**RGASC WDI Write-up: CSC209**

**[Writing samples drawn from an assignment where students had to write a “man” page—i.e., code documentation—and then revise and resubmit it.]**

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 In general, student writing in CSC209 showed some subtle but noteworthy improvement between the first and second submissions (Table 1). In particular, the grammatical correctness and overall clarity of the submissions showed appreciable improvement, presumably due to explicit TA/Instructor feedback. On average, the improvement was above what I usually see in comparable courses. I speculate that the increased efficacy of TA/Instructor feedback in CSC209 may be in part due to the short nature of the assignment, which would have allowed students to spend relatively more time (per word/line) improving their writing in the second submission. The limited amount of written material makes it difficult to identify any concrete patterns in terms of writing, but some general features can be seen.

*Spelling*

Spelling issues were more common in CSC209 than in other similar second-year courses I have analyzed. Furthermore, these issues were usually still present in the second submission. This is likely due to the fact that students wrote their submissions in Notepad, which does not have a spell-check feature. It would be worthwhile to encourage students to first write out their submissions in a program with a built-in spellchecker, before transferring them to Notepad. Spelling issues frequently occurred in relation to technical terms which may have been unfamiliar to the student. For example, a number of students struggled to spell the word “delimiter”, writing it variously as “delimeter” (e.g., C4, D4, D5), “dilimeter” (C2), and “delmter” (D5). In all cases, a standard spell-checking software would have alerted them to this mistake, highlighting the issues involved with writing a submission directly in Notepad. Student D5 in particular featured a large number of spelling errors that would have been caught and/or automatically corrected by most word processing software (e.g., spelling “simaltainously” instead of “simultaneously”, “immediatly" instead of “immediately”, “delmter” and “delimeter” instead of “delimiter”).

*Grammar/Word Choice*

 As is generally the case in a second-year course, the most common grammatical issues in CSC209 revolved around difficulties implementing and working with plurals. For example, Student A6 wrote: “The array is null-terminated and all the tokens including the null element is stored into the token array.”. This tendency to mix up “is” and “are” when dealing with multiple objects is a common problem in first- and second-year writing. Other representative examples can be seen in B5 (“Therefore, when there is no more token…”), B12 (“The functions returns 0 if...”), and C1 (“The delimiter are string characters that is used to seperate each string.”). Other fairly common grammatical issues included confusing “then” and “than” (D6: “If more then one DELIMITERS are in sequence…”), issues around tense (B1: “…it must passed as a char array…”), and difficulty implementing words with similar meanings (e.g., “added” vs. “increased” – B5: “Each time the token is saved, the value of token\_count is added by one.”). It is worth pointing out that in many cases, these issues were fixed in the second submission. For example, B1 changed the line described above to “…tokens must be passed as…” in the second submission.

*Colloquial Language/Writing Style*

 Colloquial language was fairly uncommon in CSC209. Where present, it usually manifested in terms of unnecessary verbiage or an inappropriately conversational definition – for example, Student A4 wrote “A spaced out substring is like each word in a sentence.”. In most cases, the use of colloquial language had limited impact on readability. However, in some cases, issues with writing style resulted in substantial semantic ambiguity, decreasing the overall value of their manual. For example, C6 wrote: “The process of identifying tokens using strtok() is done until in\_ptr becomes NULL.” Stating that some process “is done” until a certain point is confusing given the fact that the terms could also apply to the scenario where a given process is finished. In this case, the TA/Instructor seems to have pointed this out, and C6 changed “is done” to “continues” in their second submission, greatly clarifying the accompanying section.

*Transition Expressions*

 In many cases, differences in the student’s second submission could largely be attributed to the addition of a greater variety of transition expressions (see for example B1, B4, B12, D6). While some students showed a sophisticated understanding of the importance of well-written transitions (e.g., B1: “In order to create an array of substrings, tokenize\_input() uses…”), the majority of submissions were written in what might be called a “pseudocode” style (e.g., sentences following a simple “The function does…” format.).

*Pronoun Antecedents*

 In general, issues with pronoun antecedents were fairly rare. Where they occurred, they tended to be associated with attempts to describe a number of steps in a process all at once. For example, C2 wrote: “The function reads from a character pointer in\_ptr given by the call and delimits them up by the given DILIMETERS.”. Given the position of this sentence in their manual, it is difficult to identify what “them” refers to. Encouraging students to break up longer sections or redefine terms when a large amount of texts intercedes would likely fix most of these issues.

*Organization*

 Overall, students struggled with organizing their ideas, presumably due to the concise nature of the writing. Better implementation of transition expressions, and the use of a small amount of introductory material, would likely improve most submissions.

*Summary*

 Student writing in CSC209 showed a greater degree of improvement across the two submissions than I have seen in similar second year courses. Further improvements would likely occur if students were encouraged to write their initial submission using a word processors with built-in spelling and grammar features, before transferring the material over to Notepad.

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| **Table 1:** Average scores (on a scale of 1 to 5) for the eight criteria assessed here, divided between two submissions. Averages based on 36 students. |
|  | Submission 1 | Submission 2 | Difference |
| Complete Sentences | 3.61111111 | 3.61111111 | 0 |
| Grammar | 3.43055556 | 3.61111111 | 0.18055556 |
| Clarity | 3.26388889 | 3.45833333 | 0.19444444 |
| Organization | 3.375 | 3.45833333 | 0.08333333 |
| Transition Expressions | 3.51388889 | 3.59722222 | 0.08333333 |
| Contractions and Slang | 4.875 | 4.93055556 | 0.05555556 |
| Impersonal Language | 4.91666667 | 4.875 | -0.0416667 |
| Pronoun Antecedents | 4.625 | 4.72222222 | 0.09722222 |