Contextualization of Students' Experiences and Topic Choice for the Interdisciplinary Inquiry Project in a Capstone Teacher Education Course

[I]**Dr. Kalpana Mukunda Iyengar,** [II]**Prof. Ellen Walroth**

[I]Co-director of San Antonio & Haridwar Writing Project, Postdoctoral Researcher and Faculty, Dept. of Interdisciplinary Learning and Teaching, The University of Texas at San Antonio, USA
[II]English Instructor, Alamo Colleges, San Antonio, TX

Abstract

Enhancing teacher success in motivating undergraduate education students' perceptions and understanding of interdisciplinary inquiry calls for carefully guided instructions and categorized assignments. The first crucial step is an initial permission for class members to affirm their topic choice, with the understanding that their chosen topic is contextual to their past and present experiences as student teachers' professional as well as cultural interests. An interdisciplinary project calls for individual class members to learn about immersion into the inquiry process about a pedagogical topic, along with the search for knowledge of qualitative literacy. It is important for student teachers to acquire interdisciplinary proficiencies that ultimately facilitate a better understanding of the problems associated with teaching diverse students. This qualitative study explores how students' engagement in a semester-long inquiry course helped them solidify seven different characteristics of an inquiry project. The study focused on the first assigned report in the class, called researcher identity statement, where the students wrote an essay based on a prompt from the instructor that asked them to reflect on their personal passions, influences, and identities that shaped their career goals and their epistemologies. Although this study explored different areas of professional development where future teachers will need to adapt, all students learned from these researcher' identity statements. The findings revealed that when the topics are contextualized to students' learning goals, their engagement, opinions, approaches, sharing, and methodologies improved considerably.

Keywords

Contextualization, Inquiry, identity statement, instructional scaffolding, & qualitative literacy

Introduction

A 3000-level (junior and senior capstone) interdisciplinary studies course taught in the Education Department at a major public university in the southwest region of the United States presented various challenges to the lecturer (first author). The class was listed as Interdisciplinary Studies 3713, scheduled during a 16 week format during Fall and Spring semesters and required the students to work on a twenty one to twenty five page report about a personal inquiry project (pilot study) at the end of the course work. During the course, the students worked on seven different blocks - (1) Researcher Identity Statement, (2) Interdisciplinary Inquiry, (3) Designing Questions, (4) Reviewing Literature, (5) Data Sources & Methodology, (6) Findings & Implications, and (7) Connections to Future Teaching and Learning and inquiry defense. The assignments included reading two textbooks (one discussed teacher and student research and the other textbook was filled with vignettes from practicing teachers in the US) and to building the different segments that went into making a full-length inquiry project by the end of the semester.

General demographics at the university are 28% White non-Hispanic, 10% African American, 48% Hispanic, 14% other backgrounds. The demographics of the university were generally reflected in the class enrollment (sample size one hundred and twenty five). A cultural component built into a chosen topic by students in the class enhanced the respect for diversity and openness to different pedagogical strategies, which were intrinsic to the student learning objectives and course design prepared by the Department of Education for the university. The lecturer (first author) also used her own cultural sensitivity and respect for a multi-cultural perspective of pedagogies as part of the core group design.

Inquiry Project

The decision was made by the department to create a research project and presentation for all the education students enrolled in the Interdisciplinary Studies capstone course. To that end, an assignment called "Identity Statement" was designed that asked the students five questions including-(a) what were their goals (b) what were their interests and (c) what was their passion in research as future teachers. Asking a future teacher to define what aspect of education they wished to research contextualized their topic on personal experiences they had had either as learners, student teachers, or through field work (classroom observation). This contextualization of personal interests would then create a deliverable first person narrative identity statement for presentation.

The syllabus is designed to provide students with an interdisciplinary training in the following aspects of critical thinking: (1) Language for expressing ideas about thought and thinking, (2) Comprehension of the common and the specialized processes of critical and creative inquiry that contribute to the generation of knowledge, (3) Knowledge of the influences of content and context on inquiry, (4) Abilities to apply knowledge and thinking strategies to research for classroom inquiry, and (5) Ability to reflect on your own thinking to identify the characteristics of your own inquiries for classroom praxis.

Research

Student learning outcomes in the twenty first century include not only a fluency in language and communication skills, but also collaborative learning in a problem-based environment. Collaborative learning has many facets, and its tools takes students into an environment where there are no clear-cut answers, but

instead force educated individuals to study problems systematically (Atkinson., & Hunt, 2008). Asking students to both choose a relevant problem to their personal and professional interests, and then develop a presentation within a 16 week time period to share their findings with the peers creates a class climate and structure where students' learning objectives are all met while students research and write about their chosen problem. The class design then fulfills the write-to-learn approach established as most effective in contextualizing a college class (Klein, 2004; Albers, 2008). Also, according to Williamgham (2015), "Teachers are smart enough, but you need more than smarts to teach well. You need to know your subject and you need to know how to help children learn it. That's where research on American teachers raises concerns" (p.1).Continued professional development and research-based courses are mandatory for teachers entering the field today.

In this light, the inquiry project provides the students an opportunity to conduct a pilot study, where they determine from who they procure data for analyses. The project also requires students to situate their topic as part of an interdisciplinary research framework, asking these future teachers to think about their personal interests in their profession within the boundariesof a theoretical framework. Such a process teaches students in a capstone class to conduct an extensive literature review with minimum of ten sources and then collect data for analysis utilizing an appropriate qualitative methodology. The final component of the assignment is the teaching and learning experience gained by interaction with their peers as individuals, teammates, and audience for their presentations. The successful conclusion of the class indirectly creates a professional learning community (PLC) and openness to future pedagogical training that will encourage them to review the implications of future research in instructional challenges and the applicability of research to their own teaching situations (Brickman et al, 2011). Further, according to McKinney and Busher (2011), a capstone course such as this one provides students with …active and authentic learning, peer collaboration and review, student reflection, interaction with faculty, frequent feedback, emphasizing time on task, starting with what students know, high levels of challenge and expectations, varying pedagogy to trigger activity in different parts of the b rain, tapping into students' motivational sources (e .g., intrinsic interests), and coaching WTP for students (p. 298).

This course is challenging to students who procrastinate, do not engage in critical thinking, and are unable to submit the blocks on time for feedback and evaluation.

However, the contextualization of the course and the students' personal choice of topic and professional interests could act as a motivator for low-performing or at-risk students in the capstone course to re-enroll in the class if they are not successful the first time. It is hoped that the course design as indicated above would add the all-important aspect of persistence and transference of skills to other classes, including graduate work, for students who otherwise would become discouraged in the gap between their skills and the required academic rigor that the Department of Education demands from their graduates. In order for teachers to successfully enter the work force, online literacy is also a crucial component.

Online Literacy

New methods must be provided in an online environment for both students and teachers that enhance quantitative judgment of best information, where to find it and how to research such information in a collaborative environment to better unite team skills in presenting a possible solution (or solutions) for peer review (Riser & Clark, 2013). Such quantitative judgment practices increases awareness across many levels of a university environment and result in the all-important transference of skills acquired in one class to the pre-requisites in place for other classes and for degree completion. The solutions that are presented in student research in this type of interdisciplinary course are never the goal, since a real problem-solving course today creates an interdisciplinary environment, which indicates to, all involved that a true assessment of a problem is complex and ongoing.

A successful interdisciplinary course creates awareness in its students that pedagogical strategies for the future require detailed review periodically to increase robustness in a desirable solution as well as review of 'real life' data facing the educators of tomorrow. The environment teachers face as the social contract between education and society adapts to the great disruption of technology and the changing nature of work continues to shift depending on the national and international issues facing teachers entering the profession and challenges (both scientific and economic) forced on a nation, its pedagogues and its citizens by globalization (Rothenberg, 2006). The following wiki pages (figure 1) are examples of feedback and review provided for students throughout the semester (see figure 1 below).

Fig. 1: Wiki pages

Student collaboration through publishing their blocks or sections of the interdisciplinary projects in a Wiki also allowed them to work in groups as well as understand the topics chosen by other classmates. The students were also able to peer review the identity statement to polish the draft that they generated in class. They were provided with feedback and also allowed to add throughout the semester.

Yet, as universities come under increasing review for "utility" of their student training for their future social and professional benefit, potential new collaborations present themselves between institutions of higher learning and communities that can benefit from projects. These plans are conducted within the academic environment or in collaboration with other groups outside of academia, where student literacy (including visual, online, and multimodal literacies) can be added to existing course components for learning communication skills based on "what our students understand and how these understandings have been shaped by prior knowledge, experiences, and cultural perspectives" (Falk &Blumenreich, 2005, p. 2). Such a possibility is suggested in the curriculum design of the IDS 3713 Interdisciplinary Inquiry contextualized course.

Contextualization of Topics

In a write-to-lean environment, the five goals described earlier were enhanced by strong student identification with their chosen topics. Each student established a write-to-learn component of the class, contextualized by the assignment that asked students to choose strong autobiographical components. This contextualization of the class content allowed the students to choose from a series of multicultural research topics related to education and challenges faced in the classrooms where these students will teach in the future. The first author provided students with time for sustained silent writing using the writing workshop model, where students had time to brainstorm and create their first working drafts for polishing at home. The following table lists the most represented topics and the areas can be generally categorized as follows based on the students' personal experiences in their teaching and learning classrooms (see table 1 below).

Table 1: Student Research Topics

Students' Personal Experiences Defining Research Topics

Topic Area	Topics for Inquiry Project	Students (N)
ESL challenges in education for teachers in the future	Teaching locally Teaching abroad	10
Disabled student challenges in education for teachers in the future	Stigma of labeling ADD/ADHD Challenges provided in the classroom by disabled students	9
Social, economic and cultural issues challenging student success, including single parent homes	Effects of poverty and homelessness in student performance in the classroom Effects of cultural differences on student performance in the classroom Homeschooling children, especially those who move often Educating children brought up in foster homes	8
Literacy and student success	Literacy in low income women Literacy in poor or underprivileged environments Encouraging literacy in all students	15
Racism and social bias adversely affecting students in the classroom	Disparaging classroom environments due to cultural differences Racial bias in teachers	10
Community involvement, extracurricular activities and sports benefiting student academic performance		8

Qualities of good teachers in the diverse classroom of the future	Challenges facing teachers today due to diversity Diversity improving student life success goals	4
Student pressures to define career goals early in life	Low Socio-economic Status	9
Students with disabilities	Educating the hearing impaired	7
Culture in Classroom	Creating diversity in classroom	12
Underserved Students	Scaffolding	4
Mathematics Education	Math for day-to-day Transactions	2
Gender Isues	Stereotype and heteronormitivity	1
Community	Community Support for Student Success	20
Professional Development for Teachers	Do teachers Need PD activities?	10
Preschool Education	Pre-K and its Impact on the Child's School Success	10
Bilingualism	Code-switching in a Bilingual Classroom	12
Integrated Classroom	Is an Integrated Classroom Beneficial to Students with Special Needs?	6

Though allowing students to work with a wide range of choices using an interdisciplinary approach creates an unfocused classroom environment initially, such openness is a requirement for student participation given the current demographics of the class. It is also clear that allowing the students to contextualize their research choices based on personal narrative enhances their writing skills and class participation. Contextualization then permits the course content to provide "deep learning" in the course by students linking past experiences as learners, current challenges they face as students, and future demands they will meet as teachers. According to Perrin (2011), "In this iteration, content area teachers contextualize instruction by referring to authentic practices related to the topics being taught in order to deepen domain knowledge." (p. 5-6). Along with contextualization, integrating different disciplines to examine a topic was crucial for critical thinking.

Interdisciplinary Approach

The course assignments then allow students to link what they learned in IDS 3713 with concepts taught across other parts of their curriculum. These models include but are not limited to readings taught in disciplines including psychology, sociology, economics, dual language learners (DLL), education, history and others. The end result of such a classroom process is an increased level of skills by all education students enrolled in this class including developing new interests in further study of the teaching environment where they will work after they graduate (Chandramohan., & Fallows, 2009; Klein, 2010).

Literature Review

1. Analytical Thinking through the Inquiry Project

Along with exploring the passions, influences, and identity issues in the Identity memo assignment, the students were asked to examine their analytical thinking skills that would guide their inquiry process. According to Lee (2007), one of the ways to learn analytical skills is through collaborative exchange of ideas. There are several different definitions of analytical thinking; however, for the purpose of this study, we shall draw from the explanation provided by D'Angelo (2012) who defines critical thinking as the "Process of evaluating statements, arguments, and experiences" (p. 300).

Ennis defines analytical thinking as, "Reasonable reflective thinking that is focused on deciding what to believe or do" (p. 8). Cisneros et al (2002) claim that analytical thinking is possible only if students are taught and encouraged to think how to integrate old and new knowledges they bring and form in class respectively. When students are allowed to discover their abilities to apply their funds of knowledge to what they will be learning in class through lectures, conversations, and analysis of materials including texts and videos, etc., they may be confident to problem solve while enjoying the learning process. McDonald (2012) argues that those students who were immersed in analytical thinking were willing to collaborate with classmates and other resources.

2. Contextualization of topic through personal experiences

Falk and Blumenreich (2005) claim that, It is amazing so many of us have gone through school, college, or even graduate school without every being taught how to read informational material… There are many things that you can do to help you read so that you will remember, understand, and be able to apply your own experiences to what you have read (p. 48).

Student teachers need extensive exposure to reading materials that are related to their own learning and teaching contexts. Therefore, assigning topics that they can articulate from their life experiences may facilitate cognitive advancement along with psychological wellbeing.

Question

1. How do topics that are based on personal experiences of the students produce engaged projects that are beneficial and enjoyable to students compared to prescriptive topics that may not be familiar or contextual to the students?

Methodology

Participants

The study participants were undergraduate students enrolled in the capstone course for one semester. Some of the students were student teaching, others were observing in classrooms, and a percentage of them were neither teaching nor observing, but were interdisciplinary studies majors, who were required to take this course for completion of the degree. The participants were

predominantly Hispanic with a few Caucasian, Middle Eastern, and African American students. Most of the students were women aspiring to become teachers at different levels. This study utilizes identity statements of three different sections from two different semesters. The courses were all taught by the same professor. Most of the students were women and there were about five male students.

The Institutional Review Board approved the study (see appendix B for approval letter)

The study was conducted at a four year public university located in a major city in the Southwest of the US after procuring the institutional review board's approval and consent from students enrolled in the interdisciplinary inquiry courses.

Context

The university has been classified as a Hispanic-serving institution of higher education, and there is special focus in the Department of Education and throughout the university to make sure that the graduates of their program get every help in accreditation, student teaching opportunities, mentoring, and professional guidelines. In particular, the university has a complex web of services within its infrastructure to help the student that is often classified at-risk or lacking in sufficient cultural capital to navigate a major four-year university. For these reasons, the IDS 3713 course and its contextualization fit the goals of the academic institution as well as the spirit and traditions of the Department of Education.

Data Collection

The first author (the principal investigator/PI of the study), who was also the instructor asked the education majors enrolled in her IDS 3713 Interdisciplinary Inquiry courses at a major university in the southwest of the Unites States to write a page long diagnostic essay on the second day of class. The response was about the students' interests in the topic for inquiry. It was the researchers' conviction that topics that were based on personal experiences of the students produced engaged projects that were beneficial and enjoyable to students compared to prescriptive topics that may not be familiar or contextual to the students. One way to encourage students to write helpful and gratifying project is encourage them to choose a topic that is based on their own learning experiences. The diagnostic essay was titled, 'Researcher Identity Statement' (see appendix A for a sample identity statement). In order to create this statement, the students were asked to answer the following questions:

1. What are your passions? What makes you care about the topic(s) you wish to study? Why does this topic(s) matter to you?

2. What knowledge (content, beliefs, theories) influences these passions? Why should this topic(s) matter to the field of education?

3. In what ways does your identities influence your passion (race, culture, gender, socio-economic status, ethnicity, age, etc.)? Think about the social categories related to your research topic and/or research participants. Why does this topic(s) matter to the participants?

Data was collected using the writing workshop model for three weeks. The PI followed the Share First Strategy for writer's workshop as described by Peha (2010). Share First includes sharing, mini-lesson, status, and writing time activities. PI asked the participants to share their topics after they brainstormed for a few minutes. Then, PI asked if they needed help with the topics and offered a mini lesson on topic choice. After that PI asked them to rethink, and list a few topics that they were interested in. Then, the participants shared the topics again, and chose one to write on. Eventually, the participants wrote for 45 to 60 minutes uninterrupted. Finally, they shared their narratives to the entire group. PI offered mini-lessons depending on the participants' needs at the end of the workshop. The participants engaged in thinking, writing, sharing, and editing consistently and periodically for three weeks. The following section describes the weekly activities.

Week 1

a. The first author discussed the purpose of the researched inquiry project and the writing workshop including the mini-lessons for participants who needed help with specific topics.

b. The participants brainstormed for topics and listed a few to be shared to the entire group. If anyone needed a mini-lesson on topic choice, PI did so in small group conference session or one-on-one conference. If there were more than two needing mini-lesson, PI followed the small group conference format.

c. The participants wrote for 45 to 60 minutes, and then shared their writing willingly. No one was forced to share.

d. The participants took their writing pieces home to edit and add more information.

Week 2

a. The first author began the day with sharing; the participants who wanted to share their updated narratives did. I asked if the participants needed help with editing or adding information, and offered a mini-lesson on those or any other topics depending on the participants' requests.

b. The participants engaged in sustained silent writing for another hour. The participants wrote on the same topic that they chose the first week or they were allowed to write on a different topic.

c. The first author held individual conferences with each participant to find out if there were issues that need to be addressed. She then offered mini-lessons in those areas. The participants shared their writing before leaving.

Week 3

a. The participants shared their updated writing when class began.

b. The first author asked if anyone needed help with any aspect and offered a mini-lesson on that topic.

c. Then, the participants wrote for another hour uninterrupted. They continued to write on the same topic from week 1 and 2 or chose a new topic.

d. The first author then, looked for commonalities in terms of topics and then grouped the participants to find out if they needed help. She offered a mini-lesson in a group session.

e. The first author also talked to the others who had written on different topics and asked if they needed any help. She then offered mini-lessons using one-on-one conference format.

f. Everyone went back to writing for another 30 minutes and then they shared their finished product to the entire group.

g. The writer's workshop culminated with sharing what the participants had written. Since this was the last session, we shared with the entire group.

h. The participants took the identity statement assignment home

to edit and add/delete information, but they were asked to post the narratives on the wiki before next class.

i. The first author also conferenced with students who were not able to write three pages and just had a page.

The first author collected all of the writing samples for analyses after three weeks.

Second, a questionnaire was provided for the participants so they indicated their choices and provided pertinent explanation that affirmed what they wrote through their narratives. Third, the researcher conducted informal conversations with the participants about the narratives and recorded the dialogues. The researcher kept field notes (see appendix F) and memos about the process, product, and outcomes (see Appendix E for the participants 'questionnaire. The same questions were used for both written and oral responses).

After the narratives were collected, the researcher conducted informal interviews for transcription and further analyses during the fourth week. After analyses, the researcher requested the participants to read through the analyses so they could provide feedback and comments to the researcher to facilitate member checking.

Data Analysis

Research Design

This study utilized a strategy suggested by Corbin and Strauss (2008) to conduct qualitative analysis called making comparisons because "…it allows the researcher to differentiate one category/theme from another and to identify properties and dimensions specific to that category/theme" (p. 73).The two different 'analytical tools' are constant comparison and theoretical comparison. The first kind of analysis deals with the similar themes that emerged from across the data set and theoretical comparison help researchers "to collect data from places, people, events that will maximize opportunities to develop concepts in terms of their properties and dimensions, uncover variations, and identify relationships between concepts" (p. 143). The inquiry projects dealt with students' exploration of the chosen topics using an interdisciplinary approach (Repko, 2008). Those students who researched on the same topics used different domains depending on their context of interest. A few examples of disciplines were – sociology, psychology, education, economics, biology, and law.

Themes

1. Culture
2. Identity
3. Influence
4. Passion

Twenty students out of the entire participant pool, investigated culture and its impact on teaching and learning and they integrated elements from sociology, psychology, and cognition for their perspectives. Fifteen students, who delved into identity construction and negotiation utilized economics, education, and psychology to interpret their stories. About fifty students focused on sociology, culturally responsive learning, funds of knowledge, and cultural capital when discussing their influences. Most of the students looked at passion through sociology, psychology, economics, law, cultural studies, and education. The following section is an example of how the data was analyzed utilizing the themes that emerged in the data.

Culture – Several participants wrote about their reason for choosing the topics that they explored through the inquiry project to be culturally influenced, One of my cultural backgrounds that has influenced my passion for this topic is the morals that my parents instilled upon me. They have always told me that no matter what race, gender, background, etc. that person is or where they came from doesn't mean that we treat them any differently (participant 45).As I have gotten older I have realized that a lot of the time people judge other people negatively because they don't know anything about that person's background. When people learn about different cultures they are more likely to be accepting of that person (participant 78). Also parents pass down their feelings of other people to their children, which I feel that if teachers find a way to incorporate those ESL and special needs students in the classroom. We can help lower the judgment and stereotypes to make those students feel more comfortable. Which then will hopefully help spread that into the rest of society? (participant 12).

Identity – Identity negotiation was found across the data set, especially with students from the low SES backgrounds, We [sic] were raised by my mother who was a stay at home while my father was the breadwinner, who worked as a mechanic, and various other jobs to make ends meet. My Mexican culture disregards educating our own children because of a lack of experience themselves(participant 78). According to some Mexican parents, education is for professionals. Majority of the Hispanic race has low levels of education, most of the time they feel they are not adequate enough to provide education to their children and delay any sort of education from their part until their children begin school(participant 56).

Influences–The participants were influenced by how they were taught and how they were not motivated when they were in school. Several of them expressed their concerns about disengagement and therefore their passion to peruse the topics they chose for the project for the capstone course,I am a student that is studying in the field of Education and I have previously worked with students with disabilities in the elementary school as a teacher assistant(participant 5). I have seen and heard other teacher's comments and children's as well when a child with a specific disability comes into their classroom. They wonder why is that student is in their class if the student can't comprehend the subject! It's sad but just as any other student they are human and have feelings. I know from experience these children understand when they feel unwanted it's hard to ignore(participant 43).

Passion–This aspect is addressed in almost all of the study participants, who feel the need to engage in a topic that they are excited about.A personal experience I encounter that influences my passion to pursue a researcher on homelessness and its impact on education in children, was my experience working for a daycare center in a homeless shelter (participant 16). When applying to work for the daycare center little did I know I was up for a great awakening. Majority of the children enrolled in the daycare center were residents of the homeless shelter, and it was a heartbreaking and moving experience for me. Witnessing some of the children coming in each morning starving, dirty, or even covered in different scratches or bruises (participant 2). Most of the parents of these children were either dropped out young adults struggling to find a job, suffering from some sort of disability or disorder, and lastly struggling from poor life choices. I find it heartbreaking to know these children are suffering because of their parent's situations, and the chances of these children growing up to turn out the same as their parents are high (participant 68).

Findings

The students enrolled in the interdisciplinary inquiry course along with engaging in a capstone experience were able to explore a topic that was framed to their teaching contexts. When they started the course, many students were apprehension about the completion of the project in 16 weeks; however, the segmented and guided blocks with instructional scaffolding enable the students to complete the 21 to 25 page projects for presentation in class. Students also acquired qualitative literacy through assignments that focused on the literature review, methodology and data analysis. The current analysis focused on the first black called identity statement and after an in depth reading while coding block 1, it was revealed that students' understanding of the topics and their inclination to delve into the chosen topic increased because the topics were contextualized to their teaching and learning situations.

Conclusion

One crucial component of the class, which needed to be studied, was that IDS 3713 was available to some education majors who had not yet completed any Teaching Assistantship (TA) requirement or student teaching opportunities, but these were Interdisciplinary majors. Should IDS 3713 establish a prerequisite of such TA experience or student teaching opportunities before taking this class, a greater benefit would be provided for the some fledgling teachers who must accept the workload and requirements for mastery of the class learning objectives as a part of their professional success. Although there was ample resistance with the course curriculum, chapter readings from two different textbooks, and the writing of the six different blocks, with considerable instructional scaffolding, the students were successful in completing the projects. The librarian and the instructor from the learning center on campus offered supplemental instruction on the format of the project including the APA guidelines and the literature review section of the project.

Research and inquiry components of this class were contextualized in terms of actual real-life demands of the classroom and the hiring environment of schools facing education majors. This extra dimension created a situated cognition (Dew, Grichnik, Mayer Haug, Read, &Brinckmann (2015) component to the contextualization of topics chosen for an in depth exploration. Situated cognition is showing strong feedback in enhancing skills and their applications in education, both for teachers and their students. The application of such practical real-life components of chosen research could improve education students' persistence of finishing the inquiry projects willingly for professional development and personal skills enhancement. Ultimately, culturally contextualized topics enable the IDS majors acquire higher level of conceptual understanding of their topics along with enriching the students' qualitative literacy (see figure 2 below).
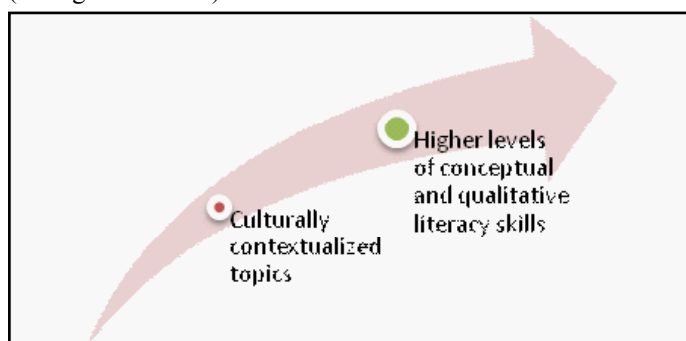

Fig. 2: Contextualization and Skills Enhancement

Limitations and Implications

This study has several limitations. A quantitative analysis may yield better results. Data from courses taught by different instructors may also help the researcher look for commonalities and disparities. Identity statements based on instructor-guided topics with some struggling students, who may need more support than contextualized topic choice may help differentiate the level of engagement in students.

The implications of this study are – (1) extensive support through paid research projects for students to get acquainted with the research process, (2) mentors made available from previous semesters with capstone experience for tutoring struggling students, (3) a possible professor publication opportunity with students interested in the same area of research, and (4) an independent study format to teach the capstone course.

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