

The Nature of Automated Essay Scoring Feedback

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ABSTRACT

The purpose of this study is to explore the nature of feedback that English as a Second Language (ESL) students received on their writings either from an automated essay scoring (AES) system or from the teacher. The participants were 12 adult ESL students who were attending an intensive English center at a university in Florida. The drafts of the students were analyzed in depth from a case-study perspective. While the document (essay) analysis was the main data collection method, observations and interviews provided crucial information regarding the context in which the students wrote and the nature of each type of feedback they received. The results revealed that the nature of the AES feedback and written teacher feedback (TF) feedback was different from each other. While the written TF was shorter and more focused, the AES feedback was quite long, generic, and redundant. The findings suggested that AES systems are not entirely ready to meet the needs of ESL or English as a Foreign Language (EFL) students. The developing companies need to improve the feedback capabilities of the program for non-native English-speaking students, that is, less redundancy, shorter feedback, simpler language for feedback, and feedback for short/off topic/repetitious essays.

KEYWORDS

Language, Technology, Writing, Feedback

INTRODUCTION

Writing is an essential component of students' academic English development, yet it requires a considerable amount of time and effort on the part of both students and teachers. Teachers need to read and respond to initial and subsequent drafts that students write, and students need to plan, write, and revise their essays based on teacher feedback. In an effort to reduce the workload for both teachers and students, many instructors are looking into the use of automated essay scoring (AES) systems. AES systems aim to assist teachers in writing classes and facilitate writing evaluation by scoring an essay within seconds and providing feedback on various domains of writing automatically.

A number of studies have been conducted mainly to compare human raters with AES systems (Attali, 2004; Attali & Burstein, 2006; Burstein & Chodorow, 1999; Landauer, Laham, & Foltz, 2003; Landauer, Laham, Rehder, & Schreiner, 1997; Nichols, 2004; Page, 2003; Rudner, Garcia, & Welch, 2006; Vantage Learning, 2000a, 2000b, 2001, 2002, 2003a, 2003b). These studies investigated the accuracy and reliability of AES systems with respect to large-scale writing evaluation. Furthermore, the majority of AES studies focused on native English-speaking populations. The present study is unique since it is the only one that explores the feedback mechanisms of an AES system rather than its scoring ability. It is also the only study that provides insights regarding the nature of AES feedback on writing by comparing it to the written teacher feedback (TF) in an English as a Second Language (ESL) classroom setting.

WHAT IS AUTOMATED ESSAY SCORING?

Automated essay scoring (AES) is a system that uses computer technology to evaluate and score essays instantly (Shermis & Burstein, 2003). AES programs rely on various machine-learning methods such as artificial intelligence (AI), natural language processing (NLP), and latent semantic analysis (LSA) to provide instant feedback and scoring. While AI focuses on designing intelligent machines that have the ability to imitate the human mind, NLP is one application of AI that has been primarily used to summarize texts and translate them to different languages for decades. LSA characterizes a word used in a sentence, passage, or essay based on semantic associations (Landauer, Foltz, & Laham, 1998).

Four types of AES systems are widely used by testing companies, universities, and public schools for mainly large-scale high-stake assessment purposes including Project Essay Grader (PEG) by Ellis Page, Intelligent Essay Assessor (IEA) by Landauer, Laham, and Foltz, e-rater by the Educational Testing Service (ETS), and IntelliMetric by Vantage Learning. Both e-rater and IntelliMetric have instructional applications for use in writing classrooms (Criterion and MY Access!). While e-rater is the scoring engine of Criterion, MY Access! is supported by IntelliMetric.

AES systems are powerful writing assessment tools, yet they are not free of limitations. One drawback is that they can effectively score only the prompts from their own library. In other words, they need to be trained on a large number of essay samples to score an individual essay (Burstein, 2003; Chung & O'Neil, 1997; Elliott, 2003; Landauer et al., 2003; Rudner & Liang, 2002). Teachers have an option of assigning prompts outside the AES library, but the AES system is not able to evaluate the essays that they are not trained on. Another limitation is that AES systems lack human interaction (Hamp-Lyons, 2001). Developers try to overcome this limitation by adding new features such as peer feedback and teacher comments in the instructional applications of AES systems. Finally, AES systems are used mostly for summative purposes in large-scale assessments, but the instructional applications make attempts to promote formative assessment of student writing in classrooms (Dikli, 2006; Warschauer & Ware, 2006). For instance, both Criterion and MY Access! allow students to save their drafts online and revise them based on feedback.

RESEARCH ON AES TECHNOLOGY

Although research on AES began in the 1960s, for a long time the focus has been primarily on native English-speaking writers. Only a few studies have been conducted with respect to second/foreign language contexts by ETS and Vantage Learning (Burstein & Chodorow, 1999; Chen & Cheng, 2008; Chodorow & Burstein, 2004; Edelblut & Vantage Learning, 2003, 2005; Vantage Learning, 2001). For instance, Burstein and Chodorow analyzed the performance of e-rater on Test of Written English (TWE) essays that were written by nonnative English speakers. Two small samples of native English-speaking data, one from US-born English speakers and another from non-US-born participants who claimed English as their native language, were included in the study. The participants wrote an essay on two prompts from the TWE and agreed or disagreed with the given statements. The results revealed that there were significant differences between the scores of the native English speakers and the nonnative English speakers. Additionally, significant differences were found between final human reader scores and e-rater across language groups. However, Burstein and Chodorow claimed that in absolute terms the differences were so small that they did not generate significant differences in agreement.

In another study, Chodorow and Burstein (2004) investigated the relationship between essay length and holistic scores assigned to Test of English as a Foreign Language-Computer Based

Testing (TOEFL-CBT) essays by e-rater. According to the results of the study, while the amount of the difference in exact agreement between e-rater and human raters was very small, it was almost indistinguishable in adjacent agreement regarding the assessment of the writing quality. However, when essay length variable was removed, the human raters demonstrated more discrepancy than e-rater demonstrated with human readers. A later version of the e-rater program showed a better performance than the previous versions. It also became less dependent on the essay length since it relied more on other variables, including measure of topical content as well as measure of complexity and diversity of vocabulary. Finally, the impact of native language remained salient. Both e-rater and human raters demonstrated the same pattern of differences across languages.

Vantage Learning conducted two different studies (Edelblut & Vantage Learning, 2003; Vantage Learning, 2001) based on the essays written in languages other than English (Hebrew and Bahasa). In a recent study, Edelblut and Vantage Learning (2005) investigated the impact of including native English-speaking students' essays in the training set for an IntelliMetric model that would be used to score essays written by Taiwanese students. The study included a training set that consisted of only Taiwanese EFL writers' essays and another training set that included both Taiwanese EFL essays and native-English-speakers' essays. The results showed that both models produced similar adjacent agreement rates between expert raters and IntelliMetric across traits, yet there were differences at the exact agreement level. The authors recommend the use of a blended training set (Edelblut & Vantage Learning, 2005).

Other researchers have started working on models that involve languages other than English (Shermis & Burstein, 2003). In their 1999 study, Burstein and Chodorow state that ETS has been working on "computer-based corpora" that characterize language variation, both for subgroups who use nonstandard dialects of English and nonnative speakers of English. Furthermore, Vantage Learning developed programs that can provide nonnative English-speaking students feedback in 20 different languages (Vantage Learning, n.d.).

Research showed that AES systems have high correlations with human raters in terms of scoring (Attali, 2004; Attali & Burstein, 2006; Burstein & Chodorow, 1999; Elliott & Mikulas, 2004; Landauer, Laham, & Foltz, 2003; Landauer, Laham, Rehder, & Schreiner, 1997; Nichols, 2004; Page, 2003; Rudner, Garcia, & Welch, 2006; Vantage Learning, 2003c). While most research on AES technology is correlational and aims to attain validity or reliability between AES systems and human raters, a limited number of studies investigated other aspects of the AES technology (e.g., feedback capacities) (Attali, 2004) and classroom use (Chen & Cheng, 2008; Grimes & Warschauer, 2006). The increasing popularity of AES systems raised questions regarding their validity and reliability (Cizek & Page, 2003). As a result, developers started to focus more on evaluating the reliability of the scoring capacity and the validity of inferences drawn based on scores that AES systems produce and provided statistical evidence suggesting that AES systems could meet the needs of the potential users to improve their writing skills (Siegert & Guo, 2009). Keith (2003) investigated whether or not the scores generated by AES systems truly reflect writing skills or other characteristics such as content vocabulary knowledge and cognitive ability. Assuming that human raters have the capability of scoring a writing sample with some degree of validity, researchers conducted correlational studies to determine the relationship between an AES system and expert raters and showed that AES systems also assess the construct of writing. These correlations can also be viewed as indication of reliability and criterion-related validity (Keith, 2003). Studies sponsored by testing companies are generally validation studies that use the same population from which samples are drawn to train the AES systems. For example, Vantage Learning conducted more than 140 studies that explored the validity and efficacy of the IntelliMetric system (Vantage Learning, 2003c). Most IntelliMetric studies are divided into three main categories in terms of research design: (a) IntelliMetric-expert comparison studies, (b) construct validity studies,

and (c) true score studies. In construct validity studies, the scores that were formed both by IntelliMetric and expert raters were compared to some other external measures in order to determine how much IntelliMetric was consistent with the expectations for the construct (Elliott, 2003). On the other hand, some researchers (Chen & Cheng, 2008; Chung & Baker, 2003) argued that comparing scores from different raters or measures and drawing conclusions based on high-reliability rates or correlations between human raters and an AES system are not sufficient to determine assessment validity.

Most research on assessment has focused on providing evidence of validity, yet validation is impossible without establishing reliability (Siegert & Guo, 2009), and reliability and validity depend on each other (Cizek & Page, 2003). Reliability is usually established based on the degree of the exact or adjacent agreement of the percentage of score between an AES system and expert raters. Research shows that AES systems can generate scores that are highly correlated with expert raters. For example, in a study that Page conducted in 2003, students wrote essays on the same topic, six expert raters scored each essay, and formative samples were produced through random sampling among the given data set. The findings suggested positive results for the reliability of PEG predictions. Similarly, in their 2003 study, Landauer et al. administered two essay prompts from GMAT to candidates for graduate business administration programs. A third set of essays included a narrative essay question for grade school children. The essays were scored by expert raters from ETS and IEA. The results showed that reliabilities of IEA matched those of expert human raters.

The vast majority of the AES studies listed above are sponsored or conducted by the development companies. Many research findings are published in technical reports that are released by the developers. For instance, various studies on IntelliMetric and MY Access! are sponsored and conducted by Vantage Learning in the form of technical reports (See Vantage Learning, 2000a, 2000b, 2001, 2002, 2003b, 2003c, 2004). This can be viewed as a drawback, and it is essential to increase the number of studies that are conducted by independent researchers to draw a more disinterested picture of the efficacy of these programs.

THE MY Access! PROGRAM

The AES technology used in this study is MY Access! (Version 6.0), which is a web-based writing assessment tool that relies on Vantage Learning's IntelliMetric scoring engine. The primary purpose of the program is threefold: (a) providing students a writing environment that provides immediate scoring and diagnostic feedback, (b) allowing them to revise their essays based on feedback, and (c) motivating them to write more to increase their writing proficiency (Vantage Learning, n.d.).

MY Access! provides not only immediate diagnostic assessment of writing, but it also generates multilingual feedback for nonnative English-speaking students. (The system assigns essay topics and provides feedback in 20 languages.) The multilingual dictionary, thesaurus, and translator features of the program allow students to look up definitions as well as synonyms of a specific word. In addition to the multilingual feedback, MY Access! provides multilevel feedback including developing, proficient, and advanced (Vantage Learning, n.d.).

The program generates feedback on various genres of writing including informative, narrative, literary, and persuasive. It contains over 200 operational and pilot prompts that generate instant analysis of the essay. These prompts are based on reading texts as well as literature at grade levels, and they are available in the following academic categories: higher education (Level 4), high school (Level 3), middle school (Level 2), and upper elementary (Level 1).

Although teachers have the option of providing their own prompts, the system cannot score those essays because it needs to be trained on a large set of sample essays before it can provide instant scoring (Vantage Learning, n.d.).

MY Access! includes several features that attempt to make the writing process more effective not only for students, but also for teachers (Vantage Learning, n.d.). First of all, it provides a web-based environment to users so that they can access the MY Access! website easily any-time and anywhere. It not only generates instant scoring and diagnostic feedback, but also instant data for writing instruction. MY Access! offers a variety of writing tools including a writing dashboard, model essays, and my portfolio. While the writing dashboard allows students to view their weekly progress, the model essays provide students with sample essays that are scored by IntelliMetric at different score points. My portfolio allows students to view a list of completed assignments, scores, reports, comments, and so on (Vantage Learning, n.d.).

The program allows teachers to have full control over the application of the program. For instance, they can create groups or customize the level as well as the type of feedback according to the proficiency level of the students. They can also add their own comments on student essays along with the feedback provided by the system. The view reports option allows teachers to generate 10 types of reports on the students' progress. For instance, the student history report provides the teacher with not only the analysis of errors based on the rule categories in the system, but also with the average performance assessments of the students over time. Finally, the program generates a large number of reports on state- and federal-mandated requirements (e.g., No Child Left Behind) and includes parent letters in various languages (Vantage Learning, n.d.).

METHODOLOGY

The purpose of this study is to explore the nature of feedback that ESL students received on their writings either from an AES system or from the teacher.

Participants and Setting

The participants in this study were 12 adult ESL students¹ who took ESL instruction in a 7-week session in Spring 2006 at an intensive English center at a university in Florida. They had various language backgrounds including Spanish, Arabic, Turkish, Swiss, and Korean. The level of their proficiency in English was determined by the center's instructors as low intermediate based on the tests developed by the center. The holistic rubric used at the center was adapted from the 5-point scale writing rubric in the Internet Based Testing-Test of English as a Foreign Language. The participating teacher, who was also the director of the center, was a native English-speaking middle-aged male who held a doctoral degree in ESL.

Table 1 below provides the background information about each participant. Alan, Julio, Songie, Maria, and Selma received the AES feedback from the MY Access! program. Kim, Daniela, Ahmed, Khalid, Pedro, Reina, and Zeinab were provided with written teacher feedback (TF).

Table 1
Background Information of the Participants

Groups	Name (pseuonym)	Native language	Gender	Age range	Length of time in the US	Reason for studying English
TF group	Pedro	Spanish	male	24-29	less than 6 months	employment
	Khalid	Arabic	male	30-35	6 months-1 year	employment
	Daniela	Spanish	female	over 35	6 months-1 year	employment
	Ahmed	Arabic	male	24-29	less than 6 months	education
	Zeinab	Arabic	female	24-29	less than 6 months	education
	Kim (dropped out)	Korean	female	24-29	less than 6 months	employment
	Reina	Arabic	female	24-29	6 months-1 year	education
AES group	Songie	Korean	male	24-29	less than 6 months	education
	Alan	Swedish	male	24-29	6 months-1 year	education
	Maria	Spanish	female	24-29	6 months-1 year	employment
	Julio	Spanish	male	24-29	6 months-1 year	education
	Selma	Turkish	female	24-29	less than 6 months	employment

Procedures

The class of 12 students was divided into two groups. While approximately half of the students were exposed to the computerized feedback (AES group), the other half received written feedback from the teacher (TF group). The students were assigned to either AES feedback or TF groups based on their diagnostic essay scores. Purposeful sampling was used to assign students to the AES group and the TF group. Students' holistic scores on the diagnostic essays were used to balance them in each group according to their writing abilities. However, the students with very poor writing skills in English were directly assigned to the TF group since the instructor believed that their participation in writing classes would be more meaningful and getting feedback from the teacher would minimize their frustration with essay writing. Two different raters scored the diagnostic essays. They normed their scoring by evaluating various sample essays prior to actual scoring using the same rubric (MY Access holistic rubric). The correlation between the two raters was as high as .93.

Students typed their essays using MY Access! three times a week. They were directed to write three drafts on each of five prompts in their writing classes during the 7-week session in two different computer labs (see prompts in Table 2).

Table 2
 Prompt Names and Instructions for the Five Essays and Subsequent Revisions

Prompt name	Prompt instruction
learning from experience (diagnostic essay)	We learn many things from experience. Think about an experience that you had that taught you an important lesson. What was the experience? What lesson did you learn from this experience? Write an essay about an experience you had and the important lesson you learned from it.
society's biggest problem (P1)	In our society we face a number of problems, such as crime, poverty, and pollution. What do you think is the biggest problem we face in our society today, and why is it a serious issue? Write an essay explaining the issue or problem you have chosen and why it is having such a negative effect on our society.
visiting an interesting place (P2)	There are many interesting places in the world. Different regions of the world have different cultures, geographies, climates, sights, and activities. If you could choose to visit one place in the world that you have never been before, where would it be? Why?
important inventions (P3)	Discoveries and inventions have tremendous impact on our lives. Think about and choose one that has affected society. Write an essay to inform your reader about this discovery or invention. Explain its impact or influence on mankind.
a special day (P4)	Think about a special day in your life, a day when something unusual or memorable happened. It might have been the first day of school, your birthday, or some other day. Write your story telling what happened to you on that day and describe why it was special.
to change a day in your life (P5)	Imagine you are given the opportunity to change a single day in your life. What day would it be and why? What important event(s) occurred on that day? How would this change affect you today? Write an essay about what one day in your life you would change and why.

The TF group and the AES group typed their essays in two separate computer labs. The writing processes of the students in the TF group and their interactions with the teacher were observed by the researcher. An independent observer, who had background in writing instruction and was trained in the observation protocol, observed the writing processes of the students in the AES group. The students in both groups were given the same amount of time to write their essays.

All essays were evaluated both holistically and analytically (based on focus and unity, content and development, organization, language use and style, and mechanics and conventions traits) on the same 6-point scale by the MY Access! program or by the teacher (1 = inadequately communicates the writer's message and 6 = very effectively communicates the writer's message).

CONTEXT OF THE FEEDBACK

AES feedback and the written TF have their own strengths and weaknesses (see Table 3).

Table 3
Strengths and Weaknesses of the Feedback Provided by AES and the Teacher

	AES feedback	Written TF
strengths	instant scoring and feedback consistent scoring and systematic feedback does not get tired ability to score and provide feedback to large number of essays	specific short individualized human interaction
weaknesses	no human interaction generic and redundant feedback extensive feedback incorrect feedback (occasionally) can have technical problems	can get tired subjective needs time to respond to a large number of essays might fail to provide consistent feedback

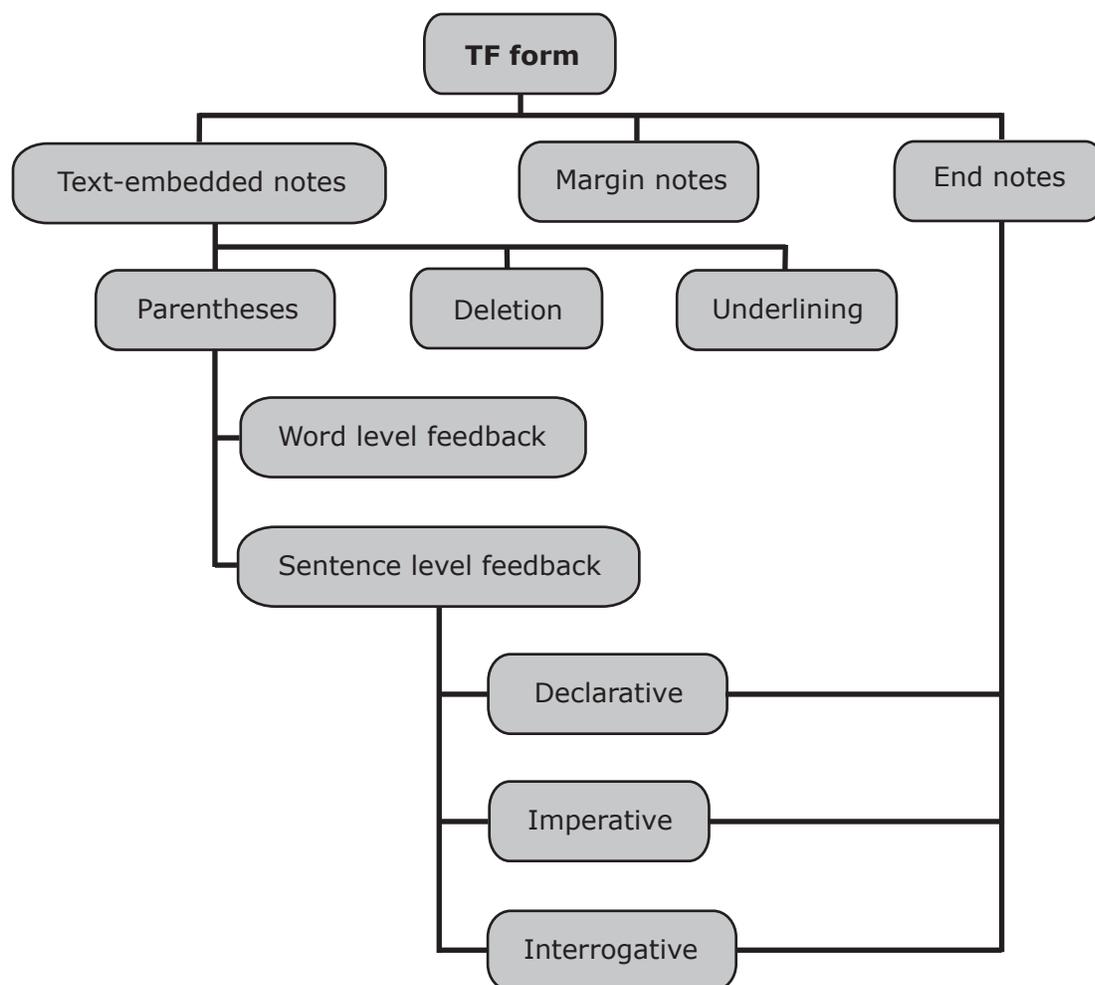
Written Teacher Feedback (TF)

As the students in the AES feedback group, students in the TF group typed their essays using the MY Access! program. However, for the TF group, the program functioned in a manner similar to that of Microsoft Word; the researcher limited the capabilities of MY Access! by turning off all features except for the spell checker.

The participating instructor provided his own feedback, but he used the analytic and holistic rubrics generated by the MY Access! program to score the essays. He used the MY Access! program's teacher comments feature, which allowed him to submit his own feedback and to respond to student drafts. Sometimes technical problems prevented the instructor from providing feedback using the teacher comments feature of MY Access!. In that case, he provided feedback using Microsoft Word by typing text-embedded comments in brackets, using either () or < >. When the teacher was able to use the MY Access! program's teacher comments feature, he first highlighted the errors in the essay, and then typed the comment in a separate window. The feedback appeared as a <comment> link within the essay right next to the error. As soon as the students clicked on the comment link, the feedback that the teacher had entered popped up in a separate window.

The written TF took various forms and functions. In this study, form refers to the format of the feedback and function denotes the purpose of the feedback. The written TF consisted of three types of feedback forms: text-embedded comments, end notes, and margin notes (see Figure 1).

Figure 1
Graphic Representation of Written TF Forms



The only time the teacher used margin notes was when he provided handwritten feedback on students' second drafts. Otherwise, he mainly used text-embedded comments and end notes for feedback purposes. An example of a text-embedded comment (in parentheses and bold italics) is "... I thought that my life ~~will be had a radical~~ (**would be radical**) ..." (Reina, P4/D2); an example of an end note is "Ahmed, you have the content for a good essay but it is not organized very well. I am a little confused when I read this about what happened first, then second and so on. Also please keep your sentences short and simple so you don't make mistakes. Also please use the spell checker before you save and submit your essay" (Ahmed, P5/D2).

Text-embedded comments took three forms including parentheses, deleting, and underlining. While parentheses and deleting were the most common forms used by the teacher, underlining was used only for students' second drafts mainly because of the handwritten feedback used by the teacher in those drafts. The teacher used both word-level or sentence-level feedback in parentheses. Sentence-level feedback included three forms as well: declarative, imperative, and interrogative. The written TF functions, on the other hand, consisted of direct feedback, indirect feedback, clarification request, positive reinforcement, problem statement, and suggestion (see Figure 2).

Figure 2
Graphic Representation of Written TF Functions

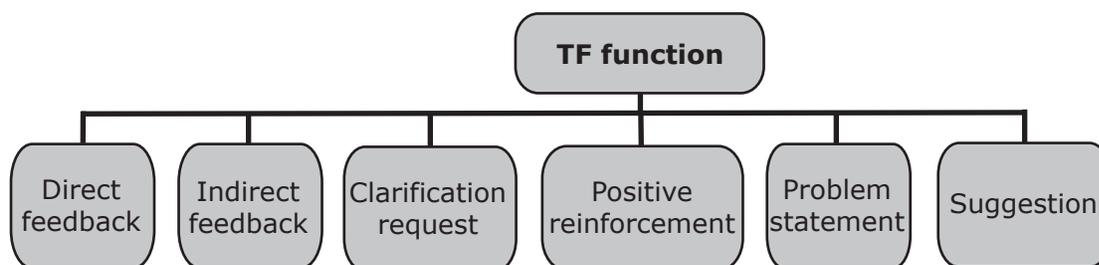


Table 4 displays examples of written TF for each form and function.

Table 4
Examples of Written TF Based on Form and Functions

TF type	TF category	Examples	Source
form	imperative	We eat a (don't use "a" here) food, such as vegetable, meat, rice and bread.	Kim P2/D3
form	interrogative	Where are these located? How many people live there?	Zeinab P2/D2
form	declarative	...to SPAIN and PARIS (proper names only have the first letter of their name capitalized) with my husband before my wedding...	Zeinab P4/D2
function	direct feedback	Last one (use "finally" here), The beaches in Dubi are very clean and nice.	Khalid P2/D3
function	indirect feedback	According the taster (???) someone preper to choice the yellow color than red.	Kim P2/D2
function	clarification request	Inside all of these (what is "these"?) in Spain you can also do many activities.	Reina P2/D3
function	problem statement	You are writing very well but re still using a lot of Spanish translation.	Daniela P2/D3
function	suggestion	You just need to keep your sentences shorter and work on thinking more in English and not translating from Spammish[sic]...	Pedro P2/D3
function	positive reinforcement	This is wonderful! What a great story!	Daniela P4/D2

AES Feedback

The MY Access! program includes two feedback mechanisms: MY Editor and MY Tutor. While MY Editor generates text-embedded specific feedback on grammar, mechanics, and conventions, MY Tutor provides generic and extensive feedback on five traits (focus and meaning, content and development, organization, language use and style, and mechanics and conven-

tions). The program also includes a spell-checker feature, but this feature was not considered a feedback mechanism in this study because even a simple word processor includes a spell-checker feature. MY Tutor and MY Editor feedback points are instantly generated by the MY Access! program. Therefore, the students were able to access both MY Editor and MY Tutor feedback either right after submitting a draft or during the revision process.

Another characteristic of the MY Access! (Version 6.0) feedback is that the level of the feedback could be set according to the writing proficiency of a student as developing, English language learner (ELL), and proficient; the difference among three levels in terms of length is quite small. The feedback suggested for ELL or developing levels are slightly shorter than that of the proficient level, whereas the content of the feedback is the same.

Like the written TF, the AES feedback was also categorized in terms of form or function. Figure 3 provides a graphic display of the AES feedback forms, and Figure 4 provides an illustration of the AES feedback functions. Table 5 displays examples for each form and function of the AES feedback.

Figure 3
Graphic Representation of AES Feedback Forms

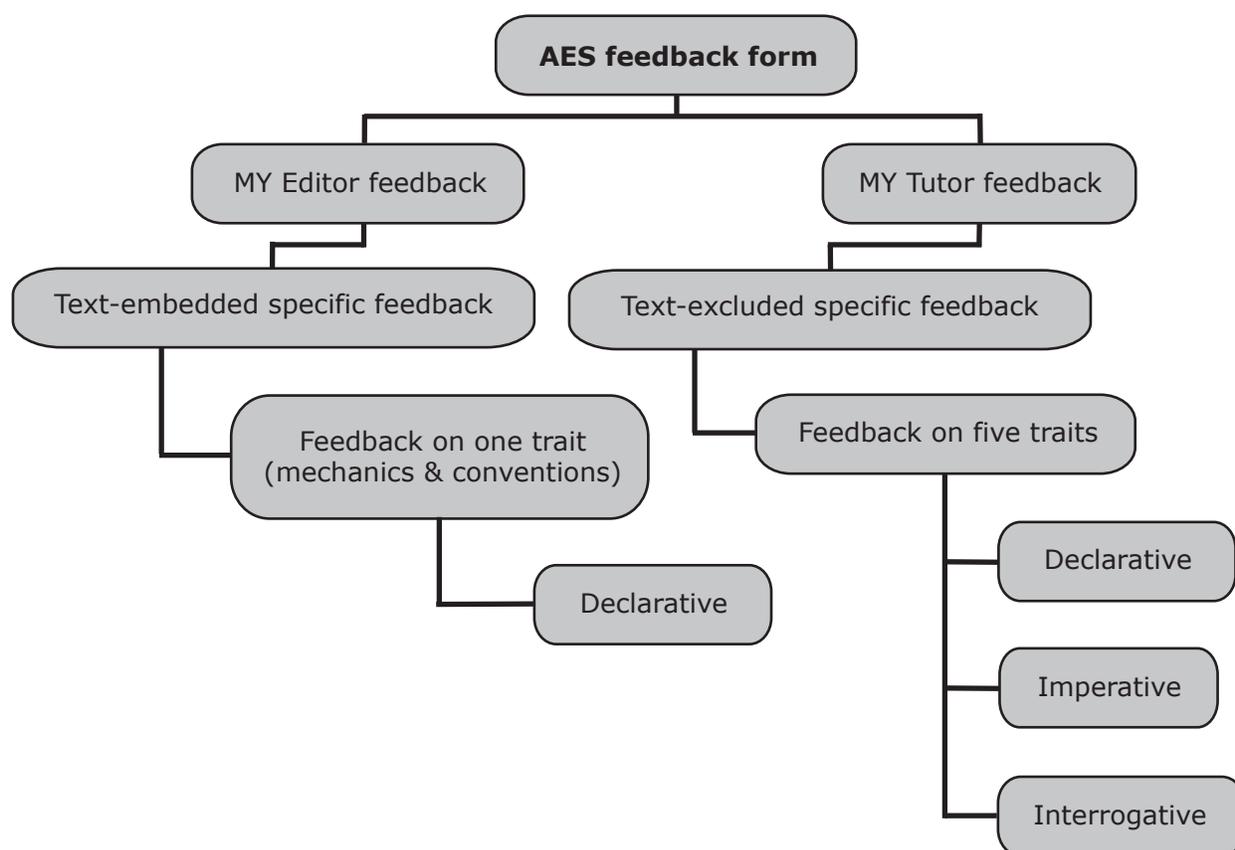


Figure 4
Graphic Representation of AES Feedback Functions

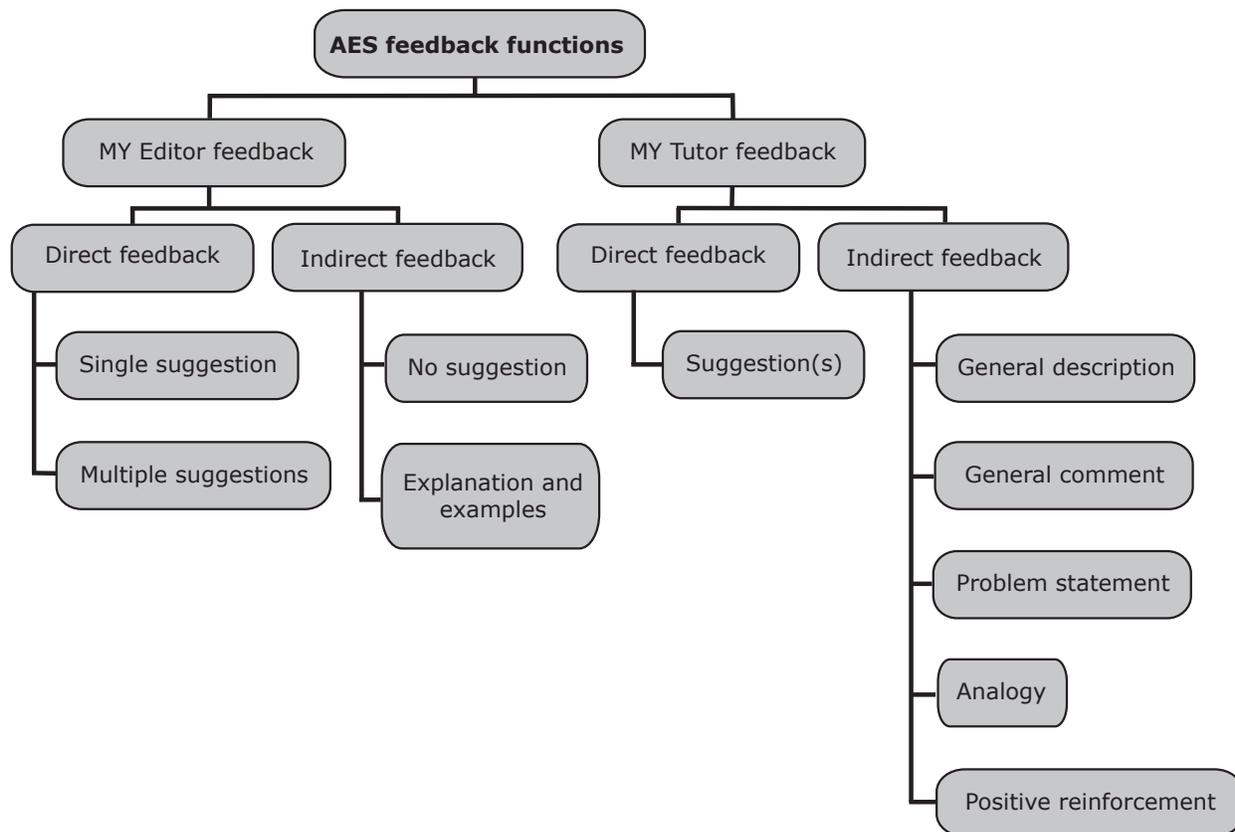


Table 5
Examples of AES Feedback Based on Forms and Functions in Students' Drafts

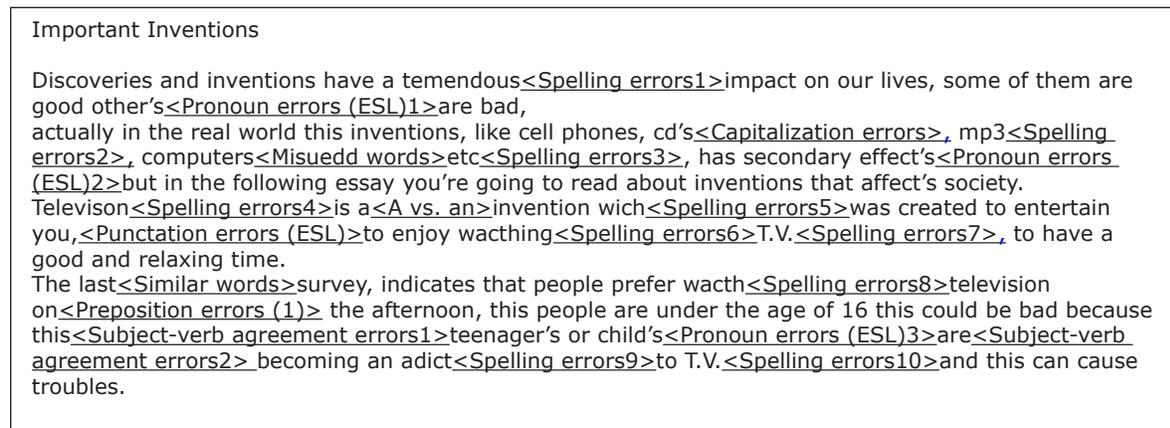
AES feedback type	AES feedback categories	Examples	Source
function	direct feedback (MY Editor/single suggestion)	diffrent → different (spelling error)	Alan P3/D2
function	direct feedback (MY Editor/multiple suggestions)	minutes → minutes~minuets~mints~minus~minute (spelling error)	Alan P1/D1
function	indirect feedback (MY Editor/no suggestion)	mp3 (spelling error)	Julio P3/D1
form	declarative (MY Editor)	Some verbs do not take a prepositional phrase; it is incorrect to use a preposition with these verbs.	Maria P1/D1
function	problem statement (MY Tutor)	Your focus is minimal.	Alan P1/D1

AES feedback type	AES feedback categories	Examples	Source
function	(general) description (MY Tutor)	A controlling or main idea is a statement that defines your point of view.	Maria P1/D2
function	suggestion (MY Tutor)	Your essay will be on-point and well-developed if you take the time to make a basic sketch or outline of the ideas in the essay.	Songie P1/D1
function	positive reinforcement (MY Tutor)	Your focus is adequate.	Selma P5/D3
function	general comment (MY Tutor)	Songie, you can improve your content by including details that will help your reader see what you are writing about.	Songie P3/D1
function	analogy (MY Tutor)	Remember, focus in writing is similar to visual focus. If you were to look through the lens of a camera, you would be able to visualize objects clearly when your focus is sharp. Focus in writing is similar. When the focus of your essay is sharp, readers will see your message clearly.	Maria P3/D2
form	declarative (MY Tutor)	Organization relates to your ability to present your ideas in logical and ordered fashion.	Julio P5/D1
form	imperative (MY Tutor)	Cross out any details which do not deal with the main story you wish to write.	Julio P4/D1
form	interrogative (MY Tutor)	Have you varied your paragraph lengths enough?	Selma P1/D2

MY Editor feature

The MY Editor screen includes several feedback points on grammar, mechanics, and conventions in the form of blue links. In order to view the MY Editor feedback, students need to click on a link for a particular error and read the suggestion and examples that appear in a pop-up window, which consist of advice, error label, suggestion, and explanation categories. While advice explains the feedback, suggestion provides direct feedback. Explanation includes standard examples and explanations for a specific error category. MY Editor provides one or more suggestions for each error. In some cases, it points out an error but does not provide any suggestions (indirect feedback). For instance, the sentence Julio wrote (see Figure 5, Paragraph 1) received all three types of suggestions in the first sentence of his essay.

Figure 5
MY Editor Feedback Points on Julio's Draft, P3/D1



Note. Links in angled brackets are in blue on the computer screen

Figures 6, 7, and 8 display sample feedback points provided by the MY Editor feature in a pop-up window. Here, MY Editor did not provide any specific suggestion on the pronoun error (ESL), yet it generated general advice. It provided a single suggestion on capitalization errors and offered multiple suggestions on misused words.

Figure 6
MY Editor Feedback on Pronoun (ESL) Errors-No Suggestion (Julio, P3/D1)

Advice:	A possessive like 'other's' is usually followed by another noun. Consider rewriting your sentence or use the singular or plural form.
Error Category:	USAGE
Error Label:	Pronoun errors (ESL)
Suggestions:	
Explanation:	<p>Pronoun Case Error The grammar checker flags incorrect pronouns.</p> <p>Examples: Change: My brother and me play soccer. To: My brother and I play soccer. Change: Our teacher gave my friend and I hall passes. To: Our teacher gave my friend and me hall passes. Change: He is a friend of me. To: He is a friend of mine.</p> <p>Explanation: The form a pronoun should be depends on where in the sentence the pronoun occurs. <i>Subject-</i> tells who did the verb's action I, you, he/she/it, we, they <i>Object-</i> tells who or what received the verb's action me, you, him/her/it, us, them <i>Possessive (adjective)-</i> tells the owner mine, your, his/her/its, our, their <i>Possessive pronoun-</i> tells whose something is mine, yours, his/hers/its, ours, theirs <i>Reflexive-</i> refers back to the subject myself, yourself, himself/herself/itself, ourselves, themselves If there is a sequence of nouns, separate the pronoun out. Test the sentence with just the pronoun to decide which case to use</p>

Figure 7

MY Editor Feedback on Capitalization Errors-Single Suggestion (Julio, P3/D1)

Advice:	Consider [CD's] instead of 'cd's'.
Error Category:	MECHANICS
Error Label:	Capitalization errors
Suggestions:	CD's
Explanation:	<p>Capitalization The grammar checker flags lowercase words which should begin with a capital letter.</p> <p>Examples: Change: the new copier works well. To: The new copier works well. <i>Always</i> capitalize the first word of a sentence. Change: Then sarah asked if i wanted some coffee. To: Then Sarah asked if I wanted some coffee. Always capitalize proper nouns and the pronoun "I." Explanation: Do not capitalize a common noun like "horse" or "house" unless it begins a sentence. Here is a list with more examples of capitalization:</p> <p>CAPITALIZE:</p> <ul style="list-style-type: none"> • Names of people: (Groucho Marx, Jim Thorpe, Toni Morrison, Batman) • Names of one-of-a-kind places: (St. Louis, Niagara Falls, but not "downtown") • Names of countries, nationalities, races, and religions: (Mexico, American, Jewish, Buddhist) • Names of languages: (French, Arabic) • Names of days and months (Saturday, December) • Names of particular buildings and landmarks: (Empire State Building, Mount Rushmore) • Names of companies and organizations: (The New York Times, Greenpeace) • Titles of works: ("Hamlet," "The Snows of Kilimanjaro," "Carmen," "Mary Had a Little Lamb," "Wuthering Heights," "It's a Wonderful Life," "Paradise Lost") • Titles of people: (King James, Senator Smith, Mr. Brown, Professor Carroll) • Acronyms: (WPA, NATO, NBA, CEO, UNESCO) <p>The salutation and closing of a letter: (Dear Ms. Jones, Sincerely)</p>

Figure 8
MY Editor Feedback on Misused Words-Multiple Suggestions (Julio, P3/D1)

Advice:	Consider using [computer's], [computers'], or [computer] instead of 'computers'.
Error Category:	USAGE
Error Label:	Misused words
Suggestions:	computer's~computers'~computer
Explanation:	<p>Misused Words The grammar checker flags words or phrases that are often used incorrectly or misunderstood because they are confused with similar words or phrases.</p> <p>Examples: Change: The rain did not effect the game. To: The rain did not affect the game. Change: He is good at creating the allusion he knows what he's talking about. To: He is good at creating the illusion he knows what he's talking about.</p> <p>Explanation: The confused expressions have different meanings and are used in different contexts, so that most of the flags returned identify real errors ('elude to' instead of 'allude to'; 'sit the books on the chair' instead of 'set the books on the chair').</p>

MY Tutor feature

As mentioned above, MY Tutor provides holistic and analytic feedback (and scoring) on five traits of writing: focus and unity, content and development, organization, language use and style, and mechanics and conventions. The suggestions that MY Tutor provides are quite generic compared to those offered by MY Editor. Figure 9 shows the holistic feedback and Figure 10 the analytic feedback that Alan received from MY Tutor on the organization trait in his second draft of a paper.

Figure 9
Holistic Feedback Provided by MY Tutor (Alan, P2/D2)

Overall

Alan, on a scale of one to six, your response to this assignment was rated a 5. Your response was evaluated on the basis of how well it communicates its message considering important areas of writing including focus and meaning, content and development, organization, language use and style, and conventions and mechanics.

A response that receives a score of five communicates its message effectively. Typically, a response at this level is generally cohesive and unified with a central idea that is maintained throughout the response. A response at this level has generally well developed ideas, with strong support based on examples, evidence or other supporting details. The response is well organized, with a generally effective pattern of ideas and a logical sequence presented. The sentence structure is generally effective, varied and free of errors, although there may be some minor errors in structure, usage and word choice. There are few errors in grammar, mechanics, punctuation and spelling that do not interfere with the message.

A more detailed analysis of your response is provided for each of the five important writing areas below.

Figure 10
Organizational Feedback Provided by My Tutor (Alan, P3/D2)

Organization

Alan, on a scale of one to six, your response to this assignment **was rated a 4 for organization.**

Organization relates to your ability to present your ideas in a logical and ordered fashion.

Your organization is adequate. Typically, a response at this level shows an appropriate organizational structure with an apparent pattern of ideas presented in a logical order.

Alan, your structure so far is adequate, but by looking at the following points for organizing your work, the writing will be much better. As you revise, think of the following four ways to have better organization.

* **Introduction:** Include an introduction that will do two things.

1. Catch the reader attention.
2. Tell what the main idea of your writing is.

Introductions are very important and will get your writing off to a good beginning.

* **Conclusion:** Include a conclusion. Does it end your writing strongly and leave the reader something to think about? You could summarize your writing, end with a quotation that relates to your idea, or even restate your main idea. Make sure your writing does not just stop.

* **Transitions:** Use the right transitions that will move the reader from idea to idea. The right transitions will connect your details and help explain them to the reader. Transition words or phrases will help you organize your thoughts and details, and make your writing more organized.

* **Transitions [sic]:** Make sure you use a clear **order** to organize your details and ideas. This will give you logical organization. Use the best order to help your purpose—narrative, informative, or persuasive. By sticking to an order—chronological, spatial, importance, logical, or sequential—you can express your ideas more easily, and your reader can understand them better.

DATA ANALYSIS

This study aimed to provide insights regarding the feedback capacities of an AES system by comparing it to the written teacher feedback. Student drafts were analyzed in-depth from a case-study perspective. Document (essay) analysis was the main data collection procedure in this study, but students also completed demographic and computer literacy surveys.

The way students integrated the feedback they received either from the MY Access! program or from the teacher from first to final drafts on each of the five prompts was qualitatively analyzed. The five writing traits generated by the MY Access! program listed above were used as a basis to classify both the AES feedback and the written TF. The data from the student drafts and the related feedback either from the teacher or from the AES system were compared and cross-referenced to explore how students incorporated the two kinds of feedback into their revisions.

Field notes about the writing processes of the students and their interactions with either the MY Access! program or the teacher provided an opportunity to identify the context in which the students were writing. They also allowed the researcher to better understand how each group of students incorporated the feedback they received into their writings. Finally, teacher and student interviews were conducted to seek out information that neither student essays nor the observations revealed. The interviews provided a chance to learn not only about the writing strategies the participants used, but also about their writing experiences and opinions regarding the feedback and scoring they received. Furthermore, the teacher interviews provided additional insights regarding the context of writing and teacher feedback.

RESULTS

The findings suggest that the AES feedback and the written TF differed from each other considerably in terms of length, redundancy, consistency, usability, and so on.

THE NATURE OF AES FEEDBACK

The results of the study revealed that MY Access! feedback was redundant, lengthy, generic, and sometimes not usable. It also lacked human interaction and included less personalized positive reinforcement.

Lengthy Feedback

The AES feedback was much longer than the written TF. Appendix A displays a comparison of the written TF to AES feedback that MY Tutor generated on focus and meaning in terms of length. Another example that shows the difference in the length of the AES feedback versus the written TF pertains to the organization trait. For instance, the participating teacher suggested a couple of feedback points on organization on a second draft by Reina (P3/D2), "Reina, you are getting better, however, you need to organize you [sic] paper better. In the introduction, you must tell exactly what you are going to write about." On the other hand, MY Tutor generated extensive amounts of feedback on the organization trait on an essay by Maria (P1/D2) under the following sections: introduction, conclusion, and transitions. In other words, while the feedback that the teacher provided was short in length (2 lines), MY Access! offered a large amount of feedback (approximately 26 lines) on the same trait. The teacher described the nature of his feedback as follows:

Really my own feedback ... I read the prompt and gave feedback accordingly. You can give two types of feedback. You can give general feedback and you can add comments within the text, which is more helpful ... the sentence summary at the top and embedded comment. When I gave feedback, sometimes I don't give the answer to make them think

Redundant Feedback

MY Tutor feedback

Another finding regarding the AES feedback was that it was redundant; the students in the AES group received identical or very similar feedback from MY Tutor each time they submitted a draft to the MY Access! program. When the students received the same score on the same trait and on prompts from the same genre (e.g., scores of 2 on the content and development trait on an informative prompt), the feedback points offered remained exactly the same. On the other hand, when they received different scores on the same trait and on prompts from the same genre (e.g., scores of 3 and 4 on the content and development trait on an informative prompt), the feedback addressed the same points but included slightly different wording. While essays with scores ranging from 1-3 received the same feedback, those with scores ranged 4-5 received slightly different feedback depending on the genre (informative or narrative prompts). None of the students received a score of 6; therefore, no comment is made regarding the feedback based on this score. (See Appendices B and C for the comparison of the content and development feedback generated by the MY Tutor feature in MY Access! based on the same and different scores.)

The students reported that they did not read the MY Tutor feedback most of the time because of its length and the redundant information it conveyed. When asked how often she used MY Tutor, Selma said, "To [*sic*] much reading ... It's same ... Boring." Similarly, Maria found the feedback quite lengthy and its language too hard to understand. Songie and Julio referred to the MY Tutor feedback more than other students. Songie reported that the feedback was good, but long. Julio stated, "Not all the time... The feedback is the same ...not necessary ... MY Tutor is like... I read about it ... I just remember how to follow what it says."

MY Editor feedback

Although the MY Editor feedback was much more focused than the MY Tutor feedback, it included standard generic examples and explanations as well. As mentioned previously, MY Editor feedback consists of advice, error category, error label, suggestion, and explanation categories. Every time a student received feedback on grammar, mechanics, and conventions from MY Editor, the explanation category remained exactly the same for the same error category. In other words, advice and suggestion categories were likely to change across errors, but the explanation category was redundant. For that reason, explanation became the category that was most ignored by the students in the AES group, and the students paid the most attention to the suggestion category because it included direct correction most of the time. Advice was another category the AES group students referred to when the suggestion category did not offer any feedback. (See Appendix D for the similarity of MY Editor feedback for the same error category.)

Unusable Feedback

MY Tutor feedback

MY Tutor generated feedback that was not clear or useful from time to time. For example, MY Tutor feedback on focus and meaning did not provide a clear suggestion regarding the task and posed the following question: "Did you do the task the prompt asked you to do?" Moreover, MY Tutor's feedback on language use and style included a fuzzy suggestion regarding word choice: "Use exact and specific words." Since no examples or definition of exact and specific words were provided, students found this feedback to be vague. Also, the holistic feedback that MY Tutor offered did not include any useful feedback (see Figure 9 above). It primarily contained feedback points that were classified as "other feedback," that is, general description, problem statement, positive reinforcement for each score level, and transition.

MY Editor feedback

Like MY Tutor, MY Editor offered unusable feedback points at times. For example, Julio received feedback on "missing articles" in P2/D1 for the following sentence:

I will describe my favorite place, it has to be pacefull<Spelling errors2>, calm, beutiful<Spelling errors3>with big mountains, rivers and different<Spelling errors4> kind of animals<Missing articles>, I probably live in a house no to big and no to little<Similar words>, comfortable.

MY Editor suggested two options for missing articles in the sentence above: "The kind of animals" and "A kind of animals." Since neither of these suggestions was useful, Julio did not use them in his subsequent drafts and ignored the error. Likewise, Songie missed the article in "lot

of money," and MY Editor suggested that he use either "the lot of money" or "a lot of money." He incorporated the former suggestion into his final draft. Although the suggestion he used was still incorrect, MY Editor did not flag it as an error.

The feedback on similar words was not useful most of the time. For instance, MY Editor provided Julio with three unusable suggestions (low, short, and small) for the following sentence in P2/D2: "... I probably live in a house no to big and no to little<Similar words>, comfortable ..." When Selma wrote "My last<Similar words> birthday was a special for me" in P4/D1, My Editor suggested that she use "latest" instead of "last." Similarly, Alan was prompted to use "experiment" rather than "experience" in the following sentence in P2/D3: "After that, you will be impress because that is something special, and you will never forget this experience<Similar words>." The students did not use these suggestions in their subsequent drafts because they did not think the words they used were incorrect. There were other errors that MY Editor failed to suggest useful feedback for and that could easily be recognized by a human rater based on the context. Table 6 lists instances where MY Editor failed to provide useful feedback.

Table 6
Sample AES (MY Editor) Feedback That Was Not Useful

Source	Sentences marked by AES (MY Editor) for which feedback was not useful	The feedback provided by My Editor on various mechanics and conventions errors
Julio, P1/D1	... t<Spelling errors2>	
Alan, P4/D2	... because of the facts that a lot changed in<Preposition errors (1)>my life.	Advice: After 'changed', the use of 'in' may be incorrect. Consider using [to] or [into] instead. Suggestion: to-into
Alan, P2/D2	The great beach will invite you all the time to play beach volley<Missing articles>.	Advice: The expression 'beach volley' usually requires an article. Replace with [the beach volley] or [a beach volley], or use the plural or a possessive like 'my'. Suggestion: the beach volley-a beach volley
Maria, P2/D1	I want<Subject-verb agreement errors> to visit Kuwait because is very interesting for me.	Advice: Consider [wants] instead of 'want'. Suggestion: wants
Maria, P4/D1	... now Im<Capitalization errors1>so happy, because I have a Bachelor in Preschool Education and I have a Certificate in Elementary Education...	Advice: Consider [IM] instead of 'Im'. Suggestion: IM
Alan, P3/D2	You can sit<Misused words> a hole day on a computer and you can do all the time something diffrent<Spelling errors12>.	Advice: Consider [set] instead of 'sit'. Suggestion: set
Maria, P4/D1	... he is a good boy, and I hope he can will be<Capitalization errors> like me...	Advice: Consider [Be] instead of 'be'. Suggestion: Be
Julio, P1/D3	Crime <Clause errors> is equal to assault's, drugs, gun's, people traffic, etc.	Advice: Clause error. This appears to be a comma splice. Suggestion:
Julio, P2/D2	You can learn something about them and also share your's<Pronoun errors (ESL)> with them.	Advice: A possessive like 'your's' is usually followed by another noun. Consider rewriting your sentence or use the singular or plural form. Suggestion:

The MY Editor feature captured almost every single spelling and punctuation error in an essay. Given that the users were nonnative speakers, they had numerous spelling and punctuation errors in their drafts (See typical essay in Appendix E). The majority of the spelling or punctuation errors were based on spacing issues because most students were not familiar with typing in English, that is, leaving a space after a comma. Since MY Editor did not provide any usable suggestions on spelling or punctuation, Selma, Maria, and Songie simply ignored them. Julio, on the other hand, tried to correct every error early in his revisions. Alan did not use MY Editor until his final draft. His solution for avoiding an essay full of error indicators is worth mentioning.

First I wrote the essay. Once I am done, I used spell checker first, then MY Editor. If I go MY Editor first, everything was blue. If I go spell checker first it's not that bad.

During the interviews, some students who received AES feedback expressed their concerns regarding the quality of the feedback they received from MY Editor. Maria said, "Spell check is good. Computer feedback is sometimes confusing. For example, I wrote 'ect.' It didn't give any answer. I wrote 'technology is grow,' it gave something else ... I passed it." Selma shared the same concern and stated the following:

One time I wrote 'porfoy'. It said spelling error, but it didn't say why. Today, I wrote 'in conclusion' wrong, the computer gave different words. They were not right ... I wrote about my cousin. It's looks like speak. The computer said 'especially if' shouldn't be used together. Why? I can use it. I didn't change.

Alan also reported that he misspelled "inconvenience," and he was aware that the suggestions that the computer provided were incorrect. On the other hand, Julio found the feedback that MY Editor generated very helpful and used it consistently while making revisions. When he was confused with a feedback message, he sometimes referred to an online dictionary (Spanish to English and English to Spanish) to find the correct form of a word.

THE NATURE OF THE WRITTEN TF

Compared to the MY Access feedback, the written TF was shorter, more specific, consistent, cumulative, and useful.

Cumulative and Individualized Feedback

Unlike the summative nature of the AES feedback, the written TF was somewhat cumulative and formative. That is, the teacher referred to errors students made in the previous drafts. For example, while responding to Khalid's final draft for the first prompt, the teacher asked him whether he made the correction that they had talked about in classroom (while discussing P1/D2) in his end comments. Another example shows that the teacher pointed out errors that Pedro constantly made and wrote the following comment in his end notes for P3/D2: "There are a few mistakes that you consistently make but once you fix these then your writing will be very good!" The teacher also pointed out Ahmed's improvement in mechanics over time in P2/D2 as "Ahmed, your mechanics are getting better." Similarly, he praised Khalid's progress in sentence structure (P2/D3) but at the same time emphasized a consistent error he made as follows: "You [sic] sentences are also getting better but some sentences still look like they have been directly translated from Arabic to English!☺"

Another characteristic of the written TF was that it was mostly individualized. For example, the teacher provided Daniela with the following feedback as an end note on P5/D2:

Daniela, this was a pretty good essay but it didn't really address the topic... which was how would life be different if one day was changed...you describe very well how life is now after 9/11 but you only use one small paragraph to say how it would be different if 9/11 had never happened.

The teacher commented on Zeinab's second draft (P3),

Zeinab, this is a good start, but I am still not sure exactly what points you will discuss in this essay. In the introduction paragraph, you have to be very clear exactly what you are going to write about. I think the two points are 1. that it's easy to get information and 2. one can contact people very easily. Is this right?

The AES feedback did not include any feedback based on previous drafts. For example, even though a student wrote an introduction or a conclusion paragraph, MY Tutor recommended that he/she include one. When Maria submitted her first draft (Prompt 1), she received the following feedback on organization:

Introduction: An introduction is the first paragraph or two of the essay. Include an introduction that will do two things:

1. Catch the reader's attention—make it interesting and creative
2. Tell what the main idea of your writing is (P1/D1)

Although Maria had already included an introduction paragraph in her first draft, MY Tutor suggested that she include one. She received the following feedback on organization in her subsequent drafts:

Introduction: Include an introduction that will do two things:

1. Catch the reader's attention-make it interesting and creative.
2. Tell what the main idea of your writing is.

Introductions are very important and will get your writing off to a good beginning and make the reader want to keep reading (P1/D2)

Introduction: Include an introduction that will do two things:

1. Catch the reader's attention-make it interesting and creative.
2. Tell what the main idea of your writing is.

Introductions are very important and will get your writing off to a good beginning and make the reader want to keep reading (P1/D3)

Similarly, when Julio submitted his first draft (Prompt 1), he received the following suggestion on focus and meaning:

Purpose: Make sure you have written to the purpose stated in the prompt. Did you write a narrative essay, an informative essay, or a persuasive essay? (P1/D1)

Although Julio had established his purpose in the first draft, he received the same feedback with slightly different wording in his second and final drafts.

Purpose: Look again at the purpose stated in the prompt. Did you write a narrative essay, an informative essay, or a persuasive essay? (P1/D2)

Purpose: What is the purpose of your writing? Are you narrating a story, informing, or persuading? Make sure you are clear on your purpose (P1/D3)

Alan pointed out the absence of individualized feedback in AES as follows: "I think I didn't improve my sentences in this class because I didn't get feedback ... Sometimes my spelling was corrected. We never get personal feedback ..."

Positive Reinforcement

Another difference between the AES feedback and the written TF was that the latter included various praises (e.g., Good job!) regardless how high or low the student scores were. The teacher's aim was to point out the strengths of his students and not to focus solely on their errors. Like the written TF, the AES (MY Tutor) feedback addressed the student by his or her name, but it failed to provide praises or encouragement words unless the student received a high score (e.g., a score of 4 or 5). Examples of the praise (positive reinforcement) AES suggested include "your language use and style is adequate; your mechanics is satisfactory; and your focus is good."

Consistent Feedback

Process writing requires teachers to respond to each draft so that students can revise their compositions. In the present study, the MY Access! program provided instant feedback (and scoring) consistently, except when an essay was too repetitious, included severe grammatical errors, or was too short. Given their low-intermediate English proficiency, the AES group students did write short or repetitious essays that were full of grammatical errors. Some students revised their essays on their own without getting any feedback from the computer.

The participating teacher failed to provide feedback on each draft as well. The teacher was expected to respond to the essays of only six students in the TF group, but the intensive nature of the program and the administrative duties prevented him from responding to each draft in a timely manner. Although the students in the TF group did not regularly receive feedback on each draft, they did produce longer texts. The oral feedback might have an impact on the drafts of students who received the written TF. This finding is consistent with those of Fathman and Whalley (1990) and Ferris and Roberts (2001) in that without getting any feedback, students improved their writing just by rewriting.

Human Interaction

A major weakness of AES technology is that it lacks human interaction, and, since computers do not have the sense of the writer and/or rater as a person (Hamp-Lyons, 2001), they cannot "appreciate" an essay as human raters do (Page, 2003). The interview results with AES feedback students support these views. For instance, Alan reported the following:

The computer doesn't get the feedback I need because I am at the low level ... Computer can't see. Computer can't answer my questions. I can't ask 'what do you mean?' You can talk the teacher about your problem. He could explain you what you did wrong. Computer can't do that.

He also pointed out the role of feedback for nonnative English-speaking writers: "It's [the computer] impersonal ... We are international, we are learning ... to learn and write from computer ... it can't give you good tips."

One or two students reported that they wanted to receive feedback not only from the computer, but also from the teacher. Songie said, "Both teacher and computer is good. Only computer is not enough. Sometimes I didn't make sense of it [computer]. Teacher is more clear ... he understands all mistakes." Alan also felt the same way and said, "I think I would never trust the computer. You have to read the essay to understand ... How could they [computers] say it's off topic? It's impossible ... computer can't score my essay."

Furthermore, Julio pointed out the difference between computerized and teacher feedback by saying "Different because you can get feedback from the teacher like he has experience. He tell you go to this website, library, do research." The teacher also underlined the role of the teacher in human interaction during the interview as follows: "Encouragement, looking into nuances, the idea of giving clues as what it is or not, the whole interaction is missing. I think that was missing: the interaction between students and the teacher ... "

DISCUSSION

AES systems are normed on native English speakers, but they are marketed for nonnative English speakers as well (Warschauer & Ware, 2006). Developing companies have been looking for ways to address the needs of nonnative English-speaking students in writing (Shermis & Burstein, 2003). For example, both MY Access! and Criterion include a multilingual feedback mechanism. However, it is questionable whether or not receiving feedback in their native languages could help ESL students to improve their writing in English. One of the new features of MY Access!® 6.0 (the version used in this study) is that it enables the MY Editor feature to flag ESL errors along with the other errors. Nevertheless, the findings presented here showed that MY Editor did not capture some ESL and even non-ESL errors. It should be noted that neither did the teacher address every error that students made in their writings. This finding reaffirms the fact that responding to student writing is a time-consuming process. It is not hard to imagine how difficult it must be for the teachers to find the time to respond to student drafts in larger classrooms given the fact that the participating teacher in this study was unable to provide consistent feedback on the drafts of a small number of students. This is particularly time consuming for ESL teachers because nonnative English-speaking students are prone to make more grammatical errors than native English-speaking students, and the teacher might need to spend more time addressing all aspects of students' essays. All of this is to say that it is apparent that, without any training, AES systems cannot identify and correct all errors. For instance, article errors made by Japanese and Turkish speakers may not be detected without the complete understanding of the context in which those errors are made. Therefore, developers need to clearly indicate what these programs can or cannot do, but at the same time they should continue to search for ways to improve their error detection capabilities.

In its current form, the MY Editor feature might be used to some extent by skilled writers with advanced English proficiency in particular because the use of this feature requires a very good command of English and a self-check ability. Like MS Word's spelling and grammar feature, MY Editor sometimes generates incorrect or confusing feedback. Teachers should warn students against inaccurate feedback the program might suggest and ask them to question the type of feedback they receive before they incorporate it into their drafts. They should also advise students to refer to other sources of information (e.g., grammar books, dictionaries, thesaurus, etc.) when in doubt. As Ashwell (2000) pointed out, teachers could perhaps focus

less on providing feedback themselves and more on assisting students to find ways to check their own work.

The language that the MY Access! program includes when providing feedback requires the users have a good command of English. The program does include an adjustable feedback level, yet the difference among these levels is quite small. With the amount of reading required and the complexity of language used in the feedback, MY Access! is likely to overwhelm the ESL students, particularly those with low English proficiency levels. Given the redundant, extensive, and generic nature of the MY Tutor feedback, the ESL students in this study did not adequately benefit from it. Although the feedback MY Tutor generates is generic and redundant, it covers some of the important aspects of writing. Skilled writers with advanced English proficiency levels might be able to use this feature as a checklist. However, teacher guidance and training is crucial since students might get lost in the information pool.

The results of this study revealed that the MY Access! program did not score very short and repetitious essays or the ones with severe grammatical errors. When an essay was not scored, it did not receive any feedback either. Adjusting the feedback level to ELL or developing levels did not prevent some students from not receiving any scores, and thus feedback, from the program. It should be noted that students with beginning or low-intermediate English proficiency levels are apt to make numerous grammatical errors and write short essays. One improvement that developers could well consider is to separate the scoring function from the feedback feature. They also need to make sure that the program generates feedback regardless of the length, redundancy, or inaccuracy of a writing sample.

The appropriateness of feedback is found to be highly individual specific and/or situation specific (Hyland, 1998). Therefore, it is essential to consider a method that is highly effective both for analyzing a large number of essays but, at the same time, for providing individual feedback. The developers of the MY Access! program claim that the program is capable of evaluating numerous essays and suggesting individualized feedback at the same time, yet the findings in the study presented here do not support this claim. That is, the program did not generate feedback based on individual needs, and the feedback was rather generic.

CONCLUSION

The findings of this study suggest that the MY Access! program is not ready to meet the needs of ESL or EFL populations. The company needs to improve the feedback capabilities of the program for nonnative English-speaking students (e.g., less redundancy, shorter feedback, simpler language in feedback messages, and feedback for short/off topic/repetitious essays). The company would also be advised to add mechanisms that promote individualized feedback such as providing formative and cumulative feedback and increasing the number of praise messages. Finally, they would do well to take common ESL/EFL errors into consideration when they build the algorithms to evaluate essays that are written by nonnative English speakers. MY Access! already includes error labels for some of the common ESL errors such as preposition errors, pronoun errors, and punctuation errors; however, the content of the feedback is not always functional. This study showed that while the majority of the suggestions regarding preposition errors and pronoun errors were not usable at times, the feedback on punctuation errors was almost always usable.

There is limited research conducted in ESL and EFL contexts. This study explored the nature of the AES feedback by comparing it to the written TF in an ESL classroom. More studies need to include ESL/EFL students in their sample. The results should be used to accommodate the needs of nonnative English-speaking students who are trying to learn writing in English.

A future study could compare the feedback mechanisms of the two different AES systems (Criterion vs. MY Access!). Another future study could also examine whether or not students responded more to a certain type of feedback (AES vs. written TF). Yet another idea for future research involves the differences of form (e.g., the percentage of the interrogative, declarative, or imperative feedback messages) and function (e.g., suggestion, clarification request, and direct/indirect feedback) of the AES feedback compared to the written TF and investigating whether or not students respond mostly to a specific type of feedback. AES is a recent technology, and we certainly need further research that investigates the effectiveness and accuracy of these programs and suggests ways to improve their capabilities.

NOTE

¹ One student (Kim) dropped out after the first 2 weeks of the study.

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APPENDIX A

Comparison of Focus and Meaning Feedback from the written TF and AES (My Access!)

<p>Written TF Ahmed received on focus and meaning in P1/D3</p>	<p>AES feedback Julio received on focus and meaning in P1/D1</p>
<p>It is relly [sic] difficult to understand what you are trying to say to the reader Also, you said in the introduction that poverty causes people to be hungry, sick and uneducated. THESE three things are what you now must write about. You cannot start writing about different countries...</p>	<p>Julio, on a scale of one to six, your response to this assignment was rated a 2 for focus. Focus relates to your ability to present a consistent, unified message and stay on topic. Your focus is minimal. Typically, a response at this level demonstrates a limited understanding of the purpose and audience, but that may not be totally clear and/or may lack a continued focus on the main idea throughout the essay. Julio, with a couple of changes, you can make your focus better. Read over your work out loud and to yourself then pay attention to the following 4 points:</p> <ul style="list-style-type: none"> * Purpose: Make sure you have written to the purpose stated in the prompt. Did you write a narrative essay, an informative essay, or a persuasive essay? * Main Idea (Controlling Idea): Do you have one clear sentence that states the controlling or main idea of your essay? Ask yourself, "What is the one, main thing I want the reader to learn from my essay?" * Audience: The audience is the reader(s) of your essay. Do you know what audience you are writing to? Are you writing to a friend, someone your age, a teacher, or another adult? * Task: Do you do all the parts of the task the prompt asks you to do? * Remember, focus in writing is similar to visual focus. If you were to look through the lens of a camera, you would be able to visualize objects clearly when your focus is sharp. Focus in writing is similar. When the focus of your essay is sharp, readers will see your message clearly.

APPENDIX B

Comparison of Content and Development Feedback Offered by AES (MY Tutor feature) Based on the Same Scores Received by Two Students on an Informative Prompt

<p>Content and development feedback Alan received from MY Tutor based on a score of 2 in P1/D1</p>	<p>Content and development feedback Maria received from MY Tutor based on a score of 2 in P1/D1</p>
<p>Alan, on a scale of one to six, your response to this assignment was rated a 2 for content and development. Development relates to your ability to provide content that supports your main idea or controlling point and your ability to provide supporting details, examples and/or evidence. Your development is minimal. Typically, a response at this level develops ideas incompletely or inadequately, using few examples, evidence or other supporting details. Alan, you do have some content in your writing, but by trying to improve the amount and quality of your details, your content will be much better. * Planning: Successful writers take time to brainstorm their ideas before they write. Your essay will be on-point and well-developed if you take the time to make a basic sketch or outline of the ideas in the essay. Have you created a basic outline of ideas to include in your essay? * Sensory Details: Details support the ideas in the essay. Look over your ideas and details. Try to show and not tell your reader as you describe. This will help your reader see what you are describing more clearly. Use the 5 senses, sight, sound, touch, taste, and smell, as you describe. * Instead of writing that it was <i>a friendly dog</i>, try writing something like, <i>Murphy, my black and white spotted dog, wagged its tail and licked my hand when I got home that afternoon.</i> * Details and Controlling/Main Idea: Are there any ideas that stray from the controlling or main idea? Are there any ideas that might be missing from the essay? Make sure all of your details support the main idea you are trying to get your reader to understand. * Quotes: Use people’s actual words as examples to illustrate your main idea. * Instead of writing something like <i>It was a very hot day</i>, try writing something like, <i>The sun was high in the sky as my brother said to me, "I never liked doing chores for dad just after lunch when the temperature was 90 degrees."</i> * Paragraph Length: Paragraph length should range from four to eight sentences. Vary the length of your paragraphs using details that support the ideas in your essay. Have you varied your paragraph lengths?</p>	<p>Maria, on a scale of one to six, your response to this assignment was rated a 2 for content and development. Development relates to your ability to provide content that supports your main idea or controlling point and your ability to provide supporting details, examples and/or evidence. Your development is minimal. Typically, a response at this level develops ideas incompletely or inadequately, using few examples, evidence or other supporting details. Maria, you do have some content in your writing, but by trying to improve the amount and quality of your details, your content will be much better. * Planning: Successful writers take time to brainstorm their ideas before they write. Your essay will be on-point and well-developed if you take the time to make a basic sketch or outline of the ideas in the essay. Have you created a basic outline of ideas to include in your essay? * Sensory Details: Details support the ideas in the essay. Look over your ideas and details. Try to show and not tell your reader as you describe. This will help your reader see what you are describing more clearly. Use the 5 senses, sight, sound, touch, taste, and smell, as you describe. * Instead of writing that it was <i>a friendly dog</i>, try writing something like, <i>Murphy, my black and white spotted dog, wagged its tail and licked my hand when I got home that afternoon.</i> * Details and Controlling/Main Idea: Are there any ideas that stray from the controlling or main idea? Are there any ideas that might be missing from the essay? Make sure all of your details support the main idea you are trying to get your reader to understand. * Quotes: Use people’s actual words as examples to illustrate your main idea. * Instead of writing something like <i>It was a very hot day</i>, try writing something like, <i>The sun was high in the sky as my brother said to me, "I never liked doing chores for dad just after lunch when the temperature was 90 degrees."</i> * Paragraph Length: Paragraph length should range from four to eight sentences. Vary the length of your paragraphs using details that support the ideas in your essay. Have you varied your paragraph length?</p>

APPENDIX C

Comparison of Content and Development Feedback Offered by AES (MY Tutor feature) Based on Different Scores Received by Two Students on an Narrative Prompt

<p>Content and development feedback Alan received from MY Tutor based on a score of 4 in P4/D2</p>	<p>Content and development feedback Maria received from the MY Tutor based on a score of 3 in P4/D2</p>
<p>Alan, on a scale of one to six, your response was rated a 4 for content and development. Development has to do with your ability to provide details or examples that support your main idea. Your development is adequate. A response at this level shows an adequate development of ideas, with some details or examples to support the main point. Your development is adequate. This means that at this point in your writing, you are able to do a fine job telling a story that has a plot, a setting and characters. Now you need to be more specific about what is going on in your story by using precise details that help the reader picture what is happening. Developing these parts of your essay will put you on the track to better writing. Alan, to improve your writing, here are some ideas you should keep in mind: 1. Plot: The PLOT is what is happening in your story and you have written an interesting plot. It is important to keep the plot to one simple time or idea and then develop that idea with plenty of detail. Thinking of your plot (idea) as a simple <i>snapshot</i> of the moment you are writing about will help keep your detail to that one point. See if you can add more specific details to any part of your plot to add to the interest of the story. 2. Setting: The SETTING is when and where your story is taking place. Using specific details and name helps the reader visual the place you are writing about. Don't just simply say, <i>I went to the park.</i>, say <i>Earlier this morning, I took a walk to Jefferson Park, where the oak trees stand like nature's green skyscrapers.</i> your story are the people you are writing about in your narrative essay, which often includes yourself. Bring these characters to life for your reader. Give them names. Gives them physical traits. Give them personalities. Wherever possible, have your characters interact with each other using DIALOGUE. Instead of just saying, <i>The little girl waved to me.</i>, you might try, <i>Annie, the little red-haired girl who lives down the street, waved wildly at me shouting, "Tommy, Tommy look at me riding my new bike!"</i> Dialogue gives you that chance to have to personality of the character really show through.</p>	<p>Maria, on a scale of one to six, your response to this assignment was rated a 3 for content and development. Development relates to your ability to provide content that supports your main idea or controlling point and your ability to provide supporting details, examples and/or evidence. Your development is limited. Typically, a response at this level shows support of ideas presented with some use of examples, evidence or other supporting details. Your development is limited. This means that at this point in your writing, you are able to have a plot, give the setting to your story, and tell about the characters that are going to be in your essay. Now you need to write exactly what is going on by using details that help the reader create a picture in his/her mind. Doing this will put you on the track of good writing. Maria, to improve your writing, here are some ideas your could keep in mind: 1. Use a graphic organizer, such as the Narrative Topic Sentence Outline in the prewriting phase to make sure that you are writing down ideas for plot, setting, and characters. 2. Plot: The PLOT is what is happening in your story. It is important to keep the plot to one simple time or idea and then develop that idea with plenty of detail. Thinking of your plot (idea) as a simple <i>snapshot</i> of the moment you are writing about, will help you stick to one idea. 3. Setting: The SETTING tells <i>when</i> and <i>where</i> your story is happening. Using specific details and names helps the reader "see" the place you are writing about. Don't just simply say, <i>I went to the park.</i>, say <i>"Earlier this morning, I took a walk to Jefferson Park, where the oak trees stand like nature's green skyscrapers."</i></p>

<p>3. Characters: The CHARACTERS of your story are the people you are writing about in your narrative essay, which often includes yourself. Bring these characters to life for your reader. Give them names. Give them physical traits. Give them personalities. Wherever possible, have your characters interact with each other using DIALOGUE. Instead of just saying, <i>The little girl waved to me.</i>, you might try, <i>Annie, the little red-haired girl who lives down the street, waved wildly at me shouting, "Tommy, Tommy look at me riding my new bike!"</i> Dialogue gives you that chance to have to personality of the character really show through.</p> <p>4. Conflict: Don't forget that most good stories always have a CONFLICT or a problem that needs to be resolved. This adds to the suspense of the story. If there is no conflict or problem then you need to focus of the emotions of the characters as your source of excitement. See if you can create a more suspenseful moment in your story by creating those cliffhangers that lead up to the climax of the story.</p> <p>Remember, to show the reader what you are trying to say, not just tell them. Create an image in his/her mind by using precise words.</p>	<p>4. Dialogue: The CHARACTERS of your story are the people you are writing about in your narrative essay, which often includes yourself. Bring these characters to life for your reader. Give them names. Give them physical traits. Give them personalities. Wherever possible, have your characters interact with each other using DIALOGUE. Instead of just saying, <i>The little girl waved to me.</i>, you might try, <i>Annie, the little red-haired girl who lives down the street, waved wildly at me shouting, "Tommy, Tommy look at me riding my new bike!"</i></p> <p>5. Conflict: Don't forget that most good stories always have a CONFLICT or a problem that needs to be resolved. This adds to the suspense of the story. If there is no conflict or problem then you need to focus of the emotions of the characters as your source of excitement.</p> <p>Remember, Revising for content and development is more than just adding details anywhere in the story. Your writing must be reread so that specific details and descriptions go in the proper place. Remember to show the reader what you are trying to say, not just tell them.</p>
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APPENDIX D

Comparison of MY Editor Feedback on Capitalization Errors that Two Students received on their Drafts

Advice:	Consider [School] instead of 'school'.	Advice:	Consider [I] instead of 'i'.
Error Category:	MECHANICS	Error Category:	MECHANICS
Error Label:	Capitalization errors	Error Label:	Capitalization errors
Suggestions:	School	Suggestions:	I
Explanation:	<p>Capitalization The grammar checker flags lowercase words which should begin with a capital letter.</p> <p>Examples: Change: the new copier works well. To: The new copier works well. <i>Always</i> capitalize the first word of a sentence. Change: Then sarah asked if i wanted some coffee. To: Then Sarah asked if I wanted some coffee. Always capitalize proper nouns and the pronoun "I." Explanation: Do not capitalize a common noun like "horse" or "house" unless it begins a sentence. Here is a list with more examples of capitalization: CAPITALIZE:</p> <ul style="list-style-type: none"> • Names of people: (Groucho Marx, Jim Thorpe, Toni Morrison, Batman) • Names of one-of-a-kind places: (St. Louis, Niagara Falls, but not "downtown") • Names of countries, nationalities, races, and religions: (Mexico, American, Jewish, Buddhist) • Names of languages: (French, Arabic) • Names of days and months (Saturday, December) • Names of particular buildings and landmarks: (Empire State Building, Mount Rushmore) • Names of companies and organizations: (The New York Times, Greenpeace) • Titles of works: ("Hamlet," "The Snows of Kilimanjaro," "Carmen," "Mary Had a Little Lamb," "Wuthering Heights," "It's a Wonderful Life," "Paradise Lost") • Titles of people: (King James, Senator Smith, Mr. Brown, Professor Carroll)Acronyms: (WPA, NATO, NBA, CEO, UNESCO) • The salutation and closing of a letter: (Dear Ms. Jones, Sincerely) 	Explanation:	<p>Capitalization The grammar checker flags lowercase words which should begin with a capital letter.</p> <p>Examples: Change: the new copier works well. To: The new copier works well. <i>Always</i> capitalize the first word of a sentence. Change: Then sarah asked if i wanted some coffee. To: Then Sarah asked if I wanted some coffee. Always capitalize proper nouns and the pronoun "I." Explanation: Do not capitalize a common noun like "horse" or "house" unless it begins a sentence. Here is a list with more examples of capitalization: CAPITALIZE:</p> <ul style="list-style-type: none"> • Names of people: (Groucho Marx, Jim Thorpe, Toni Morrison, Batman) • Names of one-of-a-kind places: (St. Louis, Niagara Falls, but not "downtown") • Names of countries, nationalities, races, and religions: (Mexico, American, Jewish, Buddhist) • Names of languages: (French, Arabic) • Names of days and months (Saturday, December) • Names of particular buildings and landmarks: (Empire State Building, Mount Rushmore) • Names of companies and organizations: (The New York Times, Greenpeace) • Titles of works: ("Hamlet," "The Snows of Kilimanjaro," "Carmen," "Mary Had a Little Lamb," "Wuthering Heights," "It's a Wonderful Life," "Paradise Lost") • Titles of people: (King James, Senator Smith, Mr. Brown, Professor Carroll) • Acronyms: (WPA, NATO, NBA, CEO, UNESCO) • The salutation and closing of a letter: (Dear Ms. Jones, Sincerely)

APPENDIX E

Typical Student Essay

Kuwait.

I never been before in this places, but I know something about it. I want to visit Kuwait because is very interesting for me. All in this places is different, for example, the religion, food, people, clothes, animales, money.

The religion in Kuwait is the Muslim. They believe in once God, and prophet Mohammed. They've two important holidays. One of the two important holidays is The month of the Radaman. In this month the people can't eat. That is very interesting, because is impossible not eat in all day, for me that, but they do that because is for God. The other important holiday. The people who have alot money cut a sheep just for help to people who dont have money.

Kuwait is a rich country. They've natural resources like petroleum, natural gas, fish, etc.

They only problem is the weather, because is very warm in summer, and i dont like when weather is vey warm I prefer cold weather.

I want to go to Kuwait just because i want to know to desert and the animals. About the people I know some people from Kuwait, and I can say the women are very nice person, but the men i dont like them, Because if they say something or they want to do something You need to do that just because they said that. In Kuwait and others place in Arabia , many men can have four wives.

In my opinion, I think Kuwait is a beautiful place, and I want to visit this place, but I dont want to never live there, because in this place the mens dont respect to women.

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