



EARTH EDUCATORS'
RENDEZVOUS

Place, Cultural Context, and Geoscience Teaching

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THE UNIVERSITY of
NEW MEXICO

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Albuquerque, New Mexico

PLACE, CULTURAL CONTEXT, AND GEOSCIENCE TEACHING

►Goals for today

- Review the essential components of a context diversity model for adoption in teaching and research using place-based learning.
- Be able to evaluate aspects of your teaching that may be more conducive for different student populations using a context diversity model.
- Be able to build curricula that are conducive to multicontextual learning.



The issue of diversity today

“Our institution, like many others , has made great strides in increasing diversity. But when diversity advances without inclusion, when we do not create environments where people feel like they fully belong and thrive, tensions can follow. More important, we fail to realize the benefits of diversity”

**Nitin Nohria, Dean of Harvard Business School
Washington Post, May 19, 2017**

**“Exclusion” is defined by Nohria as “racial exclusion”,
but it is much more than this.**



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Multi-dimensional Campus Diversity Model

Campus Climate & Culture

Institutional History - traditional

Academic and disciplinary cultures, teaching/research models

Structural Diversity – Affirmative Action

Numbers of faculty, staff, students, recruitment and retention policies/procedures, programs, scholarships,

Multicultural Diversity –racial/eth/gender

Multicultural Student Centers, mentoring programs, leadership training, Academic support initiatives, advocacy programs, identity workshops, ethnic studies

Context Diversity - A change in the institutional culture to value different ways of knowing.

Source: Adopted from Hurtado, et. al., (1999). Enacting diverse learning environments: Improving the campus climate for racial/ethnic diversity. ASHE/ERIC Higher Education Reports Series 26.

Multicontextuality is a systemic theory that explains the inclusion or exclusion of people within an institutional culture.



The source of institutional history

1. History: Mainstream culture = Anglo-core culture
2. Social-Group Interaction Patterns:

Aspects of U.S. Mainstream Culture

1. History: Mainstream culture in the United States derives from Anglo-core culture of the English who colonized America.
2. Social Group Interaction Patterns
 - Intra-group: English immigrants institutionalized English culture in the United States.
 - Inter-group: Starting in colonial times, white members of U.S. national culture display "nativism" toward groups perceived as different (anti-foreign, anti-Semitic, anti-Catholic, anti-black).
3. Social Status: Middle class culture is the norm, yet there are a range of classes—poverty, working, middle, and upper class. Since the 1970s the upper and poor classes have been growing, with the middle class declining.
4. Value Orientations
 - emphasis on patriarchal nuclear family
 - emphasis on doing, "getting things done" (keeping busy)
 - emphasis on measurable and visible accomplishments
 - emphasis on individual choice, responsibility, and achievement
 - emphasis on self-reliance and self-motivation
 - emphasis on pragmatism: "if an idea works, use it"
 - emphasis on "the new" (and change)
 - emphasis of causal agent; things do not just happen
 - emphasis on equality, informality, and fair play simultaneously with widespread nativism and micro and macro institutional discrimination
 - emphasis on competition



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Activity I: LC/MC One Page Worksheet

Complete the characteristics table on two levels:

I. The Individual Level:

- Quickly chose between the two parallel statements in each column that best characterizes you as you work or study within the context of the most familiar educational setting (e.g., department, college, campus, etc) but not at home or other non-academic communities.
- Circle the letter “M” (for “me”) on either the right or left comment. If you feel you are “both” or “can’t decide,” mark the “M” in the middle between the comments.



CONTEXTURAL RELATIONSHIP WORKSHEET – R. IBARRA

(LC)		(HC)
<p>M Low use of nonverbal signals</p> <p><input type="radio"/> Less attuned to body language to communicate</p>	M	<p>M High use of nonverbal signals such as and M</p> <p><input type="radio"/> body language through voice, expression and gestures</p>
<p>M Communication is direct</p> <p><input type="radio"/> Get to the main point quickly, spell things out exactly. May appear to be blunt, or even rude</p>	M	<p>M Communication is indirect</p> <p><input type="radio"/> Avoid getting to the main point quickly. People get main ideas from context</p>
<p>M Sparse Interpersonal feedback</p> <p><input type="radio"/> Avoid interfering with others' lives. Mood shifts attributed to personal problems often to be ignored.</p>	M	<p>M Frequent interpersonal feedback.</p> <p><input type="radio"/> Constant checking on emotional status is important for group morale. Attuned to slight mood changes among friends and colleagues.</p>
<p>M Disagreement is depersonalized.</p> <p><input type="radio"/> Tend to withdraw from conflict and get on with task. Can defuse confrontation by quiet separation.</p>	M	<p>M Disagreement is personalized.</p> <p><input type="radio"/> Sensitive to conflict and criticism. Defuse confrontation and unpleasantness. Resolve conflict before work can progress.</p>
<p>M Personal commitment to people is low.</p> <p><input type="radio"/> Relationships start and end quickly.</p>	M	<p>M Personal commitment to people is high.</p> <p><input type="radio"/> Relationships depend on trust and build slowly.</p>
<p>M Task orientation.</p> <p><input type="radio"/> Things get done when everyone follows policies and procedures and pays attention to goals. People are not as important as completing the job.</p>	M	<p>M Process orientation.</p> <p><input type="radio"/> Getting things done depends on relationships and attention to group process. Courtesy and kindness are more important than completing a job.</p>
<p>M Time is a commodity to be spent, saved, carved out, lost and made up. Emphasis on promptness, speed, schedules, and efficiency. Time is money. Change happens fast.</p>	M	<p>M Time is process and part of nature; it belongs to everyone. Emphasis on people and completion of transactions. Change happens slowly because things are rooted in the past. Deadlines are goals to be achieved if possible.</p>



Activity I: LC/MC One Page Worksheet

Complete the characteristics table on two levels:

I. The Institutional Level:

- Now, do the same but select the most appropriate statement or characteristic that best describes the institution in that same educational setting.
- Circle the letter “O” (for “organization”) on either the right or left comment. If you feel you are “both” or “can’t decide,” mark the “M” in the middle between the comments.



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CONTEXTURAL RELATIONSHIP WORKSHEET – R. IBARRA

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The core problem about diversity lies in the origins of academic culture!

- The context of higher education in the U.S. is locked into a centuries-old **German research model** imported from Europe and clamped on a British colonial college system;
- The **predominance of a particular and preferred learning environment** tends to exclude all others, and thus **defines the cultural context** of higher education today;
- The outcome is not only a Euro-centric learning community, but also a **hidden dimension of cultural context** that has been an invisible element of diversity ignored until now.



The Emerging Multicontext World

In the 1960's, anthropologist **Edward T. Hall** identified a variety of national origin cultures that exhibited learned preferences or Cultural Contexts that influence how:

- one interacts and associates with others,
- uses living space,
- perceives concepts of time,
- processes information,
- responds to a various teaching and learning styles,
- Performs academically or in the workplace, and
- Includes many other cognitive factors that were imprinted on them in childhood by family and community and continue to help shape their world view throughout their lives.



The Emerging Multicontext World

Definition of “Cultural Context”:

- Hall defined it as inter-cultural communication based on observations of interpersonal transactions across a wide variety of cultural interfaces. That transaction takes account of how information is handled and how cultural messages are transmitted.
- **Cultural context** translates behavior into meaning – why do people do what they do and how that affects everything around us both consciously and unconsciously.
- **Cultural Hidden Dimensions.**



The Emerging Multicontext World

Using a binary model, Hall identified some populations, mainly Northern European cultures (English, German, Swiss, and Scandinavian people) as **“Low Context” (LC) or Minimal Context** cultures because they required little contextualization to communicate, interact, and interpret the world around them.



The Emerging Multicontext World

Hall also identified some populations (including Asians, Arabs, people from other Middle Eastern and Mediterranean-based countries, Africans, Latin Americans, and North American Indian groups) as **“High Context” (HC) or Maximal Context** cultures because they required more social and cultural contextualization to communicate, interact and interpret the world around them.



The Emerging Multicontext World

U.S. populations are varied and still exhibit to varying degrees the low or high context imprinting of their ethnic heritage. Although high context populations are increasing in the U.S. today, mainstream “American culture” and core values are primarily low context. North American men are generally, **but not always**, found to be more low context than North American women.



The Emerging Multicontext World

1990's research on Latinos revised the cultural context model (Ibarra 2001):

Diverse populations in the U.S. higher education are not necessarily predominantly HC or LC but instead are **MULTICONTEXTUAL** – a learned ability to survive in LC academic culture while maintaining HC characteristics in other aspects of life.



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Multicontextuality is a systemic theory that explains the inclusion or exclusion of people within an institutional culture.



The Emerging Multicontext World

Since WWII, the GI Bill opened doors to a variety of populations, including those with different religious faiths, women, and underrepresented groups who tended to bring Multicontextual experiences that are quite different, and even at odds with the cultural context of academe and even many workplace environments.

These individuals tended to under-perform academically or possibly drop out but they also have had an impact on changing the academic cultures in many institutions.



The Emerging Multicontext World

Although the cultural context model was never applied to examine organizational cultures in the past, applying the Multicontext model today reveals that higher education is predominantly a LC culture derived from the 19th century German research institute model that grounded graduate and professional training over the last century. The resulting conflict between LC academic culture and HC cultural preferences causes the dissonance we note among underrepresented groups.



Clues about how to increase diversity in STEM emerged in 1970s with Uri Treisman's Mathematics Workshop showing **group study** increased academic success among minority students. The reason was never understood.

8 UME TRENDS March 1989

Mathematics Workshop Revamped

Uri Treisman

This fall, Leon Henkin, T. Y. Lam, and I embarked on a daunting task: the redesign of the Mathematics Workshop, which for more than a decade has been an extraordinarily effective program for helping Berkeley's minority students to excel in freshman calculus. This reconstruction work takes place just as the program is gaining national recognition. Approximately fifty colleges and universities throughout the United States are currently engaged in developing adaptations of the Workshop to meet the special needs of their own students.

Popular Misconceptions

The ideas on which the original Workshop Program was based grew out of a series of investigations that I carried out in 1974 and 1975 into the difficulties experienced by many black students in our first-term calculus course. In a nutshell, after interviewing many of our black

calculus students and observing them at work on their mathematics assignments, I was forced to call into question what was then the conventional wisdom about the causes of these students' failure. I did not find that they lacked either drive or motivation, nor did I find that their calculus grades correlated with their high school grade point averages, SAT scores, or for that matter, family incomes.

I discovered that many black students on the Berkeley campus had no mechanism for learning what was required to succeed in their university-level mathematics courses. Unlike many of their Asian counterparts, who typically spent some of their time studying in small groups, the black students routinely studied alone. They rarely had their ideas challenged by peers; they had no way to "check out" their understanding of what was being required of them either by their professors or, more generally, by the University.

(continued on page 4)



Uri Treisman and Workshop Participants



Cultural Context

Components & Functional Levels

1. Interaction
 - **Micro level:** Individual or workplace/classroom
2. Association
 - Workplace, campus, community
3. Temporality
 - Time orientation
4. Territoriality
 - Use of space and place
5. Information
 - Networks, information flow, and cognition
6. Gender/Culture
 - Gender orientation
7. Learning
 - Learning styles and cognition
8. Academic systems
 - **Macro level:** Institutional level characteristics (predominantly LC)



Low Context



Interaction

Emphasis on words to supply meaning & low use of non-verbal signals

Communication is direct

Disagreement is depersonalized

MC

High Context



Interaction

High use of non-verbal signals with words to contextualize meaning.

Communication is indirect

Disagreement is personalized



Low
Context
(LC)

High
Context
(HC)



High and Low Context Communication

Edward T. Hall- Beyond Culture /Dance of Time



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Context Diversity is achieved when the norms and values of an organization are inclusive of Multicontexted ways of knowing and doing.

In order to attain Context Diversity, institutions must be transformed at the micro, meso and macro levels.



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Context Diversity: Helping the system adjust to people

- An emerging transformative practice that emphasizes reframing rather than reforming organizational cultures to meet the needs of all populations and especially underrepresented groups.
- The dynamic effect is to create a community with myriad ways to attract diverse populations and have them thrive in an academic or workplace environment.



Context Diversity

- CD helps make connections across multicultural populations in our institutions by affirming multiple ways of knowing, and doing that occur across cultures.
- CD provides additional ways to develop more inclusive pedagogy such as PBE, Experiential Learning, Service Learning, and etc., which in turn, attracts diverse populations who then thrive in your classrooms and other learning environments.



Context Diversity

- Requires systemic change in the core organizational cultures, not just programmatic change.
- It shifts diversity initiatives from current concepts about recruitment and retention to concepts that emphasize attracting and thriving (“**People want to be here**”) or reframing rather than reforming.



Context Diversity

- It also shifts the focus from people as the source of conflict to the institutional and organizational cultures as the source of conflict.
- It should not be associated with concepts of institutional racism, which are often policies used by dominant groups to subjugate subordinate groups.



Context Diversity

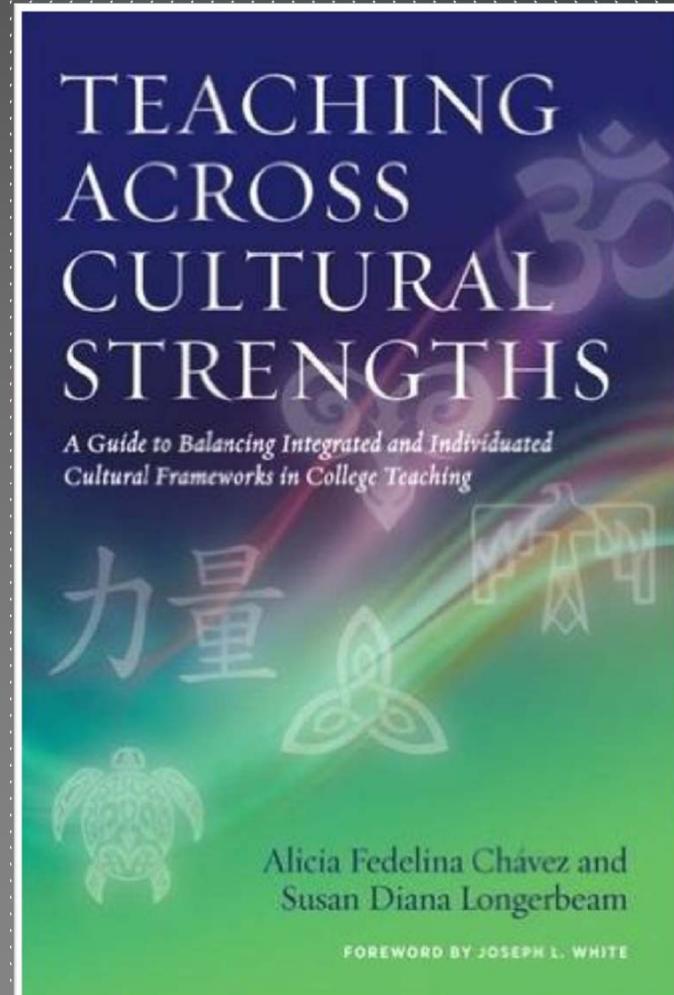
- **Results** are measured not only by how well we attract diverse populations, but also by how well we enhance our campus climate and cultures to improve upon the academic and work performance among all students, faculty, and staff.
- **Objective:** *Build diversity into the context of our higher education system, our learning communities, and beyond.*



Recent Additional Work Published

Chávez and Longerbeam, 2016

- Focuses on applications in the classroom
 - Low Context = Individuated
 - High Context = Integrated



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Chávez and Longnerbeam, 2016

Individuated

In a culturally individuated framework, a private compartmentalized, linear, contextually independent conception of the world is common, assumed, and valued.

Purpose of learning: Knowledge, individual competence, to move forward toward goals and the betterment of humanity.

Ways of taking in and processing knowledge: Mind as primary, best or only funnel of knowledge.

Interconnectedness of what is being learned: Compartmentalized and separate; belief that understanding how the parts work separately, abstractly and in isolation will lead to the greatest understanding.

Time: Linear, task-oriented, can be measured and used, to be on time shows respect.

Sequencing: Learning by mastering abstract theory first, followed by testing; unlikely to include application, experience or doing in real life.

Integrated

In a culturally integrated framework, an interconnected, mutual, reflective, cyclical, contextually dependent conception of the world is common, assumed, and valued.

Purpose of learning: Wisdom, betterment of the lives of those with whom we are connected – family, tribe, community.

Ways of taking in and processing knowledge: Mind, body, spirit/intuition, reflection, emotions, relationships as important aspects and conduits of knowledge.

Interconnectedness of what is being learned: Contextualized and connected; belief that understanding how things affect each other within the whole and within family and community will facilitate understanding.

Time: Circular, seasonal, process oriented, dependent on relationships; to allow for enough time shows respect.

Sequencing: Learning by doing, listening to others' experiences, imagining, or experiencing first, then drawing out abstract theory.



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**Break
10
minutes**



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An Example of Context in the Classroom

Accelerate NM

**Student Learning Outcomes &
Context Diversity**



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Three-Pronged Approach

Low Context
Computer
Learning - ALEKS



Multicontext
classroom
sessions



High Context
application –
program robots



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MATHEMATICS CONTENT MASTERY PRE- AND POST-TEST

▶ AVG

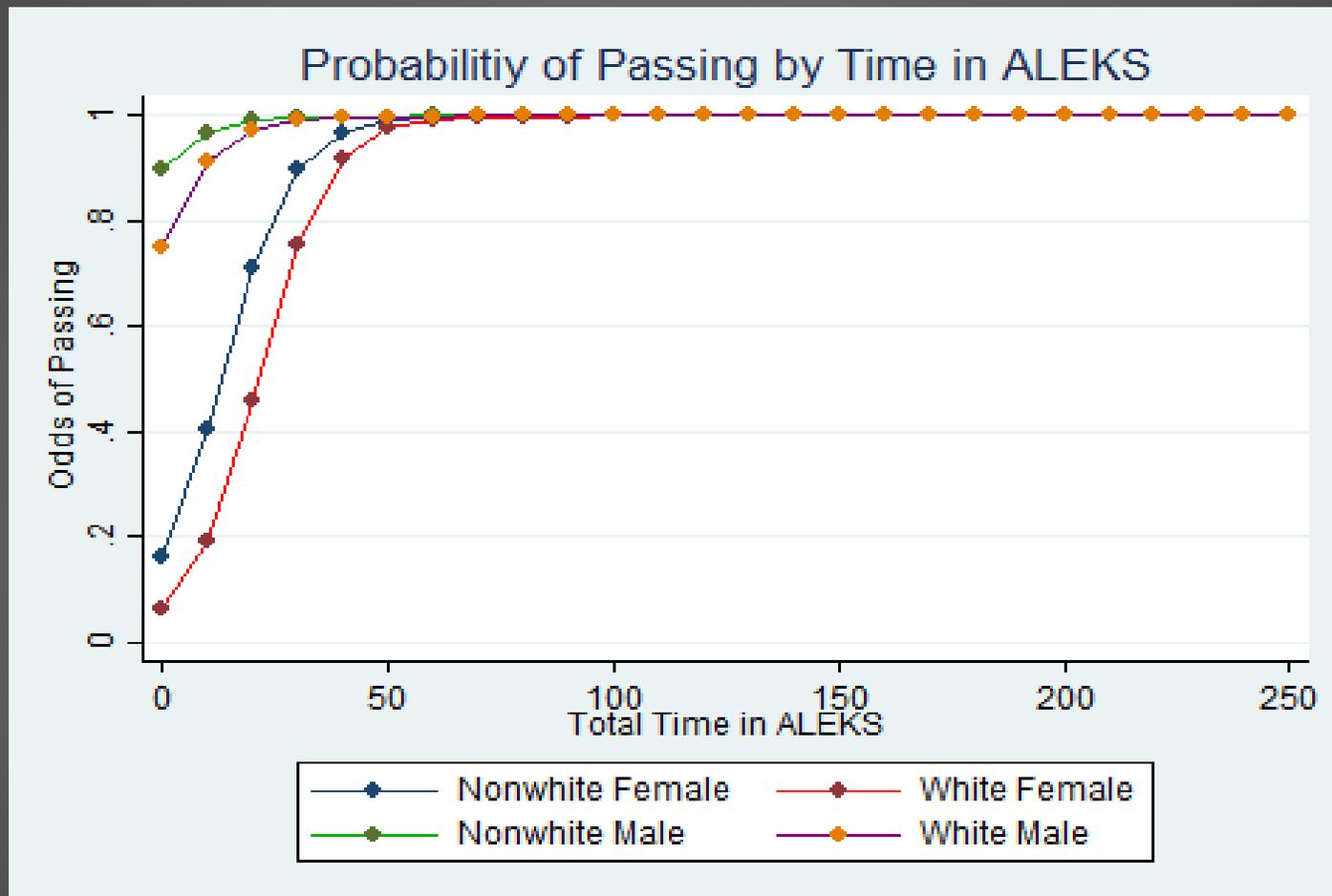
AVG.

- ▶ 2015: Pre-test = 21% Post-test = 70% Pass rate = 96%
- ▶ 2014: Pre-test = 14% Post-test = 70% Pass rate = 84%
- ▶ 2013: Pre-test = 22% Post-test = 70% Pass rate = 82%
- ▶ URM students were 3 times more likely to pass their math courses than their majority counterparts
- ▶ Students enter the program with similarly low levels of content mastery, and complete at an extraordinarily high pass rate.
- ▶ In 2015, more than 2/3rds of the students earned A's or B's.



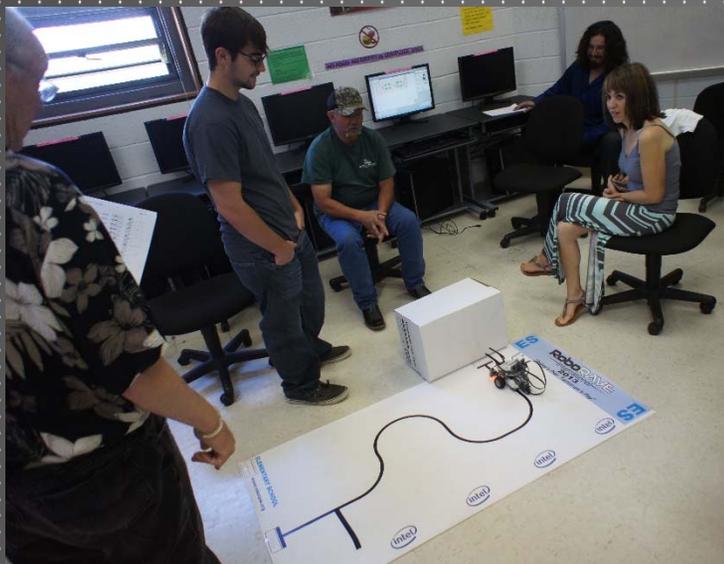
ACHIEVEMENTS

- ▶ In 2014 Accelerate NM Instructors Closed the Gender/Racial-Ethnic Achievement Gap within Mathematics in roughly 50 Hours Time in ALEKS



Context Diversity and the Importance of Robotics (the application)

- Students who participated in the robotics lab ended the course with higher scores than their non-Accelerate peers.



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Characteristics of Context Diversity

- Context Diversity Theory focuses on the diversity of how your cultural upbringing may influence how you learn things and interact with others while doing so.
- We are introducing 7 general categories:
 - Interaction – one-on-one interaction
 - Association / Gender and Culture – how you work with others and approach tasks
 - Time/temporality – how do you handle time?
 - Space (territoriality) – how do you handle space?
 - Information – how is information shared and handled?
 - Learning – what is the purpose of learning?
 - Academic Systems – what does the system of learning look like in your culture?

Context Diversity Matrix

Minimal (Low)
Context



Maximal (High)
Context

Characteristics of Context Diversity

- 7 general categories:
 - Interaction – one-on-one interaction
 - Association / Gender and Culture – how you work with others and approach tasks
 - Time/temporality – how do you handle time?
 - Space (territoriality) – how do you handle space?
 - Information – how is information shared and handled?
 - Learning – what is the purpose of learning?
 - Academic Systems – what does the system of learning look like in your culture?
- Take a few minutes to read through the Context Diversity Matrix.

Context Diversity Matrix

Minimal (Low)
Context



Maximal (High)
Context

Take a minute

Individually, think about:

- How does Place-based learning presented by Steve Semken in yesterday 's workshop relate to Multicontext theory or the Context Diversity model?
- How do **your** classroom behaviors relate to Multicontext theory.
 - Activities, teaching philosophy, expectations, etc.
 - How might context play a role in forming these behaviors?

You might want to use the Context Diversity handouts and postings to help with this.



Gallery Walk Activity 2

- Posters are arranged around the room for each attribute of the matrix:
 - Interaction
 - Association / Gender and Culture
 - Time/temporality
 - Space (territoriality)
 - Information
 - Learning
 - Academic Systems
- To start, you will be assigned one of these stations (with others).
- At your station, write a brief statement (one sentence) that provides an example of one topic in an **academic setting** for LC, HC or MC.

Gallery Walk Activity

- At each station:
 - Write on a post-it note one sentence that offers an example of LC, MC or HC examples for **one** of the attributes of your poster topic.
 - This example should come from your personal experience in academia.
- After about 15 minutes, we will ask all the groups to move to the next poster.
 - Read what the last group wrote, then add your own examples.
- We will do this for 35 minutes, shifting every 5 minutes or so.

Gallery Walk Activity

- Walk around the posters and read some of the statements by others. Get a feel for how the group identified examples of these attributes for the different themes of the matrix.
- Do these statements resonate with your experience or do they seem foreign to your experience?

End of Workshop Evaluation

Please take time to connect to the final evaluation link on the program page.

We appreciate your candid comments. They help us improve the workshop for future offerings.



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Thank you!!!



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