



# Developing Speech-Language Pathology Students' Grammatical Identification Skills through Gamification

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## INTRODUCTION

- Speech-Language Pathologists (SLPs) are communication experts required to analyze and interpret a variety of language components (Schuele, 2010).
- Language sampling is a form of communication analysis and is used with adult and pediatric populations.
- SLPs collect and analyze language samples in an effort to make evidence-based diagnostic and intervention decisions. When analyzing a language sample, sentences must be deconstructed along a variety of parameters.
- This research involves the design and implementation of a gaming application using spaced retrieval practice and principles of gaming theory to facilitate grammatical identification skills in undergraduate and graduate SLP students.

## PURPOSE

- The purpose of this project is to generate pilot data determining the utility of a gaming application (designed by the course instructor) for teaching grammatical category identification. The gaming application has been developed with an ODU undergraduate student and Information Technology specialists, and it is in the prototyping phase.
- There are three planned phases of application design in the pursuit of creating a generalizable and individualized tool for instruction at the elementary level and for other SLP college programs.

## RESEARCH QUESTIONS

- Do students who use the gaming application more accurately identify auxiliary verbs, main verbs, secondary verbs, subjective pronouns, objective pronouns, personal pronouns, and conjunctions more accurately than students who did not use the gaming application?
- Over time, do students who use the gaming application perform better on accurately identifying auxiliary verbs, main verbs, secondary verbs, subjective pronouns, objective pronouns, personal pronouns, and conjunctions than students who do not use the gaming application?

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## DESIGN

- Quasi-experimental design between and within subjects (repeated measures).
- There will be two groups of participants who will be measured seven times throughout a single semester. The control group represents students who completed 449W "Disciplinary Writing in Speech-Language Pathology" in the spring 2020 semester and the experimental group representing students who are completing 449W in fall 2020.

## OUTCOME MEASURES

- The same instructor teaches each section of 449W. That instructor is not a member of the research team, is not listed a co-PI on this project, and will be kept blind to the research questions.
- The instructor explains to students that aspects of course performance will be aggregated anonymously to determine outcomes of learning parts of speech and offer the opt-out forms to students who choose not to be included.
- The quizzes and practice tests of students who opt-out will not be included in data analysis. Additionally, the instructor will help the investigators maintain anonymity of students by only providing results using a numeric identifier with no names included.
- One of the primary course objectives is generating students' ability to identify grammatical categories (see Figure 1). Students will complete five quizzes and two practice tests.
- The quizzes are included in the final grade but the practice tests are not included in the final grade. Each of these activities require they identify and categorize target linguistic structures.
- In fall 2020, 449W will include the same required content. One of the primary course objectives will continue to be generating students' ability to identify grammatical categories.
- Students will be explicitly taught each grammatical category; **however, this semester students will use the gaming application to practice deconstructing and analyzing sentences** using multiple learning strategies and supplements.
- Over the course of the semester, students will complete five quizzes and two practice tests which require they identify and categorize target linguistic structures. Students will receive a grade for the course on each quiz which will be included in the final course grade (tests are not included in the final grade).
- Quizzes and practice tests from spring 2020 and fall 2020 will be coded further to generate raw scores for each grammatical category. The instructor will align of students with their coded number prior to delivering quizzes and practice tests to investigators so that no names will be made available to the investigators.

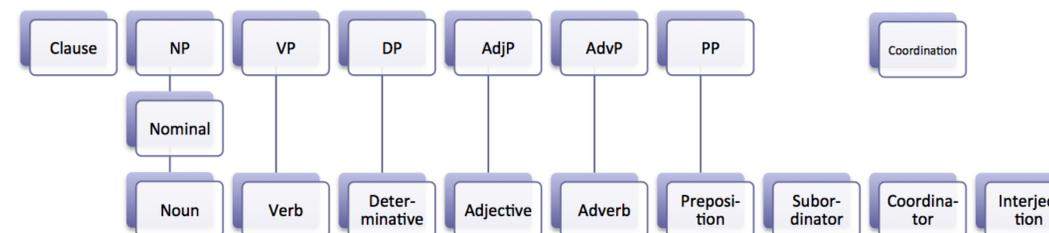


Figure 1. Examples of grammatical categories. This file is licensed under the Creative Commons Attribution 3.0 Unported license. <https://upload.wikimedia.org/wikipedia/commons/8/82/EnglishGrammarCategories.png>

## DATA ANALYSIS

- Data will be coded and collected from the five identical quizzes and practice tests administered across spring fall semester 2020.
- Each quiz will have a numeric identifier to eliminate the use of student names. Then, each quiz will be coded, using the scoring rubric, to generate a raw score for student identification of each grammatical category and a total raw score.
- Data will be organized and analyzed to identify any outliers. Then, data will be entered in SPSS and will continue to only be identifiable using the coded number. Once in SPSS, a repeated measures ANOVA will be used to determine if differences exist between and within groups.
- The results and methods will be reported during manuscript preparation.

## DISCUSSION

- Even though the spring 2020 semester has moved to the online mode, the researchers decided to continue with the project with relevant changes (i.e., the remaining assessments administered online). Future discussions in manuscripts and presentations will include the caveats of the changes to methodology.
- Actively learning about how other researchers are adapting to COVID-19 disruptions will be beneficial to this project.

## REFERENCES

Schuele, C. M. (2010). The Many Things Language Sample Analysis Has Taught Me. *SIG 1 Perspectives on Language Learning and Education*, 17(1), 32–37. <https://doi.org/10.1044/1le17.1.32>