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#### **Evaluating Approaches to Improve written English Language** Learners in Civil Engineering

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# **Evaluating Approaches to Improve written English Language Learners in Civil Engineering, Best Teaching Practices Expo workshop**



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### Rationale and Problem Statement

Rationale: Civil Engineering employers consistently identify a written communications weakness in BS civil engineering graduates

**Problem statement:** Identify sources of writing inadequacy and Devise interventions to improve written communications

Level of Change: Classroom

## **Population attributes**

Course: Fall 2021 Civil Engineering CEE 498 Senior Design class Class size: 31, composed of 9 design teams.

Team size ranging from 2 to 7

#### **Characteristics:**

- Foreign students, mother tongue not English:
   US students, parents' mother tongue likely not English:
- US students, parents' mother tongue English:

# **Project Assessment**

Instrument: Students design reports scored against a rubric rating grammar and composition at 4 levels. Each level described for quality of written English. Students see rubric in advance so that they know what "good" written English means within the class context

Reason why Design reports chosen: Quality of written communication is one of seven (7) Student Learning Outcomes specified in the Accreditation Board for Engineering and Technology (ABET) accreditation requirements for an accredited BS Civil Engineering degree. The design report is the key deliverable for the CEE 498 class, consisting of 20 chapters covering a wide range of technical and non-technical subjects

Criteria for Success: For class ensemble performance per department faculty decision: 70% of student reports score 70% or better.

Corrective interventions (changes in teaching content, pedagogy) must be implemented if this threshold is not met

#### Pedagogic approach to describe good writing in class:

- mandatory class session with Meagan Madariaga-Hopkins, College of Engineering Technical writer, showing examples of good and bad writing. Session saved to WebCampus for student re-viewing
- Rubric shown to student teams in advance so that they know descriptions of good writing
- Contact information for University and College Writing Centers provided for student teams to use

en	FINAL REPORT RUBRIC Level of performance à	level – If you want an "A" - aim for the GRAY	missing a few things –		incapable of synthesizing – you'd	Results
		or client is happy!	this would be a "do over" somewhere in the internal or external review		be fired!	CEE 498 Grammar & composition report score distribution, n = 54 Fall 2021
	Grade value à Component point value ABET Student learning criterion addressed in italics: (point value) Stage of percent completion for first submission underlined	Grade A or A- 90-100% of max points	Grade B+, B, B-	Grade C+ or C 70-79% of max points	F, Fail 0% - 69% of max points	0%%  Counts <= 59%  Counts 60-69%  Counts 70-79%  Counts 80-89%
	composition ABET 3 (25 pts) Reports evaluated at	Report is clearly written to exceed the ENG 102 standard. The underlying logic is clearly articulated and easy to follow. Words are chosen that	is difficult to follow.	Report not written to ENG 102 "pass" standard. Reader has to make considerable effort to understand the underlying logic and flow of ideas	Report far below ENG 102 pass standard. Many run-on sentences or sentence fragments.	Commonly observed writing errors
ality		accurately express the intended meaning and support reader comprehension.	minor exceptions.  Occasional (1-5 cases)	because of how the report is constructed, including: Grammatical and spelling errors make it difficult for the reader	Frequent use of casual or conversational language. Many paragraphs overly long	Conversational or casual English resembling written dialog instead of formally correct English Incorrect vocabulary for technical terms especially in complex sections describing design features or calculations
gy		Casual or use of casual or conversational conversational places. Several (5 to 10) cases of poorly constructed enhance and clarify presentation of ideas. All sentences are grammatically correct and free from spelling errors. All paragraphs comprehension. No casual/conversational conversational to interpret the text in places. (> 1 page with multiple topics) or too short (1- 2 sentences). Confunction world topics) or too short (1- 2 sentences).	Incorrect/Inconsistent verb tense confusing completed work (past tense) with proposed work (future tense) Confusing singular and plural nouns, for example using plural 'criteria' for singular 'criterion' Omitting use of Table or Figure numbers to describe data displays, or Tables and Figures included without captions			
nent			cover more than one topic. Common use of casual/conversational		Missing, inconsistently formatted citations in the narrative and in the References section	
ege		on a coherent topic. All paragraphs are the correct length: none	organized or too long or too short. 1-4	language.		<ul> <li>Interventions for next time</li> <li>Continue to provide rubric in advance</li> <li>Provide examples of good writing from past reports earlier in class and assign students to critically read</li> </ul>
ng		too short (1-3 sentences).	than one topic.			and evaluate those examples using the rubric

## **Evaluation Process**

Student teams received feedback per the rubric after each design level submission. Feedback returned to students before next % report due date

# Acknowledgments

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