# THE USE OF EMAIL ATTACHMENTS TO INCREASE READING COMPLIANCE IN FOREIGN LANGUAGE CLASSES

Juan Pablo Rodríguez Prieto
Department of Modern Languages, Literatures, and Cultures
Butler University

Abstract

*This is the first quantitative research on reading compliance in foreign language courses. It investigated the effect of email attachments with the assigned readings to promote reading compliance of the textbook. Their effect on learning gains was measured by 16 grammar or vocabulary quizzes during a semester. 31 intermediate L2 Spanish students assigned to two group conditions, those receiving the emails and those who did not, also completed a questionnaire at the end of the semester about their preparedness for the quizzes and about their opinions about the email attachments. Results indicated that participants in the* email group *prepared more often for the next class and obtained significantly better grades in the quizzes than those in the* regular *one. Pushing the readings at students via regular emails helped them access the contents to read them before class, which in turn increased their preparedness and boosted their leaning gains.*

Key words: reading compliance, Spanish, foreign language, email attachments

RESUMEN

*Este estudio cuantitativo investiga el efecto que los correos electrónicos, con las lecturas asignadas como documento adjunto, tienen para fomentar la lectura del libro de texto en cursos de lenguas extranjeras. 31 estudiantes de español de nivel intermedio como L2 en dos grupos experimentales –aquellos que recibieron los correos electrónicos y aquellos que no– realizaron 16 pruebas cortas sobre la gramática o el vocabulario de cada clase. También completaron un cuestionario al final del semestre sobre su preparación antes de clase y sobre sus opiniones de los documentos adjuntos. La nota media en las pruebas indicó que los participantes en el grupo* email *obtuvieron notas significativamente mejores que las del grupo* regular *porque se prepararon con más frecuencia antes de clase. Enviar las lecturas asignadas a los estudiantes mediante documentos adjuntos ayudó a que accedieran a tales contenidos y los leyeran antes de clase, lo que incrementó su preparación y aumentó su aprendizaje.*

PALABRAS CLAVE: lecturas asignadas, español, lengua extranjera, documentos adjuntos

Fecha de recepción del artículo: 12 de agosto de 2013
Fecha de recepción de la versión revisada: 4 de noviembre de 2013
Fecha de aceptación: 5 de noviembre de 2013

Dirección del autor:
Juan Pablo Rodríguez Prieto
Butler University
137 Herman Street
Indianapolis, IN, 46202
USA
jpablorodrig@yahoo.com

## Introduction

Most foreign language (FL) students attending college nowadays were born in the early 90's. They belong to what Howe and Strauss (2000) call the Millennial Generation: students who were born approximately between the early 80's and 2000. They are all "native speakers of the digital language of computers, video games and the Internet" (Prensky, 2012: 69) rather than becoming fascinated by and adopting many or most aspects of the new technology at some later point in their lives. That is the fundamental observation that differentiates what Prensky (2012) calls the Digital Natives (*i.e.*, the Millennials) from the Digital Immigrants (*i.e.*, all previous generations).

Besides an information technology mindset, Millennial students seem to have zero tolerance for delays and demand immediate feedback and gratification. According to Spodark (2010b), this need for immediacy has implications in the way they approach reading, *i.e.*, they avoid reading any text of considerable length, even if it is work-related material. And this picture seems to be no different in the school context.

### *Reading compliance at college*

In 2000, Burchfield and Sappington reported a steady and dramatic decline on compliance with the required reading assignments from introductory to graduate-level psychology courses from 1981 to 1997. Reading compliance was determined by the grade on the first surprise quiz of the semester on an assigned reading. They found that, on average, only "about a third of the students will have completed their reading assignment on any given day" (Burchfield & Sappington, 2000: 59). In 2002, Sikorski, Rich, Saville, Buskist, Drogan and Davis corroborated this trend after surveying 1178 students at two different institutions who reported either not reading or reading sparingly the text for their Introductory Psychology class (82% of students at the Doctoral/Research Extensive institution and 78% of students at the Master's College institution). Additionally, participants selected taking notes and studying them (without reading the text) as well as attending to class and listening to the lecture as more important procedures for doing well in class than reading the assigned text. This is indicative that the textbook is no longer perceived as the primary source of information. Similarly, Clump, Bauer

and Bradley (2004) surveyed students from eight psychology courses, ranging from General Psychology to Advanced Statistics, and they also found that, on average, less than a third of the students completed the assigned readings before class.

Failing to do the reading assignment and coming to class unprepared are examples of what Burroughs, Kearney and Plax (1989) called 'destructive resistance' which, not surprisingly, affects students' learning and achievement. For example, Karp and Yoels (1976) found that more than three quarters of students from a wide range of departments such as English and Sociology, chose not to talk in class, remaining silent and uninvolved, because they had not done the assigned reading.

In FL classes, remaining silent as a result of not coming prepared to class has greater dramatic consequences. In the field of second language acquisition (SLA) it is now generally agreed that output, or the language that learners produce in speech or in writing, plays a central role in the learning process in several ways: 1) to test learners' developing hypotheses (Swain, 1995), 2) to enable learners to search for additional confirmatory or non-confirmatory evidence after receiving feedback or negative evidence (Gass, 1997), 3) to develop fluency and automatic processing via consistent and successful mapping of grammar to output (Gass & Selinker, 2008), and 4) to "force the learner to move from semantic processing to syntactic processing" (Swain, 1985: 249).

To the best of my knowledge, there is no study addressing reading compliance in SLA and how it compares to the rates found in other disciplines. The amount of content to read for FL courses is generally limited to less than three pages of grammar explanations and examples or lists of vocabulary items. But if FL teachers want to use a true communicative teaching approach, they have to rely on the students' preparation for each class to practice the language in a more natural way. Otherwise, teachers will be forced to introduce and explain the content from the assigned grammar or vocabulary section before practicing the language, valuable time which could have been better employed to provide opportunities for practicing and using the language.

One of the most effective ways to promote reading compliance at college is frequent quizzing. There is a body of research showing that when students are tested on the contents of the assigned readings, with a grade percentage of their final grade stemming from these quizzes, reading compliance increases. Thorne (2000) noted that administering randomly assigned quizzes promoted pre-class

preparation and increased class attendance but he suggested reframing them as extra-credit exercises in order to reward positive learning behaviors and to diminish the usual disapproval of pop quizzes and the corresponding grade penalty for coming to class unprepared. Similarly, Connor-Greene (2000) found that 60% of her Women and Psychology students, who had daily quizzes, always completed their reading by the assigned date, with 92% of them reading it before class. In contrast, 72% of her Abnormal Psychology students, who had four scheduled tests, rarely or never completed the reading, with only 16% of them reading it before class. Her rationale for quizzing on a daily basis is that if teachers value a behavior from their students, then they must create a context in which students are motivated and rewarded for doing so. Ruscio (2001) data from four psychology courses indicated that when students were given quizzes at random on less than half of all class days, they completed the assigned reading at impressive rates (passing an average of 74% of the quizzes with full credit) and that most students (85.7%) recognized finishing at least half of the assigned readings before class. Sappington, Kinsey and Munsayac (2002) found a significant correlation between students' first surprise quiz grade and final exam scores and, accordingly, they recommended surprise quizzes and their percentages "to reinforce effort, illustrate practical benefits of reading preparation, and emphasize students' responsibility in the learning enterprise" (Sappington, Kinsey & Munsayac, 2002: 272). Clump, Bauer and Bradley (2004) found that the average of students completing the readings before class in eight psychology courses more than doubled (from less than a third to almost 70%) if the material was to be included on an upcoming test. Finally, Ryan (2006) and Rodríguez Prieto (2008) developed focused homework assignments based on the assigned reading, which could also serve as study guides later in the semester. The questions helped novice students to find important information in the textbook and motivated them to have read at least parts of the material. Students who had the focus worksheets with teacher comments (Ryan, 2006) or who used them at the beginning of class to start the class discussions (Rodríguez Prieto, 2008) performed better on the regularly scheduled exams than those who did not.

As mentioned earlier, Millennial students have a strong interest in using technology in every aspect of their lives and it has been estimated that they spend almost eight hours a day interacting with technology and media outside of school (Spodark, 2010a). According to Oblinger (2004), today's students in their twenties

may have had more years of experience with video games than with reading. And Prensky (2012) estimated that today's average college grads have spent twice the time playing video games, twice the time on the cell phone, and four times the time watching TV than reading, which may be less than 5000 hours by the time they reach 21 (Prensky, 2012: 68).

The current study aimed at increasing reading compliance in FL courses so that teachers can devote more class time to quality practice and less time to redundant grammar explanations. Consequently, daily quizzing was incorporated in two intermediate Spanish courses because, as described before, it has consistently been proved to rise reading compliance among college students.

*The use of email attachments*

With the increasing popularity of e-books in tablets and readers such as the iPad, the Kindle, and the Nook, the Millennial Generation "is learning to read from the screen as easily as our generation has learned to write from it" (Warschauer, 2001: 51). According to Frand (2000), most college and university students "are happier reading from a computer screen than from paper in hand" (Frand, 2000: 15). And Reese (2010) pointed out that they also expect most readings to be posted online. Big publishers are aware of this trend and in the near future it is certain that there will be less paper FL textbooks and more digital copies sold, like the way the accompanying workbook has been largely moved to online sites such as Supersite or Quia.

Beginning and intermediate FL textbooks can easily have 500 pages or more because they are generally used in two or more semesters. However, the assigned readings per class involve less than three pages. This posits an additional burden to today's students willing to comply promptly with the reading assignment as they would need to carry such a heavy textbook for just a few paragraphs. Given that most of today's students are always connected, with 83% of Millennials recognizing placing their cell phones on or right to their bed while sleeping (Pew Research Center, 2010: 32), sending them an email message the day before next class with the contents of the assigned reading as an email attachment might serve not simply as a friendly reminder but also as a clever strategy to ensure they access the reading and actually complete it right away.

At the college level, today's students check their email(s) regularly. According to the Pew Research Center, 90% of Millennials use the internet (Pew Research

Center, 2010: 27) and, when they are asked about what they did in the past 24 hours, 56% of 830 Millennial respondents reported having sent or received an email (Pew Research Center, 2010: 36). In an ethnographic study tracking students' patterns of laptop use during a semester, McMahon and Pospisil (2005) found out that email access (92%) followed by web access (83%) were more widely used by the participants, despite current laptops allowing rich multimedia, sophisticated video games, and instant video chat.

There are few studies using email as educational push media, which is based on the delivery of content directly to the students at frequent intervals with the help of emails or text messages. When employing this strategy the hope is that the students receiving these spaced messages would be more likely to read them soon after they are received and that they would study their contents immediately. In 2001, Thornton and Houser conducted a study in which Japanese university students were sent short (under 100 words) informal mini lessons on new English vocabulary items to their cell phones three times a day and found that 88% of the participants studied the lessons every day. In other experiments, Thornton and Houser (2005) either emailed vocabulary lessons to the students' mobile phones to study those words, posted them on a website, or printed them on paper for the students for two weeks. The results from the experiments indicated that the email group learned over twice the number of vocabulary words (gain = 6.7) as the website group (3.2), and that the email group also improved their scores from the pretest to the posttest (4.3) by nearly twice as much as the students in the paper group (2.7).

In sum, the rationale for choosing email attachments for the assigned readings the day before they were due was threefold: 1) to take advantage of the 24/7 connectedness of today's students, 2) to serve as a reminder via push media using a low tech tool most of today's students access several times on a daily basis (irrespective of their preferred gadget), and 3) to allow the students to read the contents on-screen rather than in the printed text. The ultimate goal was to check their effectiveness in increasing the likelihood that students read the material and have some prior knowledge of the day's topic.

This study addressed the following research questions (RQ):

RQ1: What is the effect of the email attachments on students' compliance with the reading assignments, as measured by the quiz scores and their reported preparedness?

RQ2: What are the students' opinions about the use of email attachments to increase their preparedness, based on their behavior when receiving the emails as well as their comments?

The current study is breaking new ground in the field of SLA for being the first quantitative research measuring the effect of email attachments on learning gains. It is also one of the very few studies dealing with reading compliance in FL courses, an often neglected area of research in SLA.

## METHOD

### *Participants and setting*

The study was conducted in a state-run public university serving more than 22 000 students in east central Indiana. 31 college-level students of L2 Spanish enrolled in the second semester of second-year Spanish participated in the study. All participants were recruited from two intact Spanish classes. Each section was randomly assigned a treatment condition at the start of the semester: 1) the *email group*, who received regular emails with attachments containing the next required reading assignment in the semester ($n$ = 12), and 2) the *regular group*, who did not receive those emails ($n$ = 19).

Participants met for 75 minutes twice a week, with the same instructor, who is also the author of this study, covering the same content by using the exact same materials and syllabus. Participants' ages ranged from 18 to 22 with a mean age of 19.2 years. There was a similar distribution by gender, with 15 males and 16 females. Of the 31 participants, there were 17 freshmen, 10 sophomores, 3 juniors, and 1 senior. Most of them (74.2%) were taking the class to fulfill the university requirement but the great majority of them (87.1%) also had plans to continue studying Spanish after that class.

### *Instruments and data collection*

During the semester, all participants were reminded about the following's class reading assignment at the beginning of each class with the textbook pages written on the board. However, participants in the email group ($n$ = 12) were sent an

email message to their university email accounts before noon of the day before the next class with a required reading. Each message only contained the generic statement "This is the reading for tomorrow" and the reading assignment as a color JPEG file attachment of the corresponding textbook section scanned.

At the beginning of each of the 16 classes with an assigned vocabulary or grammar reading section, all students had a quiz about the contents of the reading, for 10% of the final grade and as stated in the syllabus. Each quiz had 10 multiple-choice questions, *e.g*., 5 or less options per question, true/false, matching… Most questions were fill-in-the-gap Spanish sentences or some information about the reading in Spanish. Here is an example:

| (1) | *Dudo* | *que* | *mis* | *hijos* | _____ | *mucha* |
|---|---|---|---|---|---|---|
| | doubt-PRS.IND.1sg | that | my-pl | kid-m.pl | _____ | a lot-f.sg |
| | *televisión* | *durante* | *la* | *semana* | | |
| | television-f.sg | during | the-f.sg | week-f.sg | | |

'I doubt (that) my kids _____ a lot of TV during the week.'

a) *mirando*
watch-PROG
'watching'

b) *miran*
watch-PRS.IND.3pl
'watch'

c) *miren*
watch-PRS.SBJV.3pl
'watch'

d) *mires*
watch-PRS.SBJV.2sg
'watch'[1]

[1] Abbreviations: 1 = first person; 2 = second person; 3 = third person; f = feminine; IND = indicative; m = masculine; pl = plural; PROG = progressive; PRS = present; SBJV = subjunctive; sg = singular.

Quizzes generally lasted no more than 10 minutes. Participants in both groups completed the exact same quizzes on a piece of paper and they received the corrections and grades in the next class.

During the last 25 minutes of a class in the last week of instruction, the instructor left the classroom and students received a questionnaire with a variety of questions about some personal information, their reported preparedness for class, and their opinions about the email attachments, if applicable.

### *Data analysis*

All statistical analyses were carried out with SPSS 17.0 for Windows. The alpha level for significance was set at $p < .05$. An independent-samples *t* test was used to compare the participants' average quiz score taking the use of email attachments (or not) as the grouping variable. Frequencies and descriptive statistics were used elsewhere.

## Results

The first research question examined whether the use of email attachments had any effect on reading compliance or students' preparation for each class. In order to answer that question, participants' reported preparedness for class during the semester was collected and analyzed as well as their averaged grade on the 16 daily quizzes.

Participants' averaged grade on the 16 quizzes was calculated. In accordance with previous research (Clump, Bauer & Bradley, 2004; Connor-Greene, 2000; Ruscio, 2001; Thorne, 2000), reading compliance was around two thirds or greater of the participants, given that they were regularly quizzed during the semester. However, the students in the email group obtained greater scores on the averaged quiz grades ($n = 12$, M = 77.302, SD = 10.338) than those in the regular group ($n = 19$, M = 67.368, SD = 16.575). The quiz grades were analyzed by comparing the groups using an independent-samples *t* test. There was a significant result ($n = 31$, $t = -1.854$, $df = 29$, $p < .05$) between the groups, indicating that students in the email group obtained significantly better quiz grades during the semester than those in the regular group.

Students were asked in the questionnaire if they prepared on a regular basis before taking the quizzes. Results indicated that most students recognized prepar-

ing for the quizzes ($n$ = 31, M = 74.2, SD = .445), but it was those participants in the email group who unanimously recognized preparing for the quizzes regularly.

By using a 5-point Likert scale in which a 1 represents *never* and a 5 represents *always*, all participants had to report how often they performed several activities when reading the assigned sections and preparing for the next class. From the seven statements displayed in Table 1, the following four behaviors are the ones participants ($n$ = 31) reported doing more often during the semester: "I memorized examples/words from the sections" (M = 3.39, SD = 1.116), "I read the reading assignment the day before" (M = 2.94, SD = 1.181), "I wrote down my own notes on a piece of paper or in a notebook when I read the sections" (M = 2.94, SD = 1.482), and "I read the reading assignment minutes before class started" (M = 2.90, SD = 1.044).

TABLE 1. Reported behaviors in relation to some reading compliance statements. Percentage and number of participants ($n$ = 31)

| ITEM | 1 | 2 | 3 | 4 | 5 | M | SD |
|---|---|---|---|---|---|---|---|
| I memorized examples/words from the sections. | 3.2<br>1/31 | 22.6<br>7/31 | 22.6<br>7/31 | 35.5<br>11/31 | 16.1<br>5/31 | 3.39 | 1.116 |
| I read the reading assignment the day before. | 12.9<br>4/31 | 22.6<br>7/31 | 32.3<br>10/31 | 22.6<br>7//31 | 9.7<br>3/31 | 2.94 | 1.181 |
| I wrote down my own notes in a piece of paper or in a notebook when I read the sections. | 25.8<br>8/31 | 12.9<br>4/31 | 22.6<br>7/31 | 19.4<br>6/31 | 19.4<br>6/31 | 2.94 | 1.482 |
| I read the reading assignment minutes before class started. | 12.9<br>4/31 | 19.4<br>6/31 | 32.3<br>10/31 | 35.5<br>11/31 | 0.0<br>0/31 | 2.90 | 1.044 |
| I created my own charts in a piece of paper or in a notebook. | 41.9<br>13/31 | 12.9<br>4/31 | 25.8<br>8/31 | 12.9<br>4/31 | 6.5<br>2/31 | 2.29 | 1.321 |
| I wrote some notes on the margins of the book. | 51.6<br>16/31 | 12.9<br>4/31 | 25.8<br>8/31 | 3.2<br>1/31 | 6.5<br>2/31 | 2.00 | 1.238 |
| I underlined the main ideas in the book. | 48.4<br>15/31 | 25.8<br>8/31 | 9.7<br>3/31 | 12.9<br>4/31 | 3.2<br>1/31 | 1.97 | 1.197 |

Note: 1 = never, 2 = a few times, 3 = sometimes, 4 = frequently, 5 = always

These results were analyzed using a series of independent-samples $t$ tests and it was found that from the seven statements there was a significant difference in the participants' responses to the statement "I read the reading assignment the day before" ($n$ = 31, $t$ = –2.253, $df$ = 29, $p$ < .05), with students receiving the email

attachments reporting that they completed the reading assignment the day before class more often ($n$ = 12, M = 3.50, SD = 1.168) than those who did not receive the assignment in an email attachment ($n$ = 19, M = 2.58, SD = 1.071). There were no other significant results in the remaining statements.

The second research question investigated the participants' opinions about the use of email attachments. Data were gathered with the help of statements participants could agree or disagree with, and by open-ended questions in the questionnaire.

Students who received the email attachments were asked to agree or disagree with six statements about that tool. In addition to those statements, participants in the email condition ($n$ = 12) were asked to comment on the usefulness of receiving the reading assignments as email attachments. Results indicated that participants unanimously agreed that the email attachments made it easy to access the contents of the assigned readings (M = 100, SD = .000). They also agreed for the most part with most of the rest of the statements, indicating that they felt the email attachments were useful (M = 83.3, SD = .389), that they would like them in future Spanish classes (M = 75.0, SD = .452), that they liked to receive them (M = 66.7, SD = .492), that they enjoyed reading the material on the computer (M = 58.3, SD = .515). However, it seems that most participants did not agree that they read more often the materials because of them ($n$ = 11, M = 45.5, SD = .522). In sum, even though participants who received the email attachments liked them and found them useful and easy to access, still they will not study more often nor prepare a little bit more on a regular basis to obtain higher scores in future quizzes. This result is interesting considering that it was the email group who, as mentioned before, unanimously recognized preparing for the quizzes regularly.

Participants were asked to comment on the usefulness of receiving the reading assignments as email attachments and almost all of the 12 participants' comments were positive. The most repeated opinion was that the emails served as useful reminders of the assignments which also encouraged them to complete the reading right away. Many participants stated that they liked the idea of having the reading anywhere, anytime. And nobody seemed to oppose the idea of receiving these reminder emails, although there were three students who preferred to read directly from the textbook to get the most out of their money and from the required textbook.

Finally, participants in the email group estimated how often they performed several activities in relation to the use of the email attachments they received the day before next class, when the reading assignment was due. They used a 5-point Likert scale in which a 1 represented *never* and a 5 represented *always* in relation to eight proposed statements.

TABLE 2. Reported behaviors after receiving the emails. Percentage and number of participants ($n = 12$)

| ITEM | 1 | 2 | 3 | 4 | 5 | M | SD |
|---|---|---|---|---|---|---|---|
| I opened the email. | 0.0<br>0/12 | 0.0<br>0/12 | 0.0<br>0/12 | 16.7<br>2/12 | 83.3<br>10/12 | 4.83 | .389 |
| I opened the reading assignment. | 8.3<br>1/12 | 16.7<br>2/12 | 0.0<br>0/12 | 25.0<br>3/12 | 50.0<br>6/12 | 3.92 | 1.443 |
| I read it in my book instead. | 0.0<br>0/12 | 33.3<br>4/12 | 25.0<br>3/12 | 8.3<br>1/12 | 33.3<br>4/12 | 3.42 | 1.311 |
| I downloaded and saved the attachment on my PC. | 16.7<br>2/12 | 16.7<br>2/12 | 25.0<br>3/12 | 8.3<br>1/12 | 33.3<br>4/12 | 3.25 | 1.545 |
| I read it from start to finish on my PC. | 16.7<br>2/12 | 25.0<br>3/12 | 16.7<br>2/12 | 33.3<br>4/12 | 8.3<br>1/12 | 2.92 | 1.311 |
| I simply skimmed the main information on my PC. | 25.0<br>3/12 | 25.0<br>3/12 | 25.0<br>3/12 | 25.0<br>3/12 | 0.0<br>0/12 | 2.50 | 1.168 |
| I read the main content on my PC but skipped the examples. | 41.7<br>5/12 | 41.7<br>5/12 | 8.3<br>1/12 | 0.0<br>0/12 | 8.3<br>1/12 | 1.92 | 1.165 |
| I printed the attachment. | 91.7<br>11/12 | 8.3<br>1/12 | 0.0<br>0/12 | 0.0<br>0/12 | 0.0<br>0/12 | 1.08 | .289 |

Note: 1 = never, 2 = a few times, 3 = sometimes, 4 = frequently, 5 = always

Results indicated that participants almost always opened the email (M = 4.83, SD = .389), as shown in Table 2. They also reported that they frequently opened the reading assignment (M = 3.92, SD = 1.443) and that they sometimes downloaded and saved the attachment on their PCs (M = 3.25, SD = 1.545) and that they read the assignment either in their books (M = 3.42, SD = 1.311) or on their PCs from start to finish (M = 2.92, SD = 1.311).

## Discussion

The data show that students in the intermediate Spanish classes under study prepared for class regularly, as measured by their average grade on the daily quizzes, which ranged from 67.37 in the regular group to 77.30 in the email group. Those averages are more than double of the students who regularly come prepared to class when they do not have quizzes, which typically represent about a third of the class (Burchfield & Sappington, 2000; Clump, Bauer & Bradley, 2004; Sikorski, Rich, Saville, Buskist, Drogan & Davis, 2002). Without a control group covering the same contents but not taking the quizzes, it cannot be ensured that those positive averages were mostly the direct result of the quizzes. However, the current results were expected based on the converging evidence about the positive effect of regular quizzing on students' increased preparation and reading compliance in other disciplines (Clump, Bauer & Bradley, 2004; Connor-Greene, 2000; Ruscio, 2001; Thorne, 2000).

The delivery of the reading assignments as email attachments on a regular basis was received positively by our university students, as regular reading and study was promoted by the push aspect of this technology. This result is similar to the effectiveness Thornton and Houser (2005) found in the vocabulary lessons they sent to their Japanese university students via mobile phone emails. In the current study, students in the email group obtained significantly better scores on the quizzes, according to the results of the independent-samples *t* test.

Students who were frequently sent emails were prodded to study more often than students who simply were reminded about the reading assignment by writing the corresponding pages on the board, and this in turn led to more frequent study and to better learning. Students in the email group not only had access to the contents of the readings a click away from their preferred gadget, but also they were reminded about the expected reading closer to its due date. This push media method is one of the best techniques to increase reading compliance, based on the significant result for students in the email group to the statement "I read the reading assignment the day before" as well as on their perfect preparedness on the daily contents, both results in addition to the significant greater scores on the quizzes by the email group. Participants in the email group almost always opened the email, they frequently opened the reading attachment, and more than two thirds recognized reading before the next class more often thanks to these emails. This

indicates that Millennials are very comfortable reading from the screen of their preferred gadgets and that thanks to their 24/7 connectedness, it is more likely that they access and complete the reading assignments when reminded via email rather than from the previous class session.

The accessibility and ease with which emails can be read from a screen fit hand in glove with some of the distinctive characteristics of current students in promoting reading compliance, namely their connectedness and the ease with which they read from a screen. It would have been interesting to compare participants' reading compliance levels between students only receiving email reminders and students receiving the emails with the reading attachments. That way, we could have measured whether the accessibility to the contents of the readings or the frequent reminders had the greatest effect on reading compliance. Nevertheless, what is clear from the current study is that the combination of both elements was very effective in increasing the students' preparedness for class and their likelihood to read and study the contents before class.

## Limitations and future research

This study was limited in several ways. As in all research on teaching techniques, variables other than those included in this study may have influenced the results. The number of students in each section was low and there was not a control group without regularly-scheduled quizzes to compare their reading compliance with that from the experimental groups.

Having the main author as the instructor for the experimental groups was a potential source of subjectivity, but active measures were taken to minimize this effect: 1) by using the same teaching and testing materials, 2) by covering the same contents per class session, 3) by leaving the class while participants completed the questionnaires, 4) by assigning participants to a randomly-selected experimental condition based on two intact classes at the same level during the same semester and at the same institution, and similar. On the other hand, this also ensured the uniformity of the teaching and testing materials and the consistency on the amount and quality of content covered during the semester, which would have been difficult to ensure with different instructors even if sharing the same syllabus and textbook.

When measuring subjective and attitudinal variables, participants select responses that are socially acceptable and according to how they would like to portray themselves, with a tendency for self-enhancement (Krueger, 1998; Oller, 1981, 1982; Sappington, Kinsey & Munsayac, 2002). Nonetheless, the propensity for self-enhancement and satisficing (Krosnick, 1999) in the current study was minimized by taking the following actions: 1) the instructor left the classroom during data collection and a peer delivered and collected the questionnaires, 2) the volunteer instructor read an introductory paragraph to the participants stating that their responses will be sealed in an envelope and will not be delivered to the instructor until final grades were submitted to the university, and 3) the instructions in the questionnaire asked participants to be sincere and give the response that best described them, not what they thought should be the best answer.

Despite these limitations, it should be recognized that these findings are strong in that the positive effect of email attachments on FL reading compliance was attested via different statements on the questionnaire, the participants' opinions and comments, and, more importantly, their averaged quiz grades during the semester. This is the first exploratory and quantitative study in SLA measuring the effectiveness of email attachments to assess knowledge and boost reading compliance. As mentioned earlier, an idea for a future quantitative research study include to measure whether reminder emails without any reading attachment can trigger the same increased reading compliance as emails with the attachments containing the reading assignments.

## Conclusions

This initial exploration on the effectiveness of email attachments on students' reading compliance indicated that sending the students the contents of the reading assignments directly to their emails is an effective way to promote reading. Pushing the readings at students via regular emails helped them access the contents and read them before class, which in turn increased their preparedness and boosted their leaning gains. This study suggests that frequent emailing can be an effective tool to allow the students to access the readings at any time before next class at the comfort of any screen, as this 'low' tech method targets at two of the main characteristics of current students, namely connectedness and ease to read from screens.

## REFERENCES


BURCHFIELD, C. & J. SAPPINGTON (2000). Compliance with required reading assignments. *Teaching of Psychology*, 27 (1): 58-60.

BURROUGHS, N., P. KEARNEY & T. PLAX (1989). Compliance-resistance in the college classroom. *Communication Education*, 38 (3): 214-229.

CLUMP, M., H. BAUER & C. BRADLEY (2004). The extent to which Psychology students read textbooks: a multiple class analysis of reading across the Psychology curriculum. *Journal of Instructional Psychology*, 31 (3): 227-232.

CONNOR-GREENE, P. (2000). Assessing and promoting student learning: blurring the line between teaching and testing. *Teaching of Psychology*, 27 (2): 84-88.

FRAND, J. (2000). The information-age mindset: changes in students and implications for higher education. *EDUCAUSE Review*, 35 (5): 14-20.

GASS, S. (1997). *Input, interaction and the second language learner*. Mahwah, NJ: Lawrence Erlbaum Associates.

——— & L. SELINKER (2008). *Second language acquisition: an introductory course* (3rd ed.). Mahwah, NJ: Lawrence Erlbaum Associates.

HOWE, N. & W. STRAUSS (2000). *Millennials rising*. New York: Vintage Books.

KARP, D. & W. YOELS (1976). The college classroom: some observations on the meanings of student participation. *Sociology and Social Research*, 60 (4): 421-439.

KROSNICK, J. (1999). Survey research. *Annual Review of Psychology*, 50 (1): 537-567.

KRUEGER, J. (1998). Enhancement bias in descriptions of self and others. *Personality and Social Psychology Bulletin*, 24 (5): 505-516.

MCMAHON, M. & R. POSPISIL (2005). Laptops for a digital lifestyle: Millennial students and wireless mobile technologies. In H. Goss (ed.). *Balance, fidelity, mobility: maintaining the momentum? Proceedings of the 22nd ASCILITE Conference* (pp. 421-431). Brisbane, Australia: Queensland University of Technology.

OBLINGER, D. (2004). The next generation of educational engagement. *Journal of Interactive Media in Education*, 8: 1-18.

OLLER, J. W. JR. (1981). Can affect be measured? *International Review of Applied Linguistics*, 19 (3): 227-235.

——— (1982). Gardner on affect: a reply to Gardner. *Language Learning*, 32 (1): 183-189.

PEW RESEARCH CENTER (2010). Millennials: a portrait of generation next. Confident. Connected. Open to change. [Retrieved: may 25, 2012, from: <http://www.pewsocialtrends.org/files/2010/10/millennials-confident-connected-open-to-change.pdf>]

PRENSKY, M. (2012). *From Digital Natives to digital wisdom: hopeful essays for 21st century learning*. Thousand Oaks, CA: Corwin.

REESE, S. (2010). Teaching languages to the Millennial Generation. *The Language Educator*, 5 (4): 34-38.

RODRÍGUEZ PRIETO, J. (2008). Creación de preguntas de preparación para promover las lecturas asignadas en cursos de contenido en lenguas extranjeras. *Revista Iberoamericana de Educación*, 46 (3): 1-10.

RUSCIO, J. (2001). Administering quizzes at random to increase students' reading. *Teaching of Psychology*, 28 (3): 204-206.

RYAN, T. (2006). Motivating novice students to read their textbooks. *Journal of Instructional Psychology*, 33 (2): 135-140.

SAPPINGTON, J., K. KINSEY & K. MUNSAYAC (2002). Two studies of reading compliance among college students. *Teaching of Psychology*, 29 (4): 272-274.

SIKORSKI, J., K. RICH, B. SAVILLE, W. BUSKIST, O. DROGAN & S. DAVIS (2002). Student use of introductory texts: comparative survey findings from two universities. *Teaching of Psychology*, 29 (4): 312-313.

SPODARK, E. (2010a). Creating experts: harnessing student power to integrate technology in the foreign language classroom. *Foreign Language Association of Virginia Bulletin*, 66 (2): 9-12.

——— (2010b). Structuring a language course to respond to Millennial Generation workplace characteristics. *The Language Educator*, 5 (4): 39-42.

SWAIN, M. (1985). Communicative competence: some roles of comprehensible input and comprehensible output in its development. In S. Gass & C. Madden (eds.). *Input in second language acquisition* (pp. 235-253). Rowley, MA: Newbury House.

——— (1995). Three functions of output in second language learning. In G. Cook & B. Seidlhofer (eds.). *Principle and practice in applied linguistics* (pp. 125-144). Oxford, England: Oxford University Press.

THORNE, M. (2000). Extra credit exercise: a painless pop quiz. *Teaching of Psychology*, 27 (3): 204-205.

THORNTON, P. & C. HOUSER (2001). Learning on the move: vocabulary study via email and mobile phone SMS. In C. Montgomerie & J. Viteli (eds.). *Proceedings of world conference on educational multimedia, hypermedia and telecommunications 2001* (pp. 1896-1897). Norfolk, VA: AACE.

——— (2005). Using mobile phones in English education in Japan. *Journal of Computer Assisted Learning*, 21 (3): 217-228.

WARSCHAUER, M. (2001). Millennialism and media: language, literacy, and technology in the 21st century. *AILA Review*, 14 (1): 49-59.