

Running Head: EFFECTIVENESS OF USING PERSONAL DIGITAL ASSISTANTS

Action Research Project:

Student Perceptions of the Effectiveness of Using Personal Digital Assistants in Advanced
French Classes and the Impact of Their Usage on Student Performance

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1. Abstract

The use of Personal Digital Assistants (PDAs) for reading e-books by high school students in Advanced Placement French Literature and French IV classes was studied. The students were surveyed about their preference for e-books or traditional texts, whether they learned more or less using e-books, and which features they use and find important. The students' performance on multiple-choice and free-response assessments was compared to determine the effects of using e-books. The study showed that AP French Literature students held a strong preference for traditional texts while French IV students preferred e-books. Most students found e-books more useful than traditional texts even when they preferred using printed texts. The dictionary lookup feature was used by all students and was considered to be very important while annotation was used by relatively few and was considered to be relatively unimportant. Only one AP French Literature student chose use the e-book as his primary medium and therefore comparisons on achievement were not possible. However, many students did still use the PDA as a dictionary even if they did not use it to actually read the text.

2. Introduction

Over the past two decades, foreign language education has seen a shift from the classical approach of teaching grammar and translation to the current focus on communicative proficiency. Instead of merely concentrating on what students should “know,” foreign language education now emphasizes what students can actually “do” by speaking, listening, reading, and writing the target language (L2) in culturally appropriate contexts.

To this end, our lower level foreign language classes were restructured to provide students many opportunities to speak and listen to the target language. Each lesson ends with a culminating speaking and listening assessment in addition to the traditional paper and pencil quizzes and tests. While reading and writing are not neglected, text selections are often limited to realia such as menus, signs, or advertisements found in newspapers, magazines, or web sites. Writing activities are largely limited to writing notes, filling out forms, or writing short letters or e-mail messages. As the students acquire richer vocabularies, they are given more challenging reading and writing activities. Our third year French course was restructured to emphasize several specific writing strategies which are explicitly taught and modeled. A culminating written assessment (composition) is required of each third year student at the end of every lesson in addition to the speaking and listening assessments.

An additional upper level French course was introduced in our curriculum in response to the increased demand from students who enjoyed reading in English. Advanced Placement French Literature was offered for the first time in 2001 to complement the existing AP French Language offering. AP French Literature is the equivalent of a third-year (fifth or sixth semester) college level course (Conversation and Composition or Introduction to Literature). The course is not to be construed as a formal survey of literary history, but rather as an introduction to

representative works of prose, poetry, and drama from different periods during which the students will acquire the basic concepts and terminology of textual analysis. The students are required to read all of the works listed in the College Board's AP French Literature Required Reading List which contains three novels, two plays, and twenty-eight poems (see Appendix A). Our school's policy is that all AP students are required to take the corresponding AP exam.

To better prepare students for this new course, selections of poems from the Required Reading List were integrated into French I, II, and III. Enrollment in AP French Literature surpassed the enrollment in AP French Language by the second year the new course was offered and at sixteen students last year it was double that of AP French Language.

Reading however continued to pose a problem. Beginning students cannot be expected to read full length novels or plays. In spite of the inclusion of a few works of poetry and excerpts of short stories in the lower level courses, the majority of the texts studied are written in a straightforward, journalistic style. Literary texts of substantial length and of a challenging nature are not presented until the AP French Literature course.

This produces a gap at the beginning of the literature course. While the students have experience reading in the target language, they have much less exposure to the literature of the target culture and almost no training in literary analysis and interpretation. In addition, most students enroll directly from French III which is roughly the equivalent of a third semester college course. While it is preferred that students first take French IV or Advanced Placement French Language (the required sequence in most high schools), this is impossible for most of our students since we are a 9-12 school and usually no more than a handful of students in grade 9 are able to place into French II. The vast majority of grade 9 students has never studied a world language and start at Level I. As seniors, students must choose between French IV, AP French

Language, or AP French Literature. Due to the multiple routes by which students arrive in AP French Literature, the ability levels of these students vary widely. This is further compounded by the fact that three commonly used literary tenses (*le passé simple* and the imperfect and pluperfect subjunctives) are rarely taught in communication oriented lower level classes.

In February 2002, the school purchased three Hewlett-Packard Jornada 547 personal digital assistants (PDAs) for the AP French Literature students to use for reading electronic versions (or e-books) of the public domain works on the Required Reading List. Only Giraudoux's La Guerre de Troie n'aura pas lieu and Laye's l'Enfant noir are under copyright. All the other works are in the public domain and were converted into electronic texts or e-books. Unfortunately, the Microsoft Reader e-book software for the operating system used by these PDAs (Windows Pocket PC) offered only the annotation, bookmarking, and highlighting features. It did not support dictionary lookup.

During the 2003-2004 school year, the school purchased sixteen HP iPAQ h1945 PDAs as part of an e-book pilot project for AP French Literature. This model ran on Windows Mobile 2003 and supported the use of French-English and English-French dictionaries for the Lookup function in Microsoft Reader. A student could now click on any unknown word in the e-text to display its meaning on the screen. The following year, eight HP iPAQ h2215 Windows Mobile 2003 PDAs were purchased to expand the project to include the AP French Language class. This year, ten HP iPAQ rx3115 Windows Mobile 2003 PDAs were purchased further expanding the project to include French IV.

After making such a significant investment, it is logical to ask if it is really worth it. Do the PDAs improve students' reading skills?

3. Review of Literature

Weist (2004) discusses a common problem faced in many advanced level foreign language courses. *Reading* is a skill taught in lower level classes which focus largely on skill acquisition and may use literature as a resource. Advanced courses, on the other hand, make *literature* itself the content or subject of the course and focus on developing critical thinking skills using the target language (L2). This creates “sudden jumps” in difficulty level and “unfair gaps” as students progress beyond the second year (fourth semester) college classroom. This is compounded by the fact that even though linguistic competence is a requirement for reading comprehension, it is merely a tool. Nontextual information and schemas, such as familiarity with the topic, text structure or rhetorical organization in the L2 culture, are needed for the “difficult task of understanding intentions and beliefs that are not necessarily part of their representation of the world” (Kramsch, 1985 as cited in Weist, 2004, p. 210). Brantmeier (2005) examined the role individual difference variables (IDVs), such as self-assessed ability, enjoyment in reading, and topic familiarity, played in L2 reading at the advanced levels of L2 instruction given that reading is largely an individual act done completely outside of the classroom. Her study yielded significant effects for both self-assessed ability and enjoyment on the free-response written recall tasks but not on the multiple-choice tests. Cunningham & Redmond (2002) suggest that technology, used appropriately, can support content-focused curricula and is an essential tool for foreign language students, especially those with a high level of proficiency.

Most of the studies on using electronic texts have been conducted using laptop or Tablet PC computers in a university environment and involved science students. Simon (2001) conducted a pilot study with 20 Biology students using Rocket eBook readers at Fordham University over

three semesters to determine which e-book features students used and valued. He compared his results to a 1998 poll conducted by Dr. Stanley Wearden at Kent State University (cited in Simon, 2001) of 270 students asking which features would be important to them in a hypothetical e-book. Simon found that glossary lookup was the most commonly used feature among his students (65%), followed by bookmarking (55%), highlighting (50%), and annotation (40%). This ranking mirrored Wearden's results, although 20-30% fewer students actually used these features in Simon's study than those who said they were important in Wearden's study. McFall, Dershem, & Davis (2006) measured the effects of e-textbooks on student learning when used as the primary text resource with a group of thirteen students given Tablet PCs pre-loaded with an e-book version of the textbook for a computer programming language design course. The majority of students found the e-text *useful* or *very useful*. The textbook itself was only rated as *average*. While a majority of students reported that the e-text helped them learn *a little more* than traditional textbooks, two students thought it helped *much less* and no students thought it helped *much more*.

Little research has been done on the effectiveness of using PDAs in the high school setting and almost none has involved L2 students. Nutta et al. (2002) compared the effects of computer-enhanced instruction and text-based instruction in a FLES (Foreign Languages in Elementary Schools) classroom. The study revealed no differences in achievement between the students using printed media or computer media at posttest, but did reveal a significant difference in favor of the group using computerized media on the delayed test suggesting better retention of the content. This finding, however, was limited due to the attrition in the computer group over the 13 months of the study. Bick (2005a) studied PDA usage by high school students and found positive effects on increased Grade Point Average (GPA) within five months as well as in

subject specific achievement (in this case biology) within a semester. He suggested that further study was needed on the potential correlation between the amount of PDA usage and GPA, the effects of geographic and socio-economic variables, and a large scale comparison of PDAs and laptops.

Research Questions

The current action research project was designed to answer the following four questions:

Research Question 1: *Do foreign language students prefer reading e-books or traditional texts?*

Research Question 2: *Do foreign language students find the use of e-books more or less useful than traditional texts?*

Research Question 3: *Which features of e-books do foreign language students find most important and actually use?*

Research Question 4: *Does the use of e-books improve foreign language students' academic performance?*

4. Methodology

Two novels of roughly equal length from the AP French Literature Required Reading List were chosen for the AP French Literature students in this project—one novel available in e-text and one copyrighted work only available in traditional form. Guy de Maupassant's Pierre et Jean was chosen as the e-book option and Camara Laye's l'Enfant noir was selected as the traditional text. The performance on multiple-choice and free-response assessments of the students reading Pierre et Jean as an e-book would be compared with the performance of those reading the novel in traditional text form. Then these scores would be compared with each student's performance on similar assessments on l'Enfant noir which all students had to read in printed form.

After reading and taking the assessments for each novel, the students would answer a survey to determine how long it took to read each novel and if they had used the electronic dictionary even if they read the printed text. A third survey would be given after having read both novels to collect demographic data (such as grade level and years of French study), to find out why students chose to enroll in the class, to determine which of the e-book reader features the students used, to rate each feature's importance, to ask if the e-books helped the students learn more or less than traditional texts, and to ask the students if they preferred e-books or traditional texts, and to give the reasons for their stated preference. This third survey would also be given to French IV students to compare their responses to those of the AP French Literature students.

4.1. School Setting

Saint Ignatius High School is a four-year Jesuit high school for boys located in close proximity to downtown Cleveland. The 1434 students are admitted selectively based on previous school records, admission test results, and teacher/principal recommendations. The students come from 150 different schools, 40 cities, and 7 counties in Northeast Ohio. Over 95% of the students are Catholic. Minority students comprise 9.5% of the student population: 3.3% are Multiracial, 2.4% are Asian, 2.2% are Hispanic, 1.5% are African-American, and less than 1% are Native American. Over 99% of our graduates matriculate into a four-year college within one year of graduation. Most students are middle class or upper middle class although 45% receive some type of tuition reduction (financial aid) and 5% receive reduced price lunches.

The school's curriculum is entirely college preparatory and all students are required to take three years of a modern language (French or Spanish) or a classical language (Latin). Our current class of 337 seniors includes 24 students recognized as National Merit Semifinalists, 3 National Hispanic Recognition Program Scholars, one National Achievement Scholarship

Semifinalist, and 30 National Merit Commended Students. AP courses play a major role in our curriculum as we offer AP courses in sixteen subjects. Our school limits students to a maximum of 3 AP courses in a given year. In 2004, 486 students took 727 AP exams and in 2005, 490 students took 670 exams.

During the 2005-2006 school year, there were originally twelve students enrolled in AP French Literature, but one student withdrew after the first semester so there were eleven students in the class during the semester of this action research project. Six of the students came directly from French III, four of the students from French IV, and one student from AP French Language. One of the six students who came from French III was also concurrently enrolled in AP French Language. For six of the students, this was their fourth year of studying for French, for three students this was their fifth year, and for two students this was their sixth year. For some, this was their only AP course, and for others it is one of three. Two of the students are past National Winners of the National French Contest (*Le Grand Concours*) by having earned one of the top ten scores in the country and a third student was a three time National Winner of *Le Grand Concours* as well as winning Third Place in this year's Annual High School Competition of *La Maison Française de Cleveland*. On the other hand, there are two young men who were average students in French III and have struggled to maintain a C in AP French Literature. As of the Third Quarter, there were two "A" students (averages > 93%), four "B" students (averages between 85-92%), and five "C" students (averages between 77-84%). All of the students are Caucasian.

French IV is a set of four one-quarter courses: Conversation and Composition, History of France, Literature, and Francophone Culture. During the Third Quarter (Literature), the students read four poems, one short play, and eight short stories (see Appendix B). All but two of the

poems (Damas and Laëau) and three of the stories (Boileau-Narcejac and Bouher et Hurtgen) are in the public domain and are available for the students to read as e-books. French IV is normally an elective course for seniors, but it is a requirement for juniors who tested out of French I and placed in French II as freshmen. There were four seniors and one junior in the class. For most students this was their fourth year of French, but for one senior this was his sixth year of studying the language and in spite of this he commented on his survey that he did not think he was “was skilled enough for AP.” As of the Third Quarter, there were two “A” students (averages > 93%), two “B” students (averages between 85-92%), and one “C” student (average between 77-84%). All of the students are Caucasian.

Intervention and Procedure

Each AP French Literature student was given an HP iPAQ h1945 PDA at the beginning of the school year. Each PDA was loaded with the Microsoft Reader program and a 64MB Secure Digital card containing electronic versions of all of the public domain works on the Required Reading List in Microsoft Reader LIT format (see Appendix A). Each French IV student was similarly issued an HP iPAQ rx3115 PDA loaded with the Microsoft Reader program and a 128MB Secure Digital card containing electronic versions of all of the public domain works on Third Quarter Literature syllabus in Microsoft Reader LIT format (see Appendix B). Each student has use of the device for the school year and returns the device at the end of the second semester. The devices are then reset and reloaded with e-books and updated software over the summer for use the following fall. The PDAs are not intended to be replacements for traditional texts (the students still receive printed copies of all the works), but rather supplements. Each student can choose to read the e-book or the printed text according to his personal preference.

4.3. Data Collection Methods

The action research project was conducted in the Second Semester (Third and Fourth Quarters) of the AP French Literature and French IV classes. Two AP French Literature assessments were selected for each work: one multiple-choice and one free-response modeled after Brantmeier (2005). Each multiple-choice assessment (or “quiz”) was worth ten points. Unlike Brantmeier, the assessments involved identifying given quotes with the character who said them (for Pierre et Jean) or responding “true” or “false” to ten statements about the text (for l’Enfant noir) instead of containing ten questions with four possible answers (one correct response and three distracters) and both assessments were given in the target language (French) . In addition, the free-response assessments were essay prompts taken from previous AP French Literature exams. The free-response assessment prompts and responses were also in French again in contrast with Brantmeier’s model. The Pierre et Jean multiple-choice assessment was administered to the AP French Literature students on April 6, 2006. The corresponding free-response assessment was administered on April 7, 2006. The prompt was the 2003 AP French Literature Exam Free Response Question 2 asking the students (in French) to discuss the role of family and its thematic importance as a source of support and/or constraint in the novel. The Pierre et Jean survey (Survey 1- see Appendix C) was administered on April 11, 2006. The features listed were modeled after Simon (2001) although “glossary lookup” was changed to “Dictionary/lookup.” The students were also given the option of naming any other features they had used. The l’Enfant noir multiple-choice assessment was administered on April 25, 2006. Ten “true or false” questions were used for this book instead of quotes because it is an autobiographical novel written in the first person with much less dialogue than a more traditional novel like Pierre et Jean. The l’Enfant noir free-response assessment was administered on April 26, 2006. The prompt was the 2004 AP French Literature Exam Free Response Question 2

asking the students (in French) to discuss education's role in social integration and in creating conflicts in the novel. The L'Enfant noir survey (Survey 2- see Appendix D) was administered on April 27, 2006.

The students' compositions were scored using the AP French Literature grading rubric shown in Table 1. These scores were converted to traditional letter grades as shown in Table 2. The percentage equivalents of each letter grade are shown in Table 3.

The PDA/E-text feature and effectiveness survey (Survey 3- see Appendix E) was administered to both classes on April 28, 2006. The students were asked to state why they decided to take their current French class using question modeled after Weist (2004) and Brantmeier (2005). A 4-point Likert scale modeled after Simon (2001) was used to rate each feature ranging from "not important" (1) to "very important" (4). The same naming conventions used for Survey 1 were adopted and students were again given the option of listing any other feature not listed. To rate the effectiveness of e-books over traditional books, the same question was asked as in McFall et al. (2006). The corresponding 5-point Likert scale ranging from "much less" (1) to "much more" (5) was also employed. The students were invited to add any additional comments at the end of the survey.

The instructor distributed and collected all of the surveys in class. The AP French Literature students were informed that they were asked to identify themselves on the survey solely for the purpose of adding the appropriate assessment scores to the project data. They were assured that once the performance data was added, the students' names and IDs would be removed to ensure anonymity. The French IV surveys were filled out anonymously. All students were asked to make their responses as frank and truthful as possible.

5. Results

All sixteen students from both classes responded to the surveys. Table 4 gives the descriptive statistics for the AP French Literature respondents. This included information on their current academic class (3 for Juniors, 4 for Seniors), years of French study, e-book effectiveness, e-book reader feature importance, the number of minutes per chapter each student spent reading both novels, and the scores on the multiple-choice and free-response assessments for each novel. Table 5 gives the descriptive statistics for the French IV respondents on academic class, years of French study, e-book effectiveness, and e-book reader feature importance.

5.1. Quantitative Data

Research Question 1: *Do foreign language students prefer reading e-books or traditional texts?*

Figure 1 shows that 82% of the AP French Literature students preferred reading traditional printed texts while only one student preferred reading e-books. In French IV, the reverse was true. 80% preferred reading e-books while only one student preferred reading traditional texts.

Even though the vast majority of AP French Literature students did not read Pierre et Jean using the e-book and all the students had to read the printed text of L'Enfant noir, over two-thirds still used the dictionary lookup function. Figure 2 shows that 73% used the electronic dictionary while reading Pierre et Jean and 64% used it for L'Enfant noir.

Two students did not use the electronic dictionary for either novel. One student who did not use it for Pierre et Jean did use the dictionary for L'Enfant noir. Two students who did use it for Pierre et Jean did not for L'Enfant noir, including the one student who read the e-book version of Pierre et Jean.

Research Question 2: *Do foreign language students find the use of e-books more or less useful than traditional texts?*

Table 6 shows that most students (69%) felt that they learned more using e-books than using traditional texts while less than one-third (31%) thought they learned about the same. None thought they learned less using e-books. This tendency was more pronounced among French IV students (80% vs. 20%) than among the AP French Literature students (63% vs. 36%) although none of the French IV students thought they learned “much more” using e-books.

Research Question 3: *Which features of e-books do foreign language students find most important and actually use?*

Figure 3 shows that every student reported using the dictionary lookup function. Among the AP French Literature students, highlighting was the second most widely used feature (64%), followed by bookmarking (36%). All of the French IV students used bookmarking, tying it with the dictionary, and highlighting came in third (60%). Annotation or note taking was the feature least used by both classes (18% in AP French Literature and 20% in French IV). One AP French Literature student wrote in that he used the drawing feature.

Both classes considered the dictionary/lookup feature to be very important. Every AP French Literature rated this feature as “very important” (4) and four of the five French IV students rated the dictionary “very important” giving the feature an average rating of 3.8 (see Figure 4). The AP French Literature students considered highlighting to be of moderate importance (2.3 average rating) and bookmarking and annotation to be relatively unimportant (1.8 and 1.4 average ratings respectively). The French IV students considered bookmarking to be relatively important (3.0 average rating), highlighting to be of moderate importance (2.6 average rating) and annotation to be relatively unimportant (1.6 average rating).

Research Question 4: *Does the use of e-books improve foreign language students' academic performance?*

As Figure 5 shows, only one student read Pierre et Jean using the e-book. 91% of the students read the novel using the printed text. Therefore there were not enough e-book readers to make any valid comparisons between the performance of students using e-books and students using traditional text. The students reported spending the same amount of time per chapter (an average of 37 minutes) reading each novel (see Table 4).

Figure 6 compares the students' averages on the multiple-choice assessments (quizzes) and free-response assessments (compositions) for Pierre et Jean and L'Enfant noir. The student average on the L'Enfant noir multiple-choice assessment was higher (84%) than the average on the similar assessment for Pierre et Jean (67%). The averages on the free-response assessments decreased slightly from 87% (or B) for Pierre et Jean to 84% (or C+) for L'Enfant noir.

Figure 7 shows that the sole e-book reader did better than the traditional text readers on both the multiple-choice assessment (70% vs. 67%) and the free-response assessment (97% vs. 86%) for Pierre et Jean, but the traditional texts readers performed better on the multiple-choice (84% vs. 80%) and free-response (86% vs. 78%) assessments for L'Enfant noir.

5.2. *Qualitative Data*

AP French Literature students cited ease of use as their main reason for preferring traditional texts. Six students called traditional texts "easier" and three specified that it was "easier to write notes." Two didn't like "reading off the screen" and another student said that due to the size of the screen, "psychologically it seems like we're reading more." The two students who stated a preference for e-texts also cited ease as the main reason for their preference. Both called looking up words "easier" and one added that e-books were "more portable."

While two students stated a preference for e-texts on Survey 3, neither actually used the e-book to read Pierre et Jean according to their responses on Survey 1. The only student who did read the electronic version of the novel stated a preference for traditional texts, but used the e-book because he found it “easier to look up words in the dictionary.” The three students who commented that they preferred to write notes in traditional texts did not report using the annotation feature at all and all three rated this feature as “not important.”

French IV students cited convenience as the main reason for their preference for e-texts over traditional texts. They liked the “portability,” having “everything in one place, and I can highlight or bookmark, or look up other words easily whenever I want,” and the fact that “they provide for faster word lookup and it's smaller and more available during free time.” Three students thought the dictionary was “was a huge help” and made it “easier to look up words that you do not know.” The one student who preferred traditional texts was dissatisfied with the “small screen” which necessitated “lots of page turns” and didn’t allow him to “write all over it (pen needs better resolution).” The student did add that “the dictionary is worth it if the reading is especially difficult.”

Two of the eleven AP French Literature students wrote additional remarks. The first commented that the electronic dictionary “was very helpful for a better understanding of the texts [and] was much easier [to use] than [a] paper dictionary.” The second thought that “a computer would have been better because of [the] larger screens” and would have been “easier to use than a PDA.”

When discussing their reasons for choosing their respective courses, ten of the eleven AP French Literature students cited that they “liked literature,” “liked to read,” or preferred “the focus...upon reading and writing.” One of these students elaborated that “after having taken

French IV last year, I enjoyed the literature section better than the speaking/listening/grammar” studied in the other quarters. Two of the five French IV students cited interests in “language and culture” as their reasons for taking the class and one of them added that his “brother took four years of French.” Another student wanted to take AP Literature, but “could not ...because of [a scheduling] conflict.” This student was also the only student in the class who preferred traditional texts over e-books, which interestingly would have put him the majority opinion of the actual AP French Literature students. Another student said he chose to take the course because “taking four years helps for getting into colleges.”

6. Discussion, Limitations, and Recommendations

Table 7 shows the percentage of AP French Literature and French IV students who ranked each e-book feature as “very important” or “somewhat important.” Each e-book feature was given the same relative importance by the French students as the data reported in Simon (2001) (Table 8). 100% considered the dictionary lookup feature important, 38% considered bookmarking to be important, 31% considered highlighting to be important and only 13% considered annotation to be important. It is interesting to note that no French IV students considered highlighting to be important while 45% of AP French Literature students did (see Figure 4). Only 27% of AP French Literature students considered bookmarking important while 60% of French IV students did. While Simon (2001) reported that a majority of all students considered each feature to be important, a majority of French students considered only the dictionary feature to be important.

The French students’ reported usage differed from the data reported in Simon (2001). While dictionary usage was the most widely used feature in both studies, more French students used the highlighting feature (63%) than bookmarking (56%). In Simon, more students used

bookmarking (55%) than highlighting (50%). Far fewer French students used annotation (19%) than the students reported in Simon (40%).

The responses of the AP French Literature and French IV students suggest a more favorable view of the effectiveness of e-books than the results reported by McFall et al. (2006) where half of the students felt they learned about the same using e-books as they did using traditional texts, 43% felt they learned more and 7% felt they learned less (see Table 9). Even though 82% of the AP French Literature students preferred traditional texts (as shown in Figure 1), 63% felt they learned more using e-books and 27% felt they learned “much more.” However, while 80% of the French IV students preferred e-books, 80% felt they learned a “little more” and none felt that they learned “much more.”

91% of the French AP French Literature students cited their enjoyment of reading or literature as the primary reason for enrolling in the class. Brantmeier (2005) found a positive correlation between enjoyment and open-ended written assessments while no such effect was found on multiple choice tests. The AP French Literature did in fact perform better on both written assessments than on the multiple-choice assessment and dramatically so for the novel Pierre et Jean.

The AP French Literature students’ self-reported enjoyment of reading and literature may make them predisposed to preferring books over e-texts. The importance of note-taking/annotation for these students as a tool for reflecting on the text may be a sign that they are more sophisticated readers and that they may have successfully made the transition from reading to literature (Weist, 2004). As a result, a re-examination of the pedagogical use of PDAs may be in order. They may be more appropriate in French IV as a reading tool than in AP French Literature as a literature tool. It is interesting to note however that even though many of

the AP Literature students put a premium on writing notes on printed texts, they rated this feature as relatively unimportant for e-books (Figure 4). While it is not surprising that only one student used this feature, the low rating of its importance is an apparent contradiction that needs to be investigated in future studies.

This begs question if the effects of the “sudden jump” seen at the beginning of the AP French Literature class are still apparent by the end of the second semester? By this time, the students have already read one novel and two plays. If not more sophisticated readers, the students are certainly more experienced readers. A follow up study should be conducted during First Semester of AP French Literature while studying poetry or the first novel or play (Voltaire’s Candide or Molière’s l’École des femmes) to determine if there is in fact a difference in perception or performance. Those results can in turn be compared to the French IV Third Quarter results for similarities or differences.

Since only one student chose to read Pierre et Jean via e-book, the research question on the effects of PDA usage on academic performance remains unanswered. Future studies may have a larger pool of e-book readers making valid comparisons between scores possible. Even though most students did use the PDAs as a tool (for dictionary lookup) if not as the primary reading medium, and some improvement in free-response assessments on Pierre et Jean to L’Enfant noir was noted, this may have been due to normal student development. L’Enfant noir was the last novel that the students read from the Required Reading List. In addition, the “raw” AP score of 1-9 should be used for the purpose of comparing the free-response assessments instead of the “converted” A-F grades. The original score would be more useful in studying any potential improvement or decrease from one work to another.

Another limitation to the study was the reliance on students reporting their own usage. Therefore, the installation of the custom “uTrack” software developed by Bick (2005b) should also be considered for future studies. “uTrack” monitors which applications have been launched, logs activity and time of usage, and then transmits the information over the Internet to a server. The source code for the program is given in his appendix since such tracking software was previously available only for desktop and Tablet PCs. While this program has the obvious advantage of not having to rely on students’ memory and accuracy when self-reporting, it must be determined if the program will effect PDA performance. In addition, the AP French Literature PDAs (HP iPAQ h1945) do not have built-in Internet Wi-Fi connectivity. The usage data could only be sent when the PDA is connected to and synchronizing with a desktop computer, something that some students never do. As a result, the source code may have to be altered which may be impractical.

Another suggestion for future study would be collecting qualitative data elaborating on why most students believed they learned more from reading e-books. Did they think they learned more in terms of vocabulary (reading) or in terms of understanding plot, setting, characters, or themes (literature) thus allowing them to better analyze and interpret the works. In addition, AP French Literature students who prefer writing notes on printed texts and yet rate the Annotation feature of Microsoft Reader as relatively unimportant should be asked to explain their rating.

Finally, a future study should also survey the AP French Language students to see if their responses are more like those of AP French Literature students or the French IV students.

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8. Appendices

8.1. *Appendix A: Advanced Placement French Literature Required Reading List (May 2004-May 2008 Exams)*

Molière: L'Ecole des femmes

Jean Giraudoux: La Guerre de Troie n'aura pas lieu

Camara Laye: l'Enfant noir

Guy de Maupassant: Pierre et Jean

Voltaire: Candide

Guillaume Apollinaire: « Le Pont Mirabeau », « Les Colchiques », « Mai », « Automne »

Charles Baudelaire: « Correspondances », « Hymne à la Beauté », « L'Invitation au voyage », « Chant d'automne », « Spleen » (« Quand le ciel... »), « Recueillement »

Joachim Du Bellay: « France, mère des arts, des armes, et des lois », « Heureux qui comme Ulysse a fait un beau voyage », « Si notre vie est moins qu'une journée », « Ces cheveux d'or sont les liens, Madame »

Anne Hébert: « Baigneuse », « Une fois seulement », « Nos mains au jardin », « Les grandes fontaines », « Le piano »

Louise Labé: « On voit mourir toute chose animée », « Je vis, je meurs: je me brûle et me noye », « Oh si j'estois en ce beau sein ravie », « Las! que me sert, que si parfaitement »

Jean de La Fontaine: « Les Animaux malades de la peste », « Le Chêne et le Roseau », « La Mort et le Bûcheron », « Le Loup et l'Agneau »

8.2. *Appendix B: French IV Literature Quarter Reading List*

Léon Damas, « S. O. S. »

Léon Laleau, « Trahison »

Paul Verlaine, « Les Romances sans paroles: Ariettes oubliées /Ô triste, triste était mon
âme »

Charles Baudelaire, « Spleen: Quand le ciel est bas et lourd... »

Anonyme, « La Farce du Cuvier »

Guy de Maupassant, « Le Diable », « Voyage de Santé », « Apparition », « Le Horla
(première version de 1886) », « Le Horla (deuxième version de 1887) »

Pierre Boileau et Thomas Narcejac, « La Robe et le couteau »

John G. Bouher et André O. Hurtgen, « La Famille Martin », « En Visite chez les Martin »

8.3. Appendix C: *Pierre et Jean* E-Book Survey (Survey 1)

1. Did you read *Pierre et Jean* using primarily the traditional text or the e-book?
Traditional text **e-book**
2. How many minutes do you spend reading each chapter? _____ minutes
3. Briefly explain why you chose traditional text or e-book as your primary medium?
4. Did you use any of following features of the *Microsoft Reader* program (choose all that apply)?
Annotation **Highlighting**
Bookmarking **Dictionary/Lookup** **Other:** _____

Please add any additional comments here or on the back of this survey. Thank you!

8.4. *Appendix D: L'Enfant noir Survey (Survey 2)*

1. How many minutes do you spend reading each chapter? _____ minutes

2. Did you use the French/English electronic dictionary while reading *L'Enfant noir*?
Yes **No**

Please add any additional comments here or on the back of this survey. Thank you!

8.5. Appendix E: PDA/E-Text survey (Survey 3)

1. What class are you?
Junior Senior

2. How many years have you studied French (including current year)?
4 5 Other: _____

3. Why did you decide to take AP French Literature/French IV? What was the most important factor in your decision?

4. Have you ever made use of following features of the *Microsoft Reader* program (choose all that apply)?
Annotation Highlighting
Bookmarking Dictionary/Lookup Other: _____

Please rate the following features in terms of their importance to you.

1	2	3	4
Not important	Of little importance	Somewhat important	Very important

5. How important was the annotation feature to you?
1 2 3 4
6. How important was the highlighting feature to you?
1 2 3 4
7. How important was the bookmarking feature to you?
1 2 3 4
8. How important was the dictionary/lookup feature to you?
1 2 3 4
9. Did the e-books help you learn less or more than textbooks in other courses?

1	2	3	4	5
Much less	Little less	About the same	Little more	Much more
10. Do you prefer to read e-texts or traditional texts?

e-texts	traditional texts
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Why?

Please add any additional comments here or on the back of this survey. Thank you!

Tables

Table 1

Advanced Placement French Literature Essay Grading Rubric

Score	Category description
9	A cohesive and insightful essay with analysis supported by pertinent references to the text
7-8	A well-developed essay that explains the topic showing some insight
5-6	A satisfactory discussion of the topic with some examples ; positive aspects outweigh the flaws and omissions
3-4	Addresses the topic but merely summarizes the plot OR minimal discussion OR contains major interpretive flaws
1-2	Shows some familiarity with the text but without any discussion of thematic importance OR an extremely brief response
0	Shows no familiarity with the text OR does not address the topic OR not in French

Table 2

Conversion of AP Essay Scores to Letter Grades

Score	Grade
7-9	A
5-6	B
3-4	C
1-2	D
0	F

Table 3

Saint Ignatius High School Grading Scale

Letter grade	Percentage
A+	98%-100%
A	95%-97%
A-	93%-94%
B+	90%-92%
B	87%-89%
B-	85%-86%
C+	82%-84%
C	79%-81%
C-	77%-78%
D+	75%-76%
D	72%-74%
D-	70%-71%
F	0%-69%

Table 4

Descriptive statistics of AP French Literature respondents

	<i>n</i>	Min	Max	Mean	St. Dev.
Class	11	4	4	4.00	0.00
Years of French study	11	4	6	4.64	0.24
E-book effectiveness	11	3	5	3.91	0.25
Minutes reading <u>Pierre et Jean</u>	11	15	60	37.27	4.59
Annotation importance	11	1	3	1.36	0.24
Highlighting importance	11	1	3	2.27	0.24
Bookmarking importance	11	1	4	1.82	0.33
Dictionary importance	11	4	4	4.00	0.00
Minutes reading <u>L'Enfant noir</u>	11	15	60	37.27	4.59
<u>Pierre et Jean</u> multiple-choice	11	3	10	6.73	0.76
<u>Pierre et Jean</u> free-response	11	80	100	87.18	2.45
<u>L'Enfant noir</u> multiple-choice	11	5	10	8.36	0.53
<u>L'Enfant noir</u> free-response	11	78	100	85.36	2.32

Table 5

Descriptive statistics of French IV respondents

	<i>n</i>	Min	Max	Mean	St. Dev.
Class	5	3	4	3.80	0.20
Years of French study	5	4	6	4.40	0.40
E-book effectiveness	5	3	4	3.80	0.20
Annotation importance	5	1	2	1.60	0.24
Highlighting importance	5	2	4	2.60	0.40
Bookmarking importance	5	2	4	3.00	0.45
Dictionary importance	5	3	4	3.80	0.20

Table 6

Perceived effectiveness of e-books among Advanced French students

Did the e-books help you learn less or more than textbooks in other courses?

	Much less	Little less	About the same	Little More	Much more
AP French Literature	0%	0%	36%	36%	27%
French IV	0%	0%	20%	80%	0%
All French students	0%	0%	31%	50%	19%

Table 7

E-book feature importance and usage for AP French Literature and French IV students

Feature	Reported importance	Usage
Dictionary/lookup	100%	100%
Bookmarking	38%	56%
Highlighting	31%	63%
Annotation	13%	19%

Table 8

E-book feature importance and usage reported in Simon (2001)

Feature	Reported importance	Actual Usage
Glossary lookup	87%	65%
Bookmarking	84%	55%
Highlighting	72%	50%
Annotation	65%	40%

Table 9

Comparison of perceived effectiveness of e-books with McFall et al. (2006)

Did the e-books help you learn less or more than textbooks in other courses?

	Much less	Little less	About the same	Little More	Much more
AP French Literature	0%	0%	36%	36%	27%
French IV	0%	0%	20%	80%	0%
All French students	0%	0%	31%	50%	19%
McFall et al. (2006)	0%	7%	50%	36%	7%

Figure Captions

Figure 1: Text preferences for AP French Literature and French IV students

Figure 2: Electronic dictionary usage for Pierre et Jean and l'Enfant noir

Figure 3: E-book reader feature usage

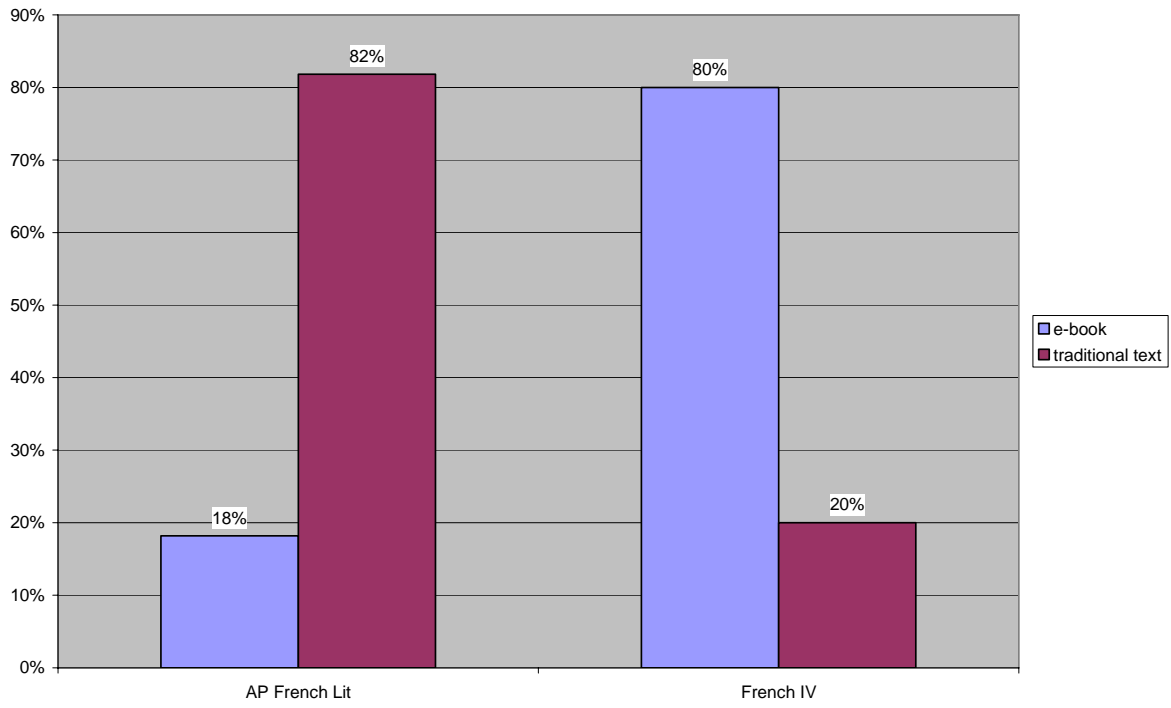
Figure 4: E-book reader feature importance. 1= "not important" 2= "of little importance" 3= "somewhat important" 4= "very important"

Figure 5: Pierre et Jean text preference

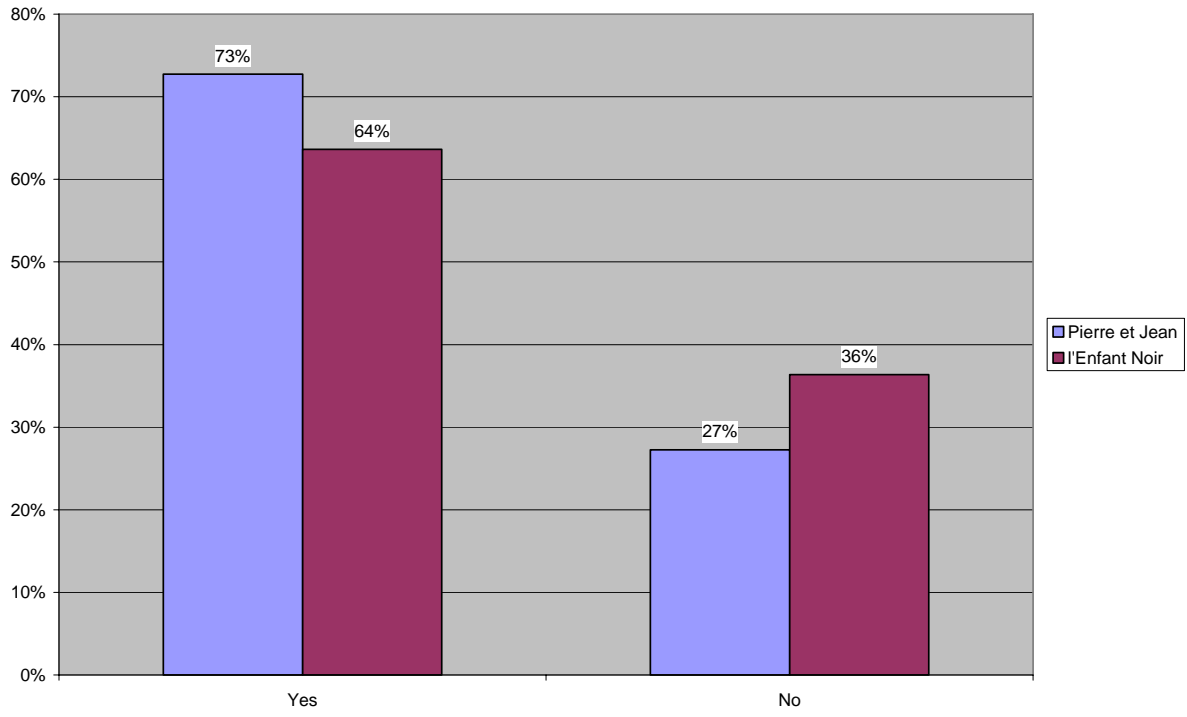
Figure 6: Comparison of assessment scores on Pierre et Jean and l'Enfant noir

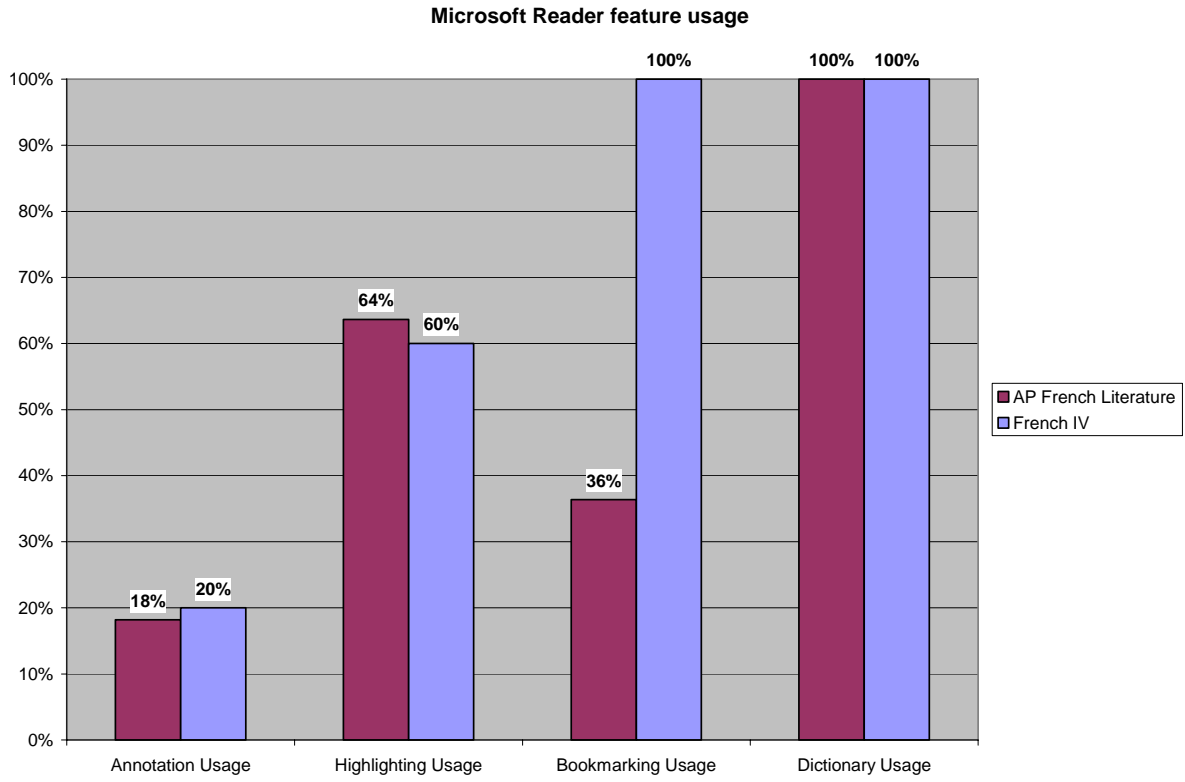
Figure 7: Comparison of e-book student with traditional text students on assessments

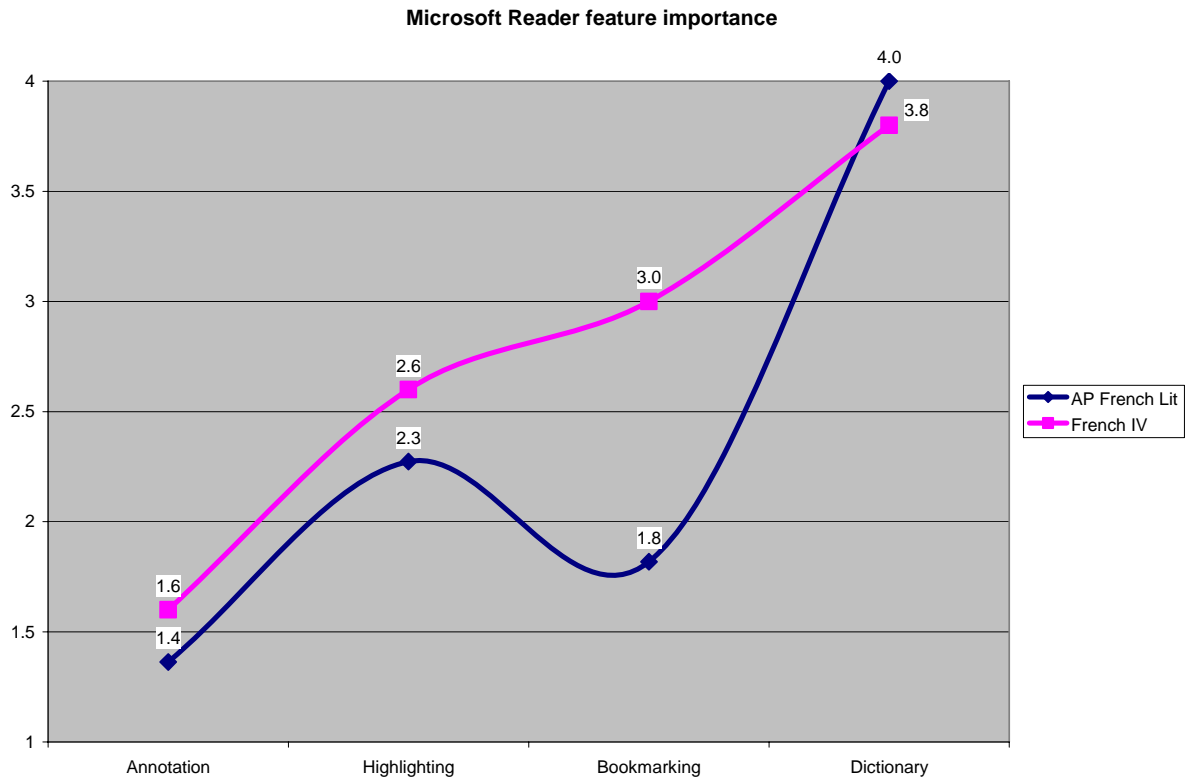
Text Preference



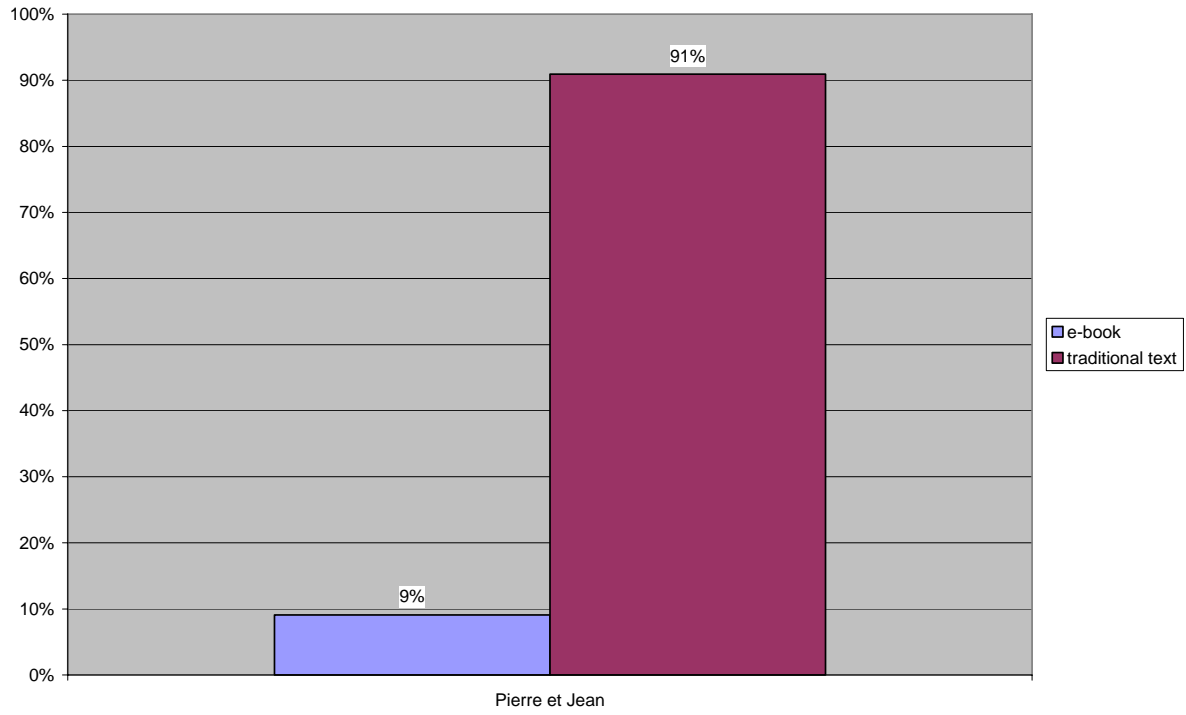
Dictionary Usage



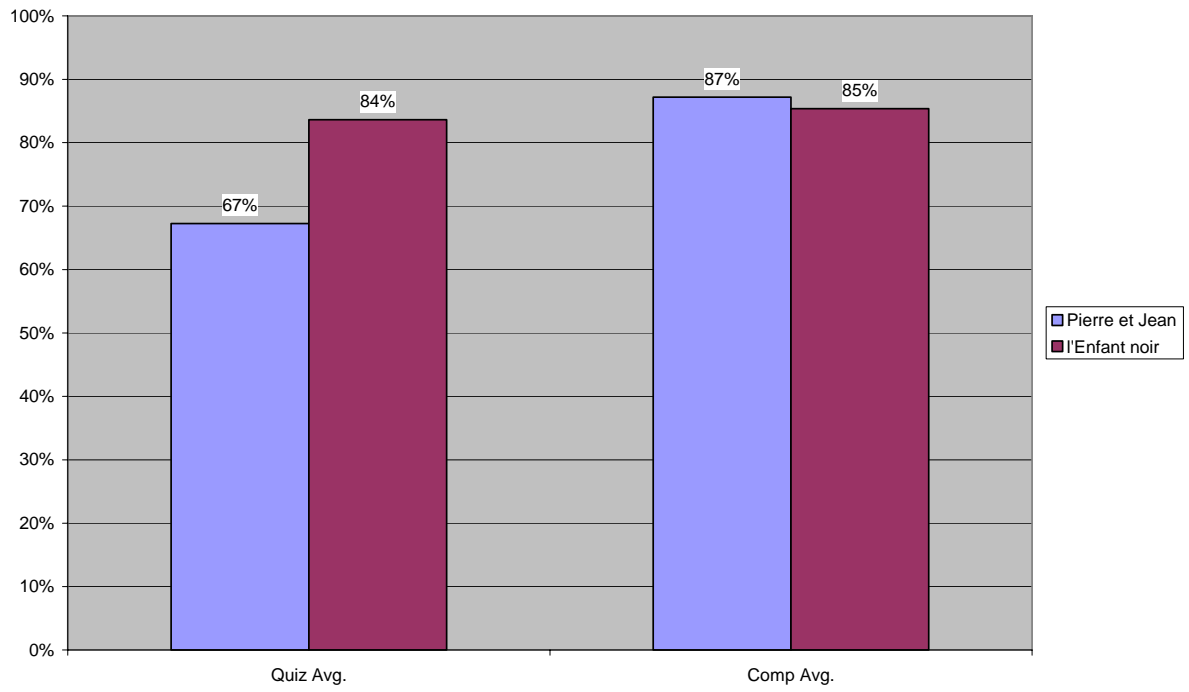




Pierre et Jean Text Preference



Quiz & Comp Comparisons



E-book vs. Traditional text assessments

