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Student critical thinking objectivism

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Abstract

Aim: The goals of this research are to (1) gain a better understanding of what college students mean when they refer to CT, (2) determine whether or not CT can be taught, and (3) determine what approaches would be most effective.
Method: Undergraduates studied in a second-year university lecture hall under the guidance of a professor. All students in one class and their teacher are involved in this study. The gathered information pertains solely to the tasks and the students' evaluations.
Findings: Based on the findings of this study, it appears that CT can be taught as a supplementary topic within the framework of a predetermined curriculum. Students' lists of challenges to CT development and use and assertions that multiple techniques were related to CT development corroborated previous statements in CT research. According to student reports, they are changing their ways of thinking and evaluating aid strategies.
Implications/Novel Contribution: To better understand the differences between the experimental and control groups, it would be helpful to conduct additional experiments with these students. One-half of the course experienced interference, while the other half did not. Examining the two groups' CT skills might shed light on whether or not the knowledge was retained.

Keywords: Student, Critical, Thinking, Objectivism

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INTRODUCTION & LITERATURE REVIEW

Objectivism can be seen and understood in the consumerist mindset, which claims what is best (the best car, clothes, the best-looking people, etc.).
It's a declaration or idea about what interests us. One thing. The typical Westerner has a well-defined set of objectives. Why Do College-Bound Young People Enroll in College? Just what are they hoping to accomplish. To improve one's chances in life.

Existing Literature- CT and Teaching CT

Critical thinking is at the core of university curriculums as teaching students how to think rather than what to think is recognized as a vital skill (Paul, 1993). For example, the University of Toronto places emphasis on the development and use of critical thinking, defining it as a higher order of thinking using a number of different advanced thinking skills in a variety of complex ways Critical thinking is self-reflexive [for] it involves reflecting on, questioning and testing your own thinking processes [and it] is discipline-specific (Boonphadung, 2017; Duncan, 2017). The University of Guelph defines critical and creative thinking as a concept in which one applies logical principles, after much inquiry and analysis, to solve problems with a high degree of innovation, divergent thinking and risk taking (Desmarais, 2012). Critical thinking is outlined by the University of Guelph as one of the five major learning outcomes of the university. Critical thinking is viewed by the university as required to not only support academic success within the academic environment, but also to enhance career success when students graduate (Desmarais, 2012). Instructors play an extremely significant role in guiding students in the right direction in the development of critical thinking (Brookfield, 1995). Various teaching techniques have been found to hinder or enhance the development of student critical thinking. There are numerous definitions of critical thinking in the

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literature as the definition of critical thinking has rapidly changed over the years (Huitt, 1998). In (Fisher, 2011) defined critical thinking as active evaluation of communication, observations, and arguments, suggesting that critical thinking is as fundamental as reading and writing. Willingham (2007) defined critical thinking as viewing and understanding both sides of an issue, seeking evidence for arguments, and being open to new information. Critical thinking has been more recently defined as the intellectual process of actively theorizing, applying, investigating, creating, or assessing information gathered through experience, communication, observation, and/or reflection as a means of guiding ones behaviour and action (The Foundation for Critical Thinking, 2015). Critical thinking is seen as rational, skillful, and conscientious thinking, as it requires a higher level of cognitive processing (Paul, 1993; Suhaili, Ahmad, & Ainah, 2015). Those who are taught to think critically access high levels of cognitive ability and processing, aiding in creative problem solving and providing them with a larger frame of reference (Jeevanantham, 2005).

Research supports the view that critical thinking can and should be taught in university environments (Bay & Macfarlane, 2011), and suggests that those who are taught to critically think score higher in their academic studies (Godzella & Masten, 1998) and are able to utilize critical thinking skills across disciplines (Bay & Macfarlane, 2011; Hock-Eam & Yeok, 2017) There is evidence to suggest that learning critical thinking results in an actual physiological change in the brain (Jeevanantham, 2005).

A variety of techniques must be used in order to support the enhancement of critical thinking in students (Thompson, Licklider, & Jungst, 2003). One of the more effective teaching techniques used by instructors to foster the development of critical thinking is an approach called learner/learning-centered approach (Thompson et al., 2003). In this humanistic approach, the focus is on the individual learner and emphasis is placed on supporting students with their unique needs, collaborating with teams, and participating in meaningful discussions (Thompson et al., 2003). Instructors who capitalize on students inherent abilities such as pattern seeking and comparing similarities and differences, were successful at assisting students with thinking at a deeper level (Thompson et al., 2003) and empowering them to create their own solutions to problems (Willingham, 2007).

Critical thinking aids students in finding their identity, building character, and it aids in creating compassionate and action-oriented individuals, all seen as vital for a functional society (Jeevanantham, 2005). An approach related to this is transformational learning. Transformational learning techniques have been found to be effective in enhancing the development of critical thinking in university students (Halx, 2010). In this andragogy approach, students are regarded as developing adults rather than children who would be taught via a pedagogical approach. Andragogical teaching emphasizes independence and self-reflection (Halx, 2010). Through this method, instructors challenge students values and beliefs in order to widen their views of the world and increase their ability to be open-minded individuals (Halx, 2010). Students are also taught about the need for healthful skepticism, where they can critically evaluate situations and options, but avoid being merely negative (Fahim & Masouleh, 2012). Andragogical teaching is seemingly effective in creating action-oriented professionals (Halx, 2010).

Another teaching method found to be an effective method for enhancing critical thinking is the use of case studies. Case studies, an often avoided tool, are often regarded as a method that may inhibit critical thinking skills due to the fact that they may carry author biases, are often time-consuming, and may not benefit students in learning specific facts (Popil, 2011). Conversely, recent literature suggests that case studies are an effective instructing tool to help enhance critical thinking in university students as they allow students to problem-solve with cases similar to what they may experience in their discipline (Popil, 2011). Case studies often take into account the experiences of those in the cases, giving students the chance to analyse and interpret real-life cases and develop professional thinking for their field of study (Herreid, 2004). Cases studies may also be a benefit to instructors, for these real-world views may help enrich courses, creating a passion for the material that may be passed onto the students (Popil, 2011). Effective use of case studies includes not giving students specific answers but instead allowing students the chance to use their skills and thinking to problem-solve (Popil, 2011).

As much as there are a variety of methods that can be used to develop student critical thinking in various disciplines and programmes including Family and Community Social Services, the opposite is also true. Overuse of one method or the continued use of an ineffective teaching method may negatively affect the students ability to develop critical thinking (Willingham, 2007). A key ability used to guard against the inhibition of critical skill

development is self-reflection (Miller, 2016).

Self-reflection is a skill that individuals in the field of social services must have and the ability to self-reflect is directly linked to the development of critical thinking (Miller, 2016). Instructors who do not reflect frequently on their teaching may inhibit student development of critical thinking (Bay & Macfarlane, 2011). Brookfield (1995) noted that instructors who ignore lecturing entirely due to the belief that lectures hinder critical thinking may actually impede critical thinking development, just as would solely relying on lecturing (Tiwari, Lai, So, & Yuen, 2006). Additionally, instructors who do not support the need for mutual respect in the classroom, who do not feel comfortable pushing students past their comfort zone of thinking (Elder & Paul, 2002), and who do not encourage reflecting on all learning that happens inside and outside of the classroom may hinder the development of critical thinking skills (Miller, 2016).

The student-student relationship and student-instructor relationship is a key factor in the development of critical thinking (Behar-Horenstein & Niu, 2011). Without proper connection between student and instructor, students are left believing there is a strong divide between themselves and the instructor and this may delay the development of critical thinking (Behar-Horenstein & Niu, 2011). Moreover, negative student-student and student-instructor interactions were found to shake the confidence of the students, negatively impacting the development of critical thinking (Pithers & Soden, 2000). When there is a sense of division between students and instructors, students may be viewed as children and instructors as experts. Although instructors may be well aware of theories and ideas in their field, they may forget that for students this information is not second nature and needs to be respectfully discussed, explained, and reviewed to be critically thought about and understood (Kurfiss, 1988). In order to support the development of critical thinking, mutual respect and understanding in the classroom must be present (Behar-Horenstein & Niu, 2011).

Another teaching oversight which negatively inhibits effecting enhancement of critical thinking is the lack of defining by instructors of critical thinking to students (Pithers & Soden, 2000). Many students begin higher education without knowledge of how to think critically or what critical thinking is. Due to the lack of this information, many students do not view critical thinking as essential and are left with severely underdeveloped critical thinking skills (Pithers & Soden, 2000). Many instructors seemingly do not take the time to define and discuss critical thinking with their students (Pithers & Soden, 2000), and do not highlight the role critical thinking plays in higher-order thinking and professional development (Davies, 2011). Hemming (2000) argues that critical thinking should be the goal of higher education; however instructors may struggle to foster the development of critical thinking alongside teaching course subject matter if there is a lack of mutual understanding regarding critical thinking. In order to foster the development of critical thinking, particularly for students newly entering post-secondary education, the definition and importance of critical thinking must be discussed with students (Davies, 2011).

Critical thinking is central to higher education and aids in the development of strong-minded and well-rounded professionals (Davies, 2011). Instructors can play a significant role in guiding students to developing critical thinking skills, and should be cautious of utilizing teaching methods that may have the opposite effect. Methods such as the learner/learning approach, which emphasizes the individual learner (Thompson et al., 2003), the transformational learning approach, which regards students as adults and stresses reflection (Halx, 2010), and the use of case studies as a teaching tool have all been linked to enhancing the development of critical thinking by university students. On the other hand, a lack of self-reflection and mutual respect in the classroom, poor student-student and student-instructor relationships, and the failure to define critical thinking to students is linked to inhibiting critical thinking development. Teaching critical thinking goes beyond supporting students in their academics as it is a skill students take with them into their fields of work and into society (Jeevanantham, 2005). Critical thinking is linked to academic achievement as well as positive career success and the creation of open-minded and action-oriented individuals who have the potential to make positive change within society (Halx, 2010). Given its significance, it is necessary to further determine the most effective ways to help students develop this important skill.

METHODOLOGY

The study follows the particular methods used by the instructor in a particular course. The study is meant to examine a causal relationship between the independent variable of teaching methodology and the dependent variables of a) a change in understanding of CT and b) students perceived change in their own ability to apply CT to academic studies.

This study serves as a pilot study relying on a single instructor teaching one class of Guelph-Humber Family Community and Social Service (FCSS) students taking a second year undergraduate course (Working with High Risk Populations). Students enrolled in the FCSS program, typically move on to careers as Social Service Workers or Social Workers. The course is designed to help students gain an understanding of some of the issues their future clients may be facing, and offer them a variety of theories and skills they can use in assisting their clients. The instructor believes CT is required for success in the Social Service/Social Work field. He makes specific efforts to discuss CT in class with students and engages students in numerous activities that encourages them to apply CT.

The instructors stated goal for this project, and to his students in class, is to increase critical thinking on the part of students. Instructional methods in critical thinking in this instructors course involves moving from a lecture style passive memory knowledge-based teaching approach, to an independent curiosity-based learning style. The instructors definition of CT is based on the University of Guelphs definition as stated earlier including a high degree of challenging existing theories, proposing alternative and multiple perspectives, and reflexive self examination of biases and thought processes.

The study consists of 2 surveys administered 1) prior to commencement of teaching course materials, and 2) at the conclusion of the course. Survey 1 identifies the students pre-course understanding of CT, what teaching methods are helpful to foster CT, and what teaching methods hinder the development and use of CT. Survey 2 explores students post-course understanding of CT and what material/methods influenced any learning that may have occurred.

The researchers relied on a case study approach to this project to make a detailed inquiry into the particular use of specific activities by a specific instructor. Consistent with SoTL, this provides focused analysis of the activity and its direct value toward learning.

The Case at study in this project is the particular activities used to help learners learn. Although the instructor and his particular personal style/manner in the classroom cannot be ignored, as he is a participant who has a directing role in the activities, he is not the object of study. Data being collected is specific to the activities and students assessment of those activities. As such, this study may be used as a pilot study for further research into the use of the activities that this particular instructor relies on in his coursework. As well, it may provide information about whether these activities are useful and if they be used in other courses and by different instructors.

This study relies on data collected through surveys of students in a particular course to answer in part the research question: What teaching techniques and methods increase student critical thinking in a FCSS course? Although this project is formed on the premise of a research question, ultimately to some degree, hypothesis testing is present in the process. It seems fair to say that most instructors believe their method of teaching is suitable. In some cases instructors (as in this instance) believe that the particular activities they bring to their classrooms enhance learning. Therefore, the underlying thought that this method of instruction (the particular activities under review) is sound teaching methodology may be accepted as the premise being tested.

The project can be seen as a Critical Case Study. Case study tends to be seen as a qualitative approach using interviews and participant observations, it does fit with a deductive qualitative approach. Critical case study allows a better understanding of the circumstances under which the hypothesis does or does not hold (Bryman, 2016). Serving as a pilot study for further SoTL research, this case study becomes an inductive inquiry; an inquiry that takes the activities underlain by the theoretical approach of this particular instructor in one classroom, and sets the groundwork for research in other settings, with other instructors.

Given that this project is more qualitative than quantitative analysis, issues of reliability, validity, and replicability must be addressed. Reliability is addressed through the use of student learners in the professors classroom as research subjects, to gather the data on the activities used in the classroom by this instructor. These students are the ground floor of application of learning to be used in the education of subsequent students in the

field. The number of participants may impact validity. Validity should increase with a greater number of student participants.

Replicability: regardless of the actual participation level or findings, the study will set a foundation for carrying out further use of the same, or similar, activities in other classrooms with other instructors and gathering data in such other scenarios. The ability to replicate the research project speaks to external validity. Further studies using the same method will provide data that can be used to measure external validity. Additional research may also lead to data that will allow a degree of measurement of the impact of the particular instructor relative to teaching methodology. As further studies are conducted the instructor role can perhaps be measured as an intervening variable or an independent variable.

Participants

Participants in this research are 1) the instructor, and 2) his students in a particular class. The instructor is a participant observer in the research project, to the extent that he is present in the room delivering the course material. Where typically researchers try to reduce the impact of a researching participants impact on the research environment, it is specifically his impact on the environment that is the subject of enquiry. Student experience of his work will be the subject of final analysis.

The population from which students were selected for data inclusion are those in the designated class of 35 students. The actual sample size was determined at the time of application of surveys 1 and 2. Post test actuality 26 (74% of class) student participants completed Survey #1, and 28 (80% of class) student participants completed survey #2.

Procedure

This research project utilized a case study approach of inquiry. The research subject is the instructor claim to teaching CT. As a SoTL project, the object of the study is his choice of methodology used to teach this concept and any subsequent change in student understanding and application of CT. Initial exposure to his methodology is described above. Greater understanding of methodology and its effectiveness is gained through analysis of surveys provided to students in his class.

A case study approach is appropriate because the project is a detailed exploration of a single instructors methodology in a particular course. As a single student group population with a particular instructor, this project may be viewed as a pilot study for future application of the same methodology over several classes with the same instructor, or different classes with different instructors. It is hoped that the secondary application of this research project may lead to meaningful contributions and publications in SoTL.

Survey Application

Students who choose to participate in the research are provided two surveys. The first is a simple survey that establishes a baseline of their understanding of CT. The second is administered after exposure to the instructors teaching. The second survey is aimed at: a) identifying if a change in students understanding of CT has occurred, and b) if a change has occurred, what was the impact of each of the methods utilized by the instructor.

Using a survey to gather data is effective for this project as it provides a simplified measure of whether or not learning of the anticipated topic (CT) occurred across a number of students. The questions in the second survey speak directly to each of the teaching exercises used by the instructor. The questions capture student perceptions of whether or not they learned, a statement of what they learned, a statement of what methods helped them learn and a repeat question from survey 1, a statement of their definition of CT. These statements provide data that can be analyzed by the research team for themes and variations in perception from one student to another.

Student statements range from the question of broad meaning of CT and perceptions of ones ability to apply it, to perceptions of the impact of lessons used by the instructor aimed at assisting student learning. Data on student assessment of the value of each learning activity is separated and recorded for analysis by the research team. Data collection begins with the open-ended questions asking whether or not the activity enhanced understanding of/ability to apply CT and students perceptions of how the activity assisted.

Measurement

It is thought by the researchers that students in this course who can understand and apply CT will demonstrate critical thinking by challenging and questioning presented ideas and theories. This contrasts with what the three researchers see as a more typical knowledge-based learning approach where students simply accept and attempt to memorize as truth what the instructor, textbooks, and research articles posit regarding how to understand and help people who are in need of clinical intervention.

It is anticipated that students who learn to understand and apply CT will be more able to come up with multiple explanations for human behaviour and multiple options for assistance. It is hoped the experiential learning and application of CT by students will be demonstrated through their asking questions of the instructor and each other, and their exploration of various possible viewpoints. The final measure of learning is their understanding that knowledge of human phenomena is an ongoing process of inquiry rather than a static accumulation of truth.

Analysis of the data gathered from completion of the pre- and post-treatment surveys, and comparison of the response to open-ended questions about each activity utilized by the instructor, will provide insight into the effectiveness of those activities, individually and cumulatively.

RESULTS AND DISCUSSION

Analysis of data from a reasonable sample size are expected to be able to address issues related to demographics, students prior understanding of CT, students change in understanding of CT, students perceived change in ability to apply CT, students perception of the influence of course material/activities on change in understanding/ability to apply CT. Post test actuality Eighty six percent of students (24/28) students indicated a change in their understanding of CT, and an equal number indicated that they believed that course helped them apply critical thinking to their studies.

Prior to the treatment, theme among the student participants definition of CT were:

- Thinking outside the box.
- Reduced bias.
- Deeper analysis of a topic/theory.

Post-treatment themes among the student participants definition of CT were:

- Thinking outside the box.
- A form of curiosity/abstract thought.
- Analysis that includes skepticism and always questioning what is presented.
- Deeper understanding that leads to new thoughts.
- Reading between the lines.
- Making connections between concepts.
- Seeing things from multiple perspectives.

In addition to indicating a change in understanding of CT, students provided some insight into what both hinders CT development and what encourages its development.

Students had been asked in Survey 1 what methods hindered the development of CT. Students reported that PowerPoints copied from textbooks and presented to the class by their professor inhibits their critical thinking. Teaching methods that do not allow them to freely think such as when the teacher advocates only their own opinion and discredits any opposite viewpoints held by students was listed as a hindrance to CT development. The students wrote that asking about dates on exams instead of core concepts does not promote the retaining of knowledge. An over-reliance on lectures rather than open discussions was listed as an obstacle to development of CT. Not giving real life examples and asking students to memorize theories or information and simply regurgitate it back word for word on exams also inhibited development of CT from the students perspective.

Students were asked in Survey 2 to describe what about the course material and/or delivery method, or some other influence helped them to better understand critical thinking. Course material that was reported to have helped develop critical thinking included the provision of various strategies and methods to further analyze and understand different populations. Students stated that the manner in which the course material was presented by the professor aided their development of critical thinking. The passion of the professor, the provision of real

life examples, using different models, re applying material in different ways, classes formatted as discussions rather than lectures, and addressing curiosity of the students in a positive way helped the students develop CT and understand course material. One student emphasized that the course materials allowed him/her to broaden their perspective by analyzing various models that explain abnormal psychology and behaviour. Students reported that they now think differently and look at helping approaches from a different point of view.

No one method employed by the professor stood out as more significant than any others which reflects the broad range of methods reported in research required to encourage development of critical thinking.

CONCLUSION, RECOMMENDATIONS AND IMPLICATIONS

The definition of CT provided by student participants did change from the pre-treatment to post-treatment. The students pre-treatment definitions were vague and limited as compared to the post-treatment definitions that have increased in range and specificity. The language of the second survey definitions includes terminology that seems to indicate a more personal application of the concept and aligns better with the academic definitions discussed above. Arguably the nature of the multiple method experiential-based application of learning strategies is reflected in the students thoughts. The results of the project indicate that CT can be taught as an ancillary lesson in the context of designated course material. The indication by students that multiple techniques were related to the development of CT development and application confirmed what has been stated in CT research, as did their list of hindrances to CT development.

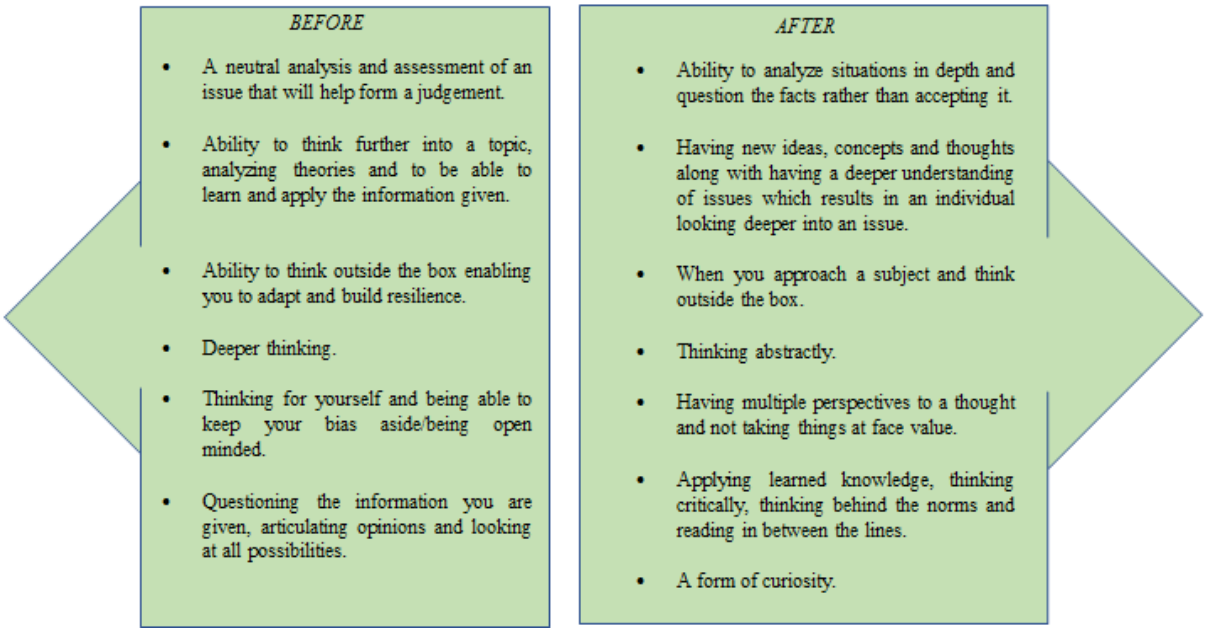

Figure 1. Before and after(Comparison of class definitions of critical thinking)

A second issue that arose in the research is one of confidentiality. Students who offered to assist in the research were concerned with the possibility that their input could somehow result in a negative impact on their grades. Students were happy to assist, but did so only on the condition that their names could not be exposed, including the use of alternate randomized identifiers. As such the data from survey 1 and survey 2 cannot be correlated directly to specific students. This posed certain questions for researchers:

- What is the value, if any, of collecting data from a truly confidential (no identifiers) sample?
- Did the same students complete the survey? The near equal numbers of students participating in both surveys would seem to indicate they did.
- What is the level of growth for individual students that is measurable as a result of the research?

LIMITATIONS

Implications for applying this classroom methodology may be limited due to the small sample size and the process of complete anonymity used to overcome students confidentiality concerns. However, this pilot study research model was attempting to gain information regarding an overall sense of learning on the part of students. That goal was found to have been achieved by comparing definitions of student descriptors of CT from Survey 1 with Survey 2. Other potential limitations are as follows:

• Several methods were used, but there is not enough data to determine if any one or combination of methods used affected the outcome more.

• Although there is marked expansion of student definition, the assessment of the effectiveness of specific methods used by this particular instructor in this particular setting is somewhat rudimentary.

• Changes by specific students of CT development cannot be identified.

• The effectiveness of the teaching style is impacted by the particular instructor and the relationship the students developed with this instructor. Given that this is a single classroom with a single instructor over the full term of the research, the impact of the instructor vs. the methodology or the combination of the instructor and the methodology is untested. The results could vary significantly from one instructor to another.

• As the surveys are based on self-report, it is unclear if students who reported being better equipped to apply CT in their studies are truly better equipped and likely to do so in the future.

FURTHER RESEARCH

It would be interesting to provide follow-up studies of these students compared to their cohort who did not receive the intervention. The course is divided into two different equal sections, one which received the intervention, and one that did not. A comparison of the two groups on CT skills could result in further clarification of whether these skills were learned and if they were retained. Will FCSS students who received the intervention be more likely to use CT skills when presented with Social Work cases and dilemmas as they move forward into their upper level graduate year studies and are faced with increasingly challenging learning? An additional question worth exploring is whether the methods employed in this course are transferable to other programs. Are the methods to foster CT understanding and application universal, or do they need to be adapted to the needs of specific programs and students?

Opportunity

Opportunity cannot manifest as a potency for individuals until it is recognized as such. We become only aware of the possibility of something once it is exposed to our mind/thoughts. Opportunity comes to light and exists experientially; sensorially through vision, hearing, smell, touch, and conceptually through our minds. The idea of Opportunity. Most importantly it exists only it when recognized as such by the individual Opportunity. Opportunity manifests in a broader view of what is available in the world. Conceptually this exists in humanity, across all levels of social disparity.

The research project conducted serves to show the idea that we can and should continue to provide more and better learning to students to provide them more Opportunity, so they can achieve more and Better. The SoTL discipline is specifically aimed at studying how we teach and improving on it. It fits with the idea that we can accommodate all. It fits with a consumerist society.

This process objectifies students as the cite of struggle for improvement. They are where we measure our success as teachers. The thing we desire (improvement) and the social space in which we try to achieve that which is desired (academia). Somewhere this idea of providing Opportunity that is perpetuated in Western academia as a notion of advancement, we miss the valuing of slowing down a little to teach future generations what we have lost socially over the last several decades. The mindset of Opportunity with a goal toward having more looks only forward from today.

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