Bluenotes GLOBAL 2019
CONFERENCE

# Analyzing Students' Feedback to Enhance Project-based Learning: A UAE Study

Sadiq Midraj, PhD
Zayed University, UAE
smidraj@outlook.com

Jessica Midraj, PhD
Khalifa University, UAE
jessica.midraj@ku.ac.ae

Chicago, IL, USA
August 4-7, 2019

# Agenda

- Research Purpose & Questions
- Theoretical Underpinnings & Background Information
- Methodology
- Findings
- Discussion
- Conclusion and Recommendations

# Research Purpose & Questions

- **Purpose**: Improve students' learning through analyzing qualitative and quantitative data to inform modifications on the project-based learning (PBL) experience
- **Questions**:
  - Does changing the project-based learning experience from an individual task to a group task impact ***students' achievement*** and their ***evaluation of the learning environment***?
  - What lessons were learned from ***qualitative formative and summative student feedback*** in regards to implementing the group-based project?

# Significance & Value of Faculty Utilizing Student Feedback to Inform Task Design and Improvement

CREATE A BETTER LEARNING ENVIRONMENT

IMPROVE INSTRUCTION

IMPROVE STUDENTS' LEARNING

# Significance & Value of Experiential Learning

- Engage students in activities that mirror what might be applied in multiple **authentic contexts**
- Cultivate **inquiry-based skills**
- Develop **transferable skills**
- Encourage **social interaction** through participation in **communities of practice**

# Theoretical Underpinnings: PBL

- Grounded in **constructivism**
- **Inquiry-based** learning
- Shown to **improve** the inquiry skills of all students **irrespective of their socioeconomic status, language competence, grade, prior achievement, gender, and ethnicity** (Cuevas, Lee, Hart, & Deaktor, 2005).
- Encourages **positive attitudes** toward learning, the academic mindset and mastery learning
- **Shown to improve academic achievement**

# Theoretical Underpinnings:  Cooperative learning

- positively impact **academic achievement, socialization, motivation, personal self-development** (Hattie, 2009), and **engagement** (Dole et al., 2017)
- enhance students' **self-esteem** and develop **essential communicative and collaborative skills** (Hartman et al., 2018; Savery, 2006)
- **enhance projects** (a diversity of backgrounds, ideas, interests, skills, and experiences (Hutchison, 2016))
- **improve critical thinking & problem-solving skills** (Dole et al., 2017)
- support a **community of practice**

# The Context

**Cultural Considerations**

- Individualism vs. Collectivism
- Collaborative learning
- Learning through social interaction

**Course title: Professional Communicative Competence**

- aligned to the “Culture” domain of TESOL International Standards
- explored the complex relationships between language, cultures, thought, and power

# The Context-Sample Project Topics

- Time Orientation (Mono-chronic vs. Poly-chronic)
- Individualism vs. Collectivism
- Masculine vs Feminine Traits
- Achievement vs. Ascription Orientation
- Neutral vs. Affective Dimension
- Low vs. High Uncertainty Avoidance

# Methodology

- Mixed methods (Quantitative and Qualitative)
- Two Groups of Participants:

| Group | n | Learning | Assessment | Treatment |
|---|---|---|---|---|
| 1- IPBL | 47 | Lecture & task-based | **Individual project and project presentation** (PBL) & traditional midterm and final | Individual |
| 2- GPBL | 50 | Lecture & task-based | **Group-based project and project presentation** (PBL) & a traditional midterm and final | Group |

# Methodology Cont.

- **Data:** collected from 4 sections of a course
- **Participants:** sophomore and junior teacher-candidates and students from other colleges who took the course as an elective.
- **Quantitative analysis**: t-Tests (2-sample unequal variances) to compare the means on the final exams and project scores. Descriptive statistics to compare SELE scores.
- **Qualitative analysis** – case-study (in-depth study using multiple data sources)

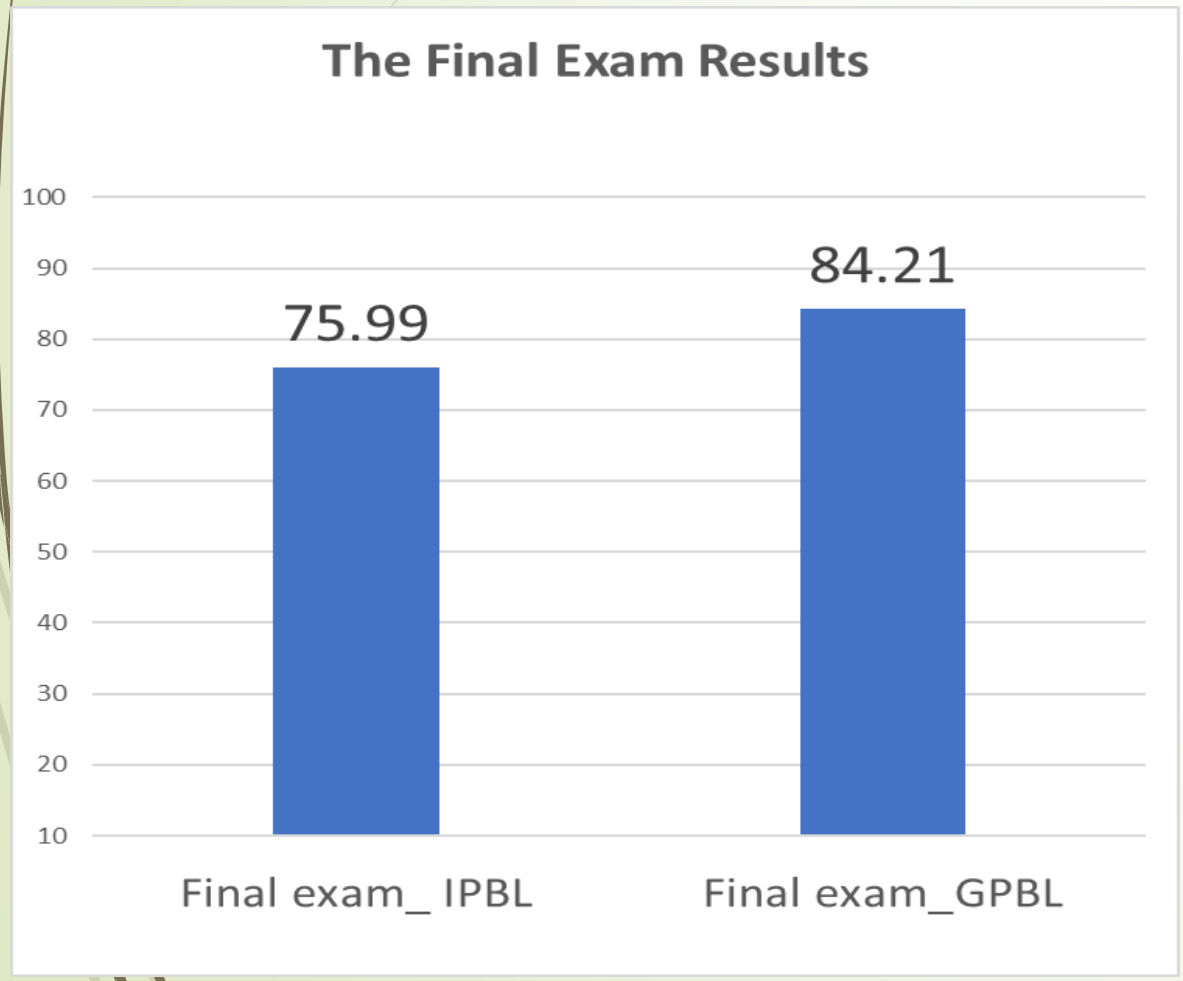
# RQ1-Quantitive-Impact

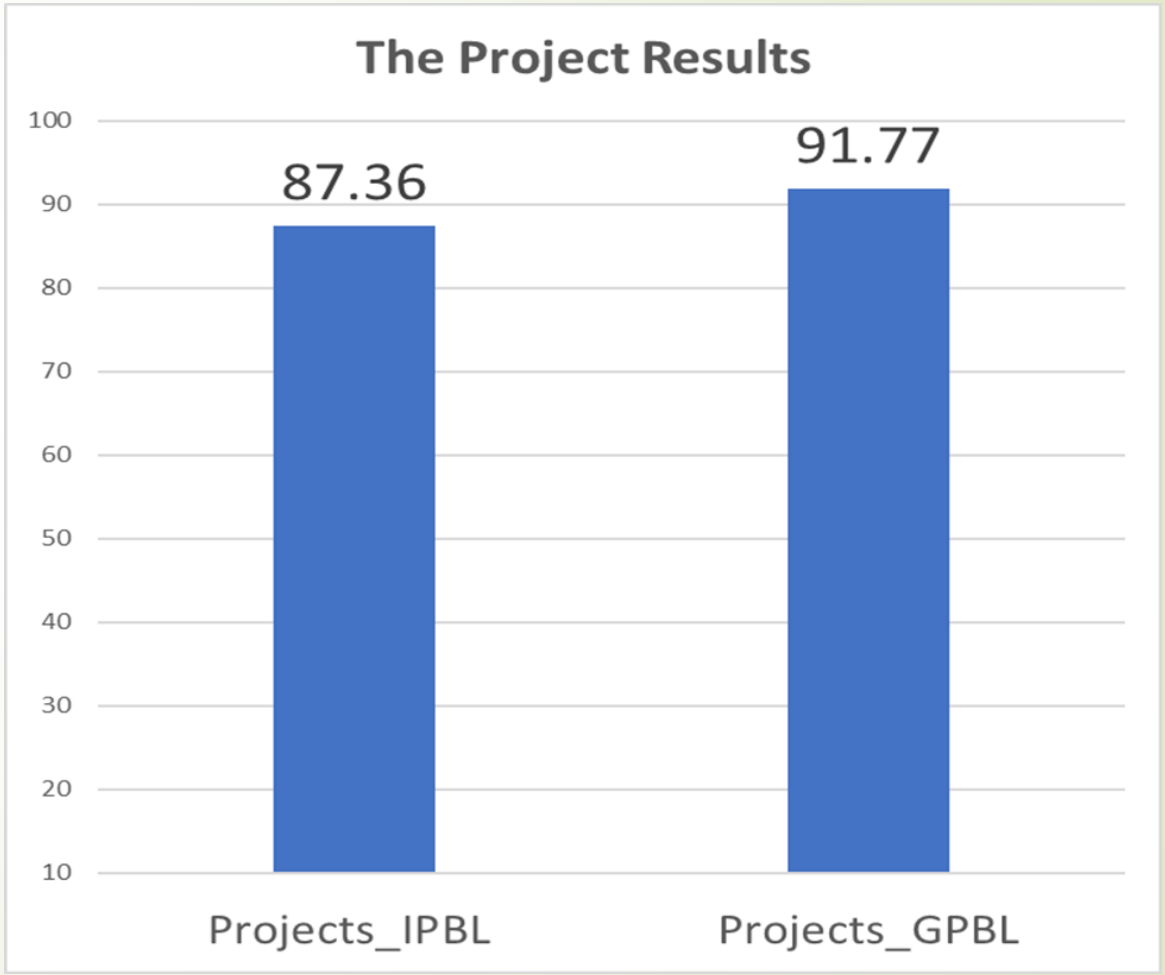
- What was the impact of changing the project-based learning experience from an individual task to a group task on ***students' achievement*** and their ***evaluation of the learning environment***?

A. Is there a significant difference between ***students' achievement*** in individual (IPBL) and group PBL (GPBL)?

B. Is there a difference between ***students' perspectives on the learning environment*** in IPBL and GPBL?

# RQ1a Results- Achievement on the Final Exam and Project (IPBL vs. GPBL)



# RQ1a Results – Academic Performance: Final Exam

**The Final Exam Test Results t-Test: Two-Sample Assuming Unequal Variances**

| | *IPBL Final Exam* | *GPBL Final Exam* |
|---|---|---|
| Mean | 75.990 | 84.210 |
| Variance | 107.320 | 62.320 |
| Observations | 47.000 | 50.000 |
| *Hypothesized Mean Difference* | 0.000 | |
| Df | 86.000 | |
| t Stat | -4.370 | |
| P(T<=t) one-tail | 0.000 | |
| t Critical one-tail | 1.660 | |
| P(T<=t) two-tail | 0.000 | |
| t Critical two-tail | 1.990 | |

# RQ1a Results – Academic Performance: Project

**: The Project Results t-Test: Two-Sample Assuming Unequal Variances**

| | *IPBL Project* | *GPBL Project* |
|---|---|---|
| Mean | 87.359 | 91.770 |
| Variance | 61.689 | 6.847 |
| Observations | 47.000 | 50.000 |
| Hypothesized Mean Difference | 0.000 | |
| df | 56.000 | |
| t Stat | -3.664 | |
| P(T<=t) one-tail | 0.000 | |
| t Critical one-tail | 1.673 | |
| P(T<=t) two-tail | 0.001 | |
| t Critical two-tail | 2.003 | |

# RQ1a Results-Academic Performance

- There is a statistically significant difference in the final exam results in favor of the **GPBL** participants, t(86) = -4.37, **p< .0001**.

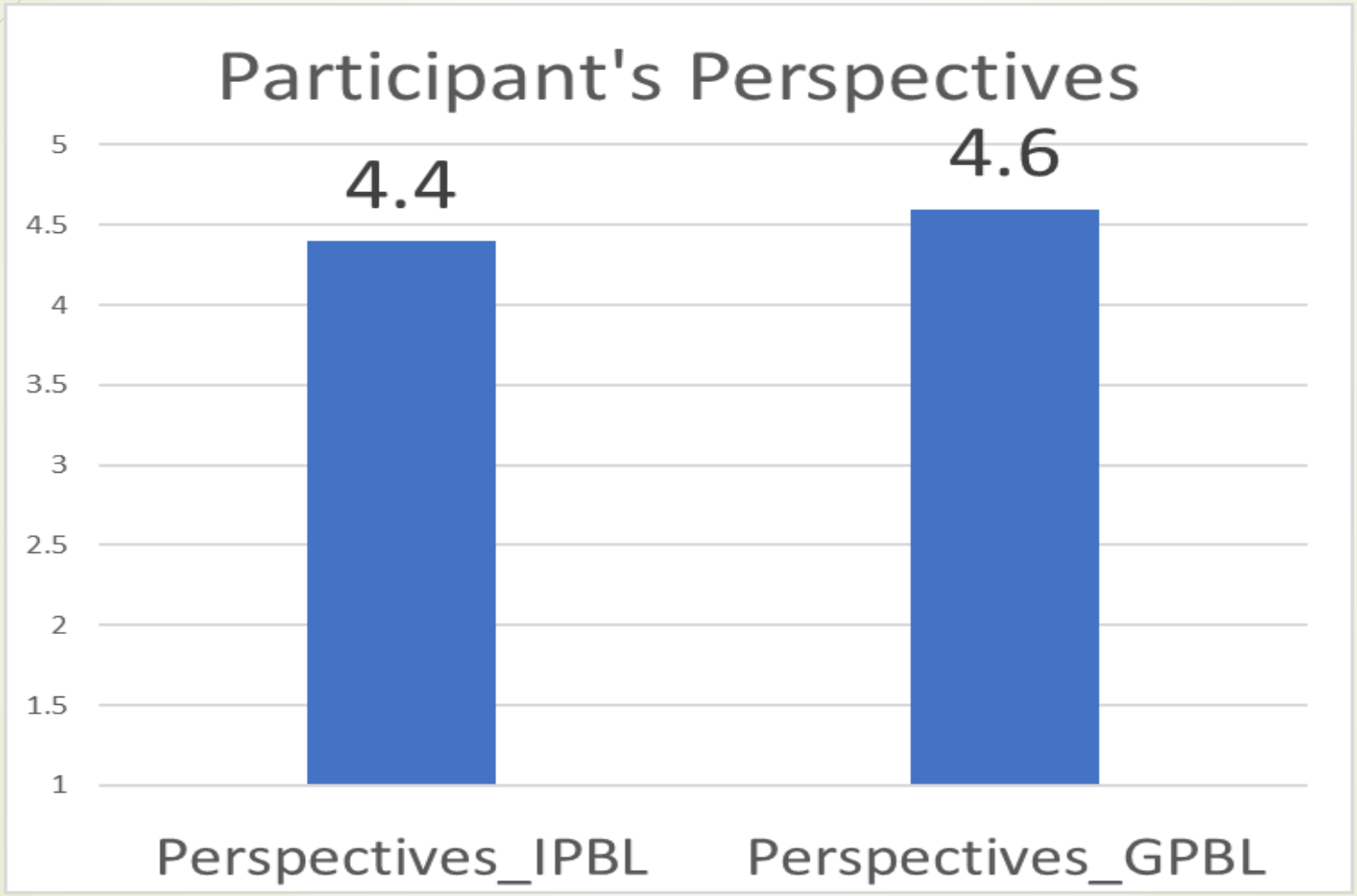
- There is a statistically significant difference in the students' project scores in favor of the **GPBL** participants, t(56) = -3.664, **p< .001**.

# RQ1a Discussion – Academic Achievement

**There were statistically significant differences in favor of the GPBL cohort in both the final exam and the project.**

- Students participating in collaborative group projects may benefit from a diversity of backgrounds and experiences (Hutchison, 2016)
  - can lead to better attainment
  - final projects are likely to demonstrate a higher critical thinking level
- UAE students belong to a communitarian culture - interaction may have encouraged them to become more vested in the project.

# RQ1b Results- Perspectives of the Learning Environment (IPBL vs. GPBL)



# Students' Evaluation of the T/L Environment

| SELE Statement | IPBL G1 | GPBL G2 |
|---|---|---|
| 1. The instructor's course syllabus, including information about tests, assignments, or projects, was clear. | 4.4 | 4.6 |
| 2. The instructor encouraged the **use of institutional resources** (e.g., library, labs, studios) to facilitate learning the course material. | 4.3 | 4.6 |
| 3. The instructor encouraged **respect for different opinions and experiences** in the classroom. | 4.4 | 4.7 |
| 4. The instructor's **feedback** on course assignments, projects, tests, and/or papers provided guidance on how to improve my performance in the course. | 4.3 | 4.7 |
| 5. The instructor created an atmosphere that helped me learn. | 4.4 | 4.6 |

# Students' Evaluation of the T/L Environment

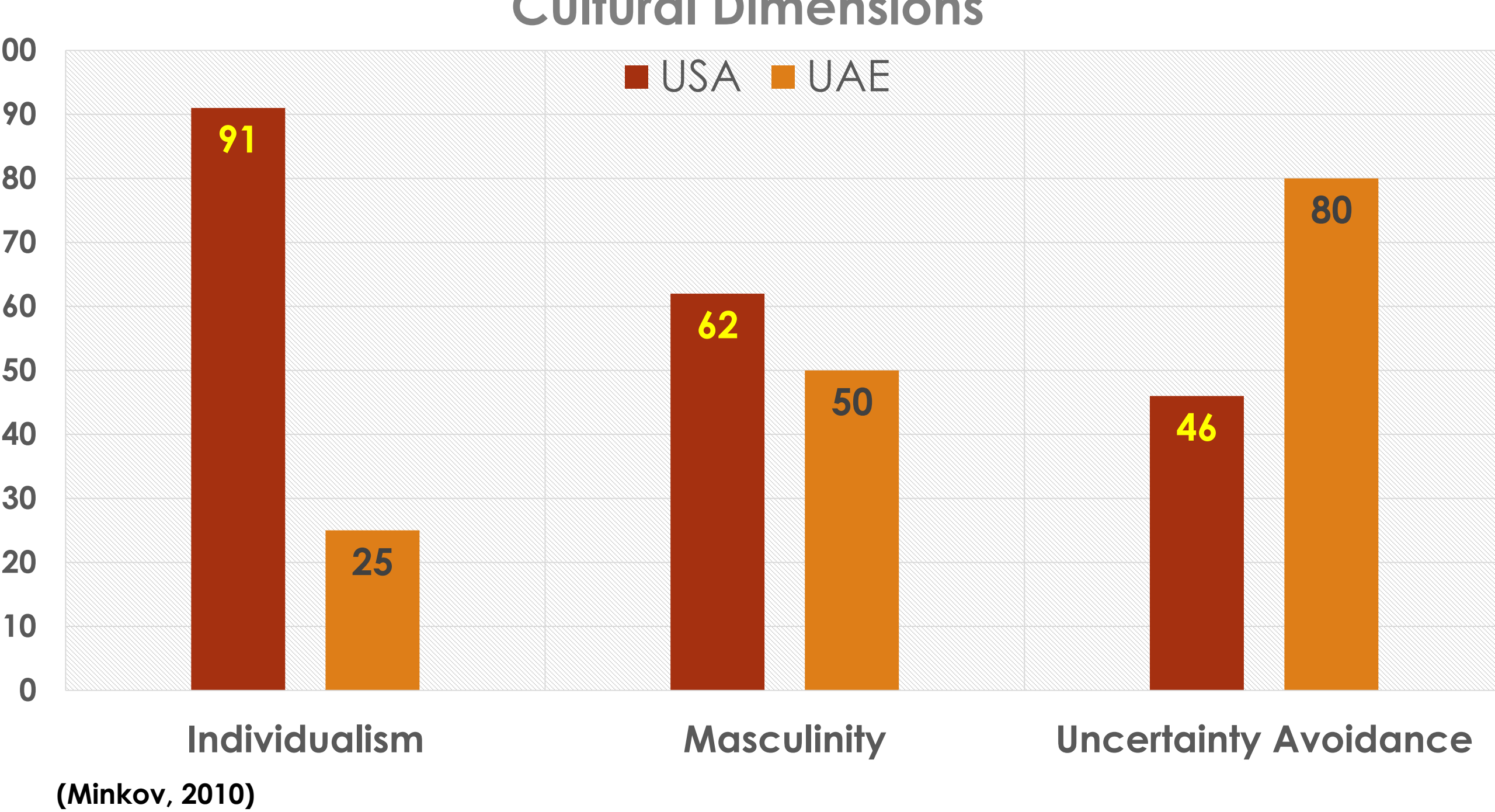
| SELE Statement | IPBL G1 | GPBL G2 |
|---|---|---|
| 6. The course instructor used educational technology effectively to promote learning in the course. | 4.5 | 4.7 |
| 7. The course instructor **demonstrated cultural sensitivity and respect for diversity** in the classroom. | 4.3 | 4.6 |
| 8. The course instructor spoke clearly and could be easily understood. | 4.5 | 4.6 |
| 9. Overall, the **quality of instructions** provided by the instructor in this course was _____. | 4.4 | 4.7 |
| 10. I would recommend this course to others. | 4.5 | 4.5 |
| **Average** | **4.4** | **4.6** |

# RQ1 Discussion – Learning Environment

**Students in the GPBL cohort had a more favorable view of the learning environment.**

- The highest increase was in the **instructor feedback.**

- The instructor received higher scores in **encouraging respect for different opinions, demonstrating cultural sensitivity and respect for diversity.**


Cultural Dimensions
USA
UAE
00
90
80
70
60
50
40
30
20
10
0
91
25
62
50
46
80
Individualism
Masculinity
Uncertainty Avoidance

(Minkov, 2010)

# RQ2- Qualitative-Formative & Summative Feedback

What lessons were learned from qualitative formative and summative student feedback in regards to implementing the group-based project?

- Case-study: an in-depth study using multiple data sources from the GPBL group (n-50)
- Qualitative data collection strategies:
  - Interviews with selected students
  - Open-ended questions on the SELE– used content analysis to analyze text

# Students' Feedback via Interviews: Strengths

- Helpful individual support (in and out of class)
- The practice of sharing collective feedback
- The students select their project partners
- Working in groups rather than as individuals on the project
- Using class time to collaborate and collect data for the project
- Learned how to use Excel to make figures and charts
- Learned how to use Grammarly and Microsoft editor to improve writing

*Appreciate, manage, judge & take action- (Carless & Boud, 2018)*

# Students' Feedback via Interviews: Challenges

- Be more fair with grading
- Give us the chance to submit a 2nd final version of the project to improve our grade
- Change the group project to an individual project
- Do not penalize the whole group when one student does not complete her project portion by the deadline

*Appreciate, manage, judge & take action- (Carless & Boud, 2018)*

# Students' Feedback via Interviews: Challenges

- Help us as (ESL students) in editing the project
- Cancel the project presentation
- Cancel the individual reflection requirement
- Cancel having to make charts and figures for the results
- Give us more individual feedback to improve our marks
- 15% copied material should not be considered plagiarism

*Appreciate, manage, judge & take action- (Carless & Boud, 2018)*

# Sample Students' Feedback via SELEs: Father Figure

- "No words can describe you. You treated me as a daughter not as a students. I really enjoyed being a student in your class. You are you the only professor who explained for us the details and the difficulties of traveling abroad and exposing to a new culture."

# Discussion: “The Father Figure”

- Was the comment positive or negative?
- Was the instructor nurturing or too informal?
- Was the class culture emotional or neutral?
- Was the professional distance high or low?

# Sample Students' Feedback via SELEs: "Information, Easy"

- "he was helpful and cared about giving us the whole information."
- "I really enjoyed the way he taught. He most definitely made the subject more interesting and easy."

# Discussion: “Information, Easy”

- Lower-order thinking:
recall, understand, apply

**vs.**

- Higher-order thinking:
analyze, evaluate, create

Course LOs: Critical thinking, Global understanding, Research, Using IT

# Sample Students' Feedback via SELEs: "Helpful"

- "He is very good and he help us a lot."
- "he help us if we went to his office."
- "I appreciate how he would not move on unless he was sure everybody understood the content."

# Discussion: “Helpful”

- Does the amount of support impact the instructor's scholarly production and work/life balance?

# Project Modifications

↑

Continuous Development

↑

Group project with coordinated, collaborative and individual tasks, and individual presentation of the individual tasks including a reflection on the project

↑

Group project with coordinated, collaborative and individual tasks and group presentation

↑

Individual project and presentation

# Recommendations

- Train students on how to work effectively in groups as projects may fail due to poor group dynamics
- Provide exemplars, but focus on finding solutions, creative answers and explanations
- Administer ongoing formative feedback- (Bluepulse)
- Respond to and share students' feedback
- Provide collective and individual feedback
- REFLECT on students' feedback to make informed changes

# Conclusion

- The study has provided a deep understanding of the impact of IPBL vs. GPBL on students' achievement.
- The findings showed that the GBPL students achieved significantly higher on professional content knowledge exams and the course project than the IPBL students.
- The GPBL students showed more positive attitudes towards the teaching/learning environment than the IPBL students.
- The group projects allowed for forming communities of practice that bridge the shift from theoretical professional knowledge to real-life contexts.
- The challenge is to strike a balance between individual learning and group learning.

# Suggestions for Research and Collaboration

- Using analytics on summative and formative course evaluations for professional development, course enhancement, program development, student feedback literacy and instructor feedback literacy.
- Research on developing and using AI for adaptive professional development.
- Investigate the effectiveness of bi-directional dialogic feedback in ‘safe zones’ for faculty and students (i.e. Bluepulse).
- Investigate the alignment of summative and formative feedback with the course and program learning outcomes.

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# Thank you!