--what do you mean by this? You discuss earlier that this program can be scaffolded for differentiation. If that is the case, how could it be out of reach for some students? How could the teacher use the program to reach these students?

Criterion 6: Conclusions and Recommendations
Description: Do the conclusions and recommendations follow from the information and reasoning provided in the case study? Reviewers: comment and suggest conclusions and recommendations you might want to see added.
(AC/S) **Score:** 3 **Reviewer's Explanation:** I have the same questions from the Strengths/Weaknesses section: Can Virtual Leader stand on its own for leadership training? How should it be used with other training?
(AC/S) **Score:** 3 **Reviewer's Explanation:** This section could include some specific ways or suggestions on how to improve LMS to adapt better to the modern education.
(AC/S) **Score:** 3 **Reviewer's Explanation:** In this part, maybe you can give some suggestions about the weaknesses of this application you mentioned earlier.
(AC/S) **Score:** 3 **Reviewer's Explanation:** What other recommendations do you have to enhance this program? How can LMS change and adapt to the changing methods?
(AC/S) **Score:** 3 **Reviewer's Explanation:** You mentioned that you will be/hope to be using this. Could you tell us more about this? Context, content, age of students, frequency, group size, etc.
(AC/S) **Score:** 3 **Reviewer's Explanation:** As I stared in some of my annotations, I really think you can strengthen the Work if you focused on one specific game. You have a great base for really driving home how that particular game fits into what you have already laid out. As it stands now the Work is broad and general to the point where you're saying a lot, without much depth or significant meaning.
(AC/S) **Score:** 3 **Reviewer's Explanation:** I agree 100% of the need for skill sets that interacting with technology such as ibook author teaches. I am wary though of the assumption that "almost every" student will be excited to participate in this environment. Do you believe that student motivation and intellectual curiosity will be measurable improved by using technology. If not, what are some methods that need to accompany the student in their learning. Great paper. I enjoyed it immensely.
(JC) **Score:** 3 **Reviewer's Explanation:** The way you use the technology seems like a perfect way to mesh the benefits of it with the needs of your students. Making technology work for you and most importantly, your students, is the way to go.
(AC/S) **Score:** 3 **Reviewer's Explanation:** good conclusion but I did not see anything explicitly about recommendations, you should make a brief summary then have your recommendations, maybe it works well for students at any particular grades?
(AC/S) **Score:** 3 **Reviewer's Explanation:** Very clear and a good wrap up. If anything, I'd say this section is a little repetitious, so you may wish to see if you can take it in a slightly different direction and mention how you might use these technologies in a variety of different ways in the future.
(AC/S) **Score:** 3 **Reviewer's Explanation:** I really enjoyed your paper and your style of writing. The paper is good as is, but I wish it went a little deeper with specific examples. Is it possible to interview a teacher who is using video games in the classroom? What does this person find successful/challenging? The paper is great, but it feels like the real-life aspect is missing... like the paper is an outsider's view of video games in the classroom, not an insider's view. More narrative might help.
(JC) **Score:** 3 **Reviewer's Explanation:** Good wrap up section. It all comes down into this nicely. Good job!
(AC/S) **Score:** 3 **Reviewer's Explanation:** I would like to hear more about how it is possible to create a growth mind-set in the classroom. It seems like there could be a lot said about how to avoid the scenarios you have described with colleagues. I would agree that Socrative is an underutilized technology. Thanks for sharing.
(AC/S) **Score:** 3 **Reviewer's Explanation:** How do clickers reflect the learning back to the student? Can you give an example? Otherwise, I can't think of other suggestions.
(AC/S) **Score:** 3 **Reviewer's Explanation:** you should give a brief summary of Pixie key features. More information are needed in the conclusion section.
(AC/S) **Score:** 3 **Reviewer's Explanation:** Thoughtful and interesting conclusion. Would you recommend this to any other age group? What kinds of projects would you most recommend? Could you

elaborate on how students could take home a digital product, as you mention? Is this being printed off (is that a service through Pixie?) or just saved for future reference?
(AC/S) **Score:** 3 **Reviewer's Explanation:** I didn't see this directly answered in the write up but to be honest, this part of the rubric is unclear to me. You made recommendations and conclusions throughout the entire write up but it wasn't officially delineated. It might just be me not understanding!
(AC/S) **Score:** 3 **Reviewer's Explanation:** Your concluding paragraph is nice, but I don't see specific recommendations or conclusions. Can you expand here?
(AC/S) **Score:** 3 **Reviewer's Explanation:** Consider adding more ideas and suggestions about how to make this game better (more interaction, teams, etc.)
(AC/S) **Score:** 3 **Reviewer's Explanation:** You offer a successful case about learning by PVP which is nice. However, I was wondering what is your overall point of view or suggestion to this application?
(U) **Score:** 3 **Reviewer's Explanation:** Succinct!
(JC) **Score:** 3 **Reviewer's Explanation:** Solid point made in the conclusion.

(JC) **Score:** 2 **Reviewer's Explanation:** This is definitely a good start to a solid work. I will be anxious to read the final submission.
(AC/S) **Score:** 2 **Reviewer's Explanation:** This is probably your weakest area. Make a choice as to whether or not you would use it and defend that choice. It just needs to be more personal and developed. Overall, good job, nice visuals. It sounds like an interesting piece of technology.
(AC/S) **Score:** 2 **Reviewer's Explanation:** By targeting educators as they develop or design educational games, the recommendation is somewhat applicable. In addition, the paper needs to provide a conclusion that summarizes the entire content of the paper, after the responding to the previous comments and suggestions. (Rating 2 = partial conclusions and incomplete recommendation)
(AC/S) **Score:** 2 **Reviewer's Explanation:** It would be great here not just to say that this is a great tool, but in what situations and with what learners it's likely to be most effective, and how it might be combined with other modes of teaching.
(AC/S) **Score:** 2 **Reviewer's Explanation:** I think I'd like to hear more about how these badges will help boost intrinsic motivation. Your title and conclusion are interesting, but I think that you can elaborate more on this. From someone who is unfamiliar with badges, they appear to be exclusively extrinsic in their motivation. Maybe add more suggestions to how to use this well to make this section more distinct from the critical reflection portion.
(AC/S) **Score:** 2 **Reviewer's Explanation:** Good point about using the badges (extrinsic motivators) to build intrinsic motivation. Would you recommend something specific for teachers to integrate?
(AC/S) **Score:** 2 **Reviewer's Explanation:** Maybe the author could add more futhur thinking about LSM in this part.
(AC/S) **Score:** 2**Reviewer's Explanation:** I would give this a higher rating if the conclusions were related to specific educational challenges. At present, your work seems to lack a little focus.
(AC/S) **Score:** 2 **Reviewer's Explanation:** As is, I think this section needs the case studies to help increase its validity. I do believe you offer great points in this section.
(AC/S) **Score:** 2 **Reviewer's Explanation:** Is this a quote? Maybe mention the source in the final draft and elaborate on the conclusion.
(AC/S) **Score:** 2 **Reviewer's Explanation:** I think that while you do a great job listing all the pros and cons, you need to spend a bit more time on your conclusions and recommendations. You indicate that teachers should build in activities that encourage deeper social interactions--so what are your hesitations about the interactions here? About deep learning? Do you buy that this technology makes students from learners to leaders? Why or why not?
(AC/S) **Score:** 2 **Reviewer's Explanation:** Good recommendation for specific people, but you should also make a brief summary about the conclusion section. Look forward to having your reference ready, don't forget to have the product's link as well.
(AC/S) **Score:** 2 **Reviewer's Explanation:** In the conclusion is where I finally understood what this technology could be used for. The work does not provide direct examples or support for what it can

actually. Take some of the ideas (museum, field trips, time travelling lessons, etc.) and use them as evidence to support your ideas throughout the work.
(AC/S) **Score:** 2 **Reviewer's Explanation:** Do you recommend this technology? What could SL add to the classroom? Focusing on the medical education simulation, does it provide a real life scenario? If so, I think this would be a great argument for the implementation of a technology such as this.
(AC/S) **Score:** 2 **Reviewer's Explanation:** Good start on the thoughts. Is there a way to expand on the limitations of this program inside the classroom? Maybe taking it a step further and blogging about articles, creating higher order thinking questions for students, etc. Just a thought. Nice job so far. I look forward to reading your final work. Good luck!
(JC) **Score:** 2 **Reviewer's Explanation:** My guess is highly recommended. Good list of references.

(AC/S) **Score:** 1 **Reviewer's Explanation:** Naturally, this section would have been the weakest because it represents the culmination of all your ideas and discussions throughout the paper. Here, the general weakness of the various sections of your paper would have convolved. Your challenge, as stated at the inception of the paper, is the pervasiveness of online learning and the need for social interactivity that is sometimes compromised because of the lack of face-to-face interaction that can be synonymous with distance education and online learning. Focus on how your conclusion could better address these issues? A word of advice- Your paper has many spelling and grammatical errors. I may have missed some. Fear not, scholar has a checker feature that I have found to be very useful. Before submitting for final paper run that checker on your paper. Best of luck improving your work.
(AC/S) **Score:** 1 **Reviewer's Explanation:** What recommendations do you have for the program to make it better? There is little conclusion in this section. I would like to hear more about how you feel the program works, the positives, and what you think should change.
(AC/S) **Score:** 1 **Reviewer's Explanation:** The conclusion may be more effective if you can demonstrate how lexia can be used with other reading intervention strategies to close the academic gap.
(AC/S) **Score:** 1 **Reviewer's Explanation:** Bottom line this for your reader...would you use it or not? Why or why not? How would you use it if you were to use it.

(AC/S) **Score:** 0 **Reviewer's Explanation:** Incomplete. Consider revising by just summarizing what the article was about.
(AC/S) **Score:** 0 **Reviewer's Explanation:** You offered no conclusion. Please consider in the conclusion bringing the body of work together to establish your point of view in the article.
(JC) **Score:** 0 **Reviewer's Explanation:** No conclusion or recommendation provided.
(AC/S) **Score:** 0 **Reviewer's Explanation:** Is this program worth paying for? You say the technology will "enhance student engagement in the learning process" yet you do not address engagement earlier in the paper. You focus your discussion of theory on constructivism, Vygotsky, and multiple intelligences, but your conclusion only discusses engagement and motivation.
Expanding and supporting your argument with an example or some evidence would make it stronger. Conclusion seems a little abrupt.
(JC) **Score:** 0 **Reviewer's Explanation:** Could not find a section with this heading.

Appendix V - Scholar: Tables with the experiences concerning course outcomes

Your experiences concerning course outcomes:-I acquired knowledge and skills about "Learning and Human Development with Technologies"

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	18	58.1	62.1	62.1
	Agree	10	32.3	34.5	96.6
	Neither Agree nor Disagree	1	3.2	3.4	100.0
	Total	29	93.5	100.0	
Missing	System	2	6.5		
Total		31	100.0		

Your experiences concerning course outcomes:-I acquired skills on how to apply the knowledge

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	15	48.4	51.7	51.7
	Agree	12	38.7	41.4	93.1
	Neither Agree nor Disagree	2	6.5	6.9	100.0
	Total	29	93.5	100.0	
Missing	System	2	6.5		
Total		31	100.0		

Your experiences concerning course outcomes:-I acquired skills in communication and collaboration

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	13	41.9	44.8	44.8
	Agree	10	32.3	34.5	79.3
	Neither Agree nor Disagree	4	12.9	13.8	93.1
	Disagree	1	3.2	3.4	96.6
	Strongly Disagree	1	3.2	3.4	100.0
	Total	29	93.5	100.0	
Missing	System	2	6.5		
Total		31	100.0		

Your experiences concerning course outcomes:-I acquired skills in self-regulated learning

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	15	48.4	51.7	51.7
	Agree	9	29.0	31.0	82.8
	Neither Agree nor Disagree	3	9.7	10.3	93.1
	Disagree	2	6.5	6.9	100.0
	Total	29	93.5	100.0	
Missing	System	2	6.5		
Total		31	100.0		

Your experiences concerning course outcomes:-I acquired skills in using the Internet for academic research

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	11	35.5	37.9	37.9
	Agree	10	32.3	34.5	72.4
	Neither Agree nor Disagree	7	22.6	24.1	96.6
	Disagree	1	3.2	3.4	100.0
	Total	29	93.5	100.0	
Missing	System	2	6.5		
Total		31	100.0		

Appendix X - Coursera: Tables with the experiences concerning course outcomes

How useful was this course in helping you do the following things: Developing new knowledge and skills in the area of e-Learning Ecologies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely useful	5	41.7	45.5	45.5
	Very useful	3	25.0	27.3	72.7
	Moderately useful	2	16.7	18.2	90.9
	Slightly useful	1	8.3	9.1	100.0
	Total	11	91.7	100.0	
Missing	No answer	1	8.3		
Total		12	100.0		

How useful was this course in helping you do the following things: Developing skills in communication and collaboration

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely useful	2	16.7	20.0	20.0
	Very useful	3	25.0	30.0	50.0
	Moderately useful	4	33.3	40.0	90.0
	Not at all useful	1	8.3	10.0	100.0
	Total	10	83.3	100.0	
Missing	No answer	2	16.7		
Total		12	100.0		

How useful was this course in helping you do the following things: Developing skills in self-regulated learning

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely useful	2	16.7	18.2	18.2
	Very useful	4	33.3	36.4	54.5
	Moderately useful	3	25.0	27.3	81.8
	Slightly useful	1	8.3	9.1	90.9
	Not at all useful	1	8.3	9.1	100.0
	Total	11	91.7	100.0	
Missing	No answer	1	8.3		
Total		12	100.0		

How useful was this course in helping you do the following things: Developing skills in using the Internet for research

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely useful	1	8.3	9.1	9.1
	Very useful	4	33.3	36.4	45.5
	Moderately useful	1	8.3	9.1	54.5
	Slightly useful	2	16.7	18.2	72.7
	Not at all useful	3	25.0	27.3	100.0
	Total	11	91.7	100.0	
Missing	No answer	1	8.3		
Total		12	100.0		

How useful was this course in helping you do the following things: Acquiring knowledge and understanding that I can practically apply

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely useful	4	33.3	36.4	36.4
	Very useful	4	33.3	36.4	72.7
	Moderately useful	2	16.7	18.2	90.9
	Slightly useful	1	8.3	9.1	100.0
	Total	11	91.7	100.0	
Missing	No answer	1	8.3		
Total		12	100.0		