

Students' Autonomy in Selecting Optional Reading Materials in an Online Course and its Impact on their Critical Thinking and Decision Making Skill Development

Heeja Kim¹, Elna van Heerden² & Kristen E. Bang³

Abstract

This study examines the impact of student self-engagement with reading materials on the learning outcomes of critical thinking and decision making skills in an online university setting. The study operates within the framework of the context-dynamic skill theory (von Bertalanffy, 1968), and the skill theory assesses how person and world function together in human development (Yan and Fischer, 2002). The results of the Regression Analysis show that among the six components of Student Engagement, the students' positive experience with Optional Readings produced the largest effect on the perceived learning outcome, 'Critical Thinking and Decision Making Skill Development.' Although exploring more readings could have increased the students' curiosity and ability to make adjustments that would maximize their learning, not all of the students capitalized on this option. The results of the study demonstrate the different learning capacities and contexts in which students performed their assignments, with varying levels of engagement in reading materials. In consideration of the unique learning context and capacity of each student, the present study asserts the importance of providing varying levels of autonomy in selecting optional and additional reading materials, according to each student's individual needs. The study then advises a discussion on the ways to create learning contexts and curricula that would strengthen students' commitment to fostering their own intellectual skills.

Keywords: context-dynamic skill theory, critical thinking and decision making skills, integration of learning, optional reading materials, varying levels of student engagement

1. Introduction, Problem Statement, and Purpose of the Study

Yan and Fischer (2002) point out that although educators have done research on adult cognitive development, they have only focused on long-term changes, and have barely touched on short-term changes (Yan & Fischer, 2002). In response to this challenge, Barber (2012) introduced Fischer's (1980) skill theory for understanding the increasing cognitive complexity indicative of the integration of learning. However, drawing clear connections using online resources from Cognitive Experience to Learning Outcome is not an easy endeavor for students (King & VanHecke, 2006). Importantly, educators do not supply guidelines for the specific objective of helping their students create such links (King & VanHecke).

In accordance with Huber and Hutchings's (2004) statement that the integration of given information and students' ideas is a key learning benchmark, we examine the level of students' engagement in reading materials and its impact on their critical thinking and decision making skill development.

¹ Trident University International, USA. Email: heeja.kim@trident.edu, Phone: 714-816-0366 ext. 2056

² Ashford University, USA. Email: evanheerden@cox.net

³ Emory University, USA. Email: kristen3ba@gmail.com

Specifically, this study seeks answers to the following research questions: (1) Do students' reading materials significantly impact their critical thinking and decision making skill development? (2) How does student autonomy in the selection of reading materials vary in learning engagement?

2. Theoretical Framework

The present study builds on Barber's (2012) work on the integration of learning and upholds the framework of context-dynamic skill theory in order to determine the features of the online learning experience. The context-dynamic skill theory is rooted in the system theory of the 1950s and 1960s (von Bertalanffy, 1968) and was further examined by Yan and Fischer (2002). It offers a framework for explaining how person and world function together in human development. According to Fischer and Yan (2002), there exist two levels of performance in skill theory literature, the functional level and the optimal level. The functional level represents the student's typical or everyday performance, while the optimal level represents his or her best performance under ideal circumstances. In recognition of the range in performance at functional and optimal levels, an educator's goal should be to advance functional-level performance while aiming for optimal-level skill development (Yan and Fischer).

We note that a particular learning style is a function(s) of the student's emotional state and how much immediate instructional support the student receives. The context-dynamic skill theory is a good fit for this study because the self-directed activity involved in selecting optional/additional reading materials potentially raises a student's critical thinking performance from functional to optimal.

3. Methods and Context

The present study analyzes the results of a voluntary survey that was administered at the end of each quarter in required classes at an online master's program in California concentrating in Educational Leadership. Of the 1,762 invited to participate in the survey during the period between fall 2010 to spring 2012, 167 students from four courses and 70 classes participated. Thus the Unit of Analysis of this current study is each class ($n = 70$).

For our research purposes, two dimensions were mainly assessed in the Course Evaluation Survey. One is 'Student Engagement,' the affecting factor with the six question items, and the other is 'Critical Thinking and Decision Making Skill Developments,' the presumed effect with the four question items.

In the courses examined in the study, Reading Materials (Required Readings and Optional Readings) were allocated to assist the completion of the assignment. The Optional Reading Materials were assigned in either one of two ways or both ways: One, as given by the course instructor in addition to the required readings; Two, as readings that students were required to find on their own in order to successfully complete the assignment. However, the survey questions failed to delineate one way assigning optional readings from the other. Hence, when answering the questions, the survey participants were likely insensitive to the distinction between optional readings that were given and those that the instructor expected students to find themselves. As a result, the non-clarified and non-specific nature of the survey questions limits what observations can be made on the impact of optional readings on Critical Thinking and Decision Making Skills. Therefore, relying on the variance values of the corresponding variables, we intuit the impact of Optional Readings (Access of the Optional Readings and the Usefulness of the Optional Readings) on the learning outcome.

4. Results and Discussion

We conducted a series of Regression Analyses to examine the impact of Student Engagement on the Critical Thinking and Decision Making Skill Development variable. See Table 1 for the results of each analysis.

Table 1: The Impact of the six Student Engagement Components toward Critical Thinking and Decision Making Skill Developments (Standardized Coefficients, β)

Student Engagement	Skills of Critical Thinking and Decision Making			
	New Skills	Connection	Diverse Points	Information Literacy
(Constant)				
TD discussion				
Required R. Material		.22*		.25**
Access of Optional R.	-.37*			-.22*
Usefulness of O.R.	.76**	.41**	.56**	.43**
Asked for Assistance				
Used internet Sources				
R ²	.33	.29	.27	.19

Note. * correlation is significant at the 0.05 level (2-tailed).

** correlation is significant at the 0.01 level (2-tailed).

As shown in Table 1 for the Regression Analysis, the Reading Materials (Required Readings, Access of Optional Readings, and the Usefulness of Optional Readings) turned out to be significant factors in building Critical Thinking and Decision Making Skills.

The descriptive statistics (*Mean* and *SD*) show high variance for Access of the Optional Reading Materials ($M=5.33$, $SD=.61$) and Usefulness of the Optional Reading Materials ($M=5.25$, $SD=.73$) respectively meaning that not all students in the current study used and/or valued the options to read more when they took on the assignments. This further led to high variance in Usefulness of the Optional Reading Materials. In observation of the significant negative beta value of the relationship between Access of the Optional Readings and the two sub items of New Skills ($\beta = -.37$) and Information Literacy ($\beta = -.22$), we can assume that some students did not consider the optional readings as the valuable tool for their learning. However, the significant beta coefficient values of the Usefulness of the Optional Readings for all four learning skills result in Access of the Optional Reading being the influential factor on the Critical Thinking and Decision Development Skill Development variable.

The finding that students do their assignments with varying levels of engagement with the reading materials is reinforced by Yan and Fischer's (2002) study on Dynamic Variation in Adult Cognitive Microdevelopment. Their study on Dynamic Variation argues that each person functions at different levels depending on the task, background, and capacity. In the present study, variations in students' backgrounds are exhibited in two ways: (1) in a student's learning capacity; and (2) in a student's learning context such as time he or she has available to work on the assignment.

5. Conclusion and Implications

Interacting with the reading materials is vital to building critical thinking capacity and decision making skills. It would be beneficial for students to experience a learning process that stimulates real involvement and demands high critical thinking with the reading materials. By gaining ownership over their learning, students would be more motivated to practice and improve their critical thinking and decision making skills. The results of the present study point to the implications of differences in learning capacity and context, and

demonstrate the significance of students working on their course assignments with varying levels of engagement in the reading material.

While the study is limited to the non-specific nature of the survey questions on Optional Reading Materials, the intuited analysis using descriptive statistics, including a close examination of variance values, supports our interpretation of the statistical results of our study meaningfully.

The present study echoes Yan and Fischer's (2002) argument that educators must strive to accommodate student variances in order to raise students' typically functional level of performance to the optimal level. For example, were the wording of "Optional Readings" to be switched to "Additional Readings," and finding supplementary literature were to become mandatory, students might further engage in the assignment by browsing through relevant articles and building on their own understanding of the topic through them. If a student is willing to go the extra mile to find and engage in optional or additional readings, he or she seems to have entered a game-changing sphere of critical thinking and reasoning.

Optional/additional readings serves to not only fill gaps in the information provided in the required readings, but also expand the horizon of the knowledge by referencing other resources which contain fresh insights and perspectives. The present study's findings on the varying levels of student engagement in reading materials provides insights for the course developer to encourage direct student involvement in constructing course content. Discovering more ways to strengthen students' commitment to advancing their own intellect remains a task for further research.

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