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# Teacher assisted versus individual viewing of foreign language video: Relation to comprehension, self-efficacy, and engagement

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# *Teacher-assisted versus Individual Viewing of Foreign Language Video: Relation to Comprehension, Self-efficacy, and Engagement*

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## **ABSTRACT**

As teachers' roles evolve in technology-enhanced language learning (TELL), choices of technological devices and instructional delivery and the degree of foreign language (FL) teacher facilitation within TELL activities are prominent. This investigation compared 53 beginning college French students' comprehension of FL video in a teacher-assisted viewing classroom environment (TAV) and an independent computer-based setting (IV) to examine the benefits of teacher mediation on students' comprehension of FL video and the relation to the types of questions asked, self-efficacy, and engagement. The results demonstrated that students performed equally well on comprehension measures in the TAV and IV conditions. With regard to self-efficacy, students felt significantly more confident in their ability to comprehend video in the TAV than in the IV condition. A relationship was found between self-efficacy and comprehension in the TAV, a relationship not present in the IV condition. Levels of engagement significantly predicted students' comprehension performance while working independently but were not a significant predictor of comprehension in the TAV condition. Implications of this study include (a) the need for increased exposure to self-directed learning tasks in beginning FL classrooms to improve self-efficacy toward independent TELL activities and (b) the need for student exploration during TAV tasks to improve engagement.

## **KEYWORDS**

CD-ROM, FL Video Comprehension, Teacher Assistance, Self-efficacy, Engagement

## **INTRODUCTION**

With the great influence of technology on education, there has been a fundamental change in the roles of the teacher and the learner. The foreign language (FL) teacher is now being called upon to make decisions regarding the extent to



which technology will be used and how it will be incorporated in the language learning process. With the increased role of the FL instructor as a facilitator to foreign language learning, technology has served as a catalyst to transfer the FL classroom from a teacher-centered environment to a learner-centered environment (Pusack & Otto, 1997; Scinicariello, 1997). Certain social constructivist theories such as Vygotsky's (1978) zone of proximal development propose an active facilitating role for the teacher in suggesting that students can initially only confront challenging tasks through the ongoing assistance and support of the instructor. Other theorists foster a cognitive constructivist approach to instruction emphasizing a less active facilitating role for the teacher (Cunningham, 1992; Dickinson, 1987; Pasch, Sparks-Langer, Gardner, Starko & Moody, 1991). This "learning-by-doing" approach promotes independent student learning in the building of understanding.

This study will add to existing research on the benefits of teacher mediation on students' performance in the classroom by comparing second semester French students' comprehension of FL video in both a teacher-assisted viewing classroom environment (TAV) and an independent computer-based viewing classroom setting (IV). Since student performance while viewing FL video with teacher assistance or independently could also be affected by the type of question asked, this investigation will also explore the effects of testing for facts versus analysis in the two conditions. In addition to learning conditions, many scholars agree that second language learning is affected by individual learner characteristics (Brown, 1987; Ellis, 1985; McLaughlin, Rossman, & McLeod, 1983; O'Malley & Chamot, 1990; Wenden & Rubin, 1987). In particular, individual students' self-efficacy and engagement toward particular FL learning tasks and environments may in fact affect student performance. Self-efficacy beliefs are described as "people's judgment of their capabilities to organize and execute courses of action required to attain designated types of performances" (Bandura, 1986, p. 391). Theorists posit that these beliefs help determine expected outcomes. Those learners who believe that they can produce desired outcomes will have more incentive to expend effort and engage in challenging tasks. Engagement during second language tasks is often linked to motivation and achievement in the second language. As a result, this study will also analyze the relationship between French 102 students' self-efficacy and engagement levels in the viewing conditions as well as comprehension of FL video in both conditions.

## **REVIEW OF LITERATURE**

Vygotsky (1978) proposed the concept of a zone of proximal development, in which he claims individuals can confront challenging academic situations and develop the appropriate thinking skills through the assistance and support of a teacher. According to this theory, students who are initially unable to solve complex problems alone can successfully accomplish a complex task through the instructor's strategic assistance.



Within the context of FL video, Altman (1989) suggests that teachers assist in students' FL video comprehension level through recognition questions, discussion, and in-class activities. In his argument in favor of FL video scaffolding, Altman claims that viewing of authentic FL video alone allows students to practice their understanding of the foreign language but "it does not ask them to understand what they are not yet prepared to understand" (Altman, 1989, p. 42). Benson (1999) claims that greater control of learning processes and language use "cannot be achieved by each individual acting alone according to his or her own preferences" (p. 33). Without guidance, the independent learner could helplessly wander through multimedia without direction or comprehension of the material—students with low ability or insufficient background knowledge suffering the most from this independent completion of complex tasks (Pusack & Otto, 1997).

However, this view of the effectiveness of teacher guidance in the completion of complex tasks is not unanimously shared. Because many believe that the goal of the educational process is to produce self-directed lifelong learners, Grow (1991) claims that student reliance on teacher assistance can sometimes perpetuate dependency rather than self-direction. Because the real world presents few simplified problems with step-by-step directions, the cognitive constructivist approach to teaching, in line with a Piagetian perspective, recommends that students be given the experience of independently solving challenging problems potentially encountered in real-world situations (Brown, 1990; Flavell, 1963; Needles & Knapp, 1994; Resnick, 1987). Cognitive constructivist approaches could be applied to autonomous computer language learning situations. Autonomy in language learning via a computer transfers some responsibility from the teacher to the learner while providing learners with opportunities to exercise learning independence in the completion of language activities (Sinclair, 1999). Free from constraint, learners are given the opportunity to work without the direct control of the teacher (Dickinson, 1987).

Some researchers even claim that students' attitudes and motivation improve if learners possess this type of control of their learning (Pusack & Otto, 1997). In independent FL video viewing, students can start, stop, and replay the video as needed in order to cope with information overload (Otto & Pusack, 1996). Adair-Hauck, Willinham-McLain, and Youngs (1999), for example, had a treatment group of French II students meet with the instructor three times a week and participate in TELL activities for the fourth class. The control group met with the instructor for the four class sessions. Findings indicated that students in the treatment group performed better on reading and writing achievement measures than students in the control group, thus demonstrating possible benefits of student independence in TELL activities.

Student performance while viewing FL video with teacher assistance or independently could also be affected by the type of question asked. Some research findings suggest that students at lower proficiency levels are only capable of understanding the gist of second language listening texts and therefore factual-



based questions are more easily answered (Lund, 1991). Bloom's taxonomy, a hierarchical classification system of six cognitive levels, ranges from fact-based levels to higher-order levels (Bloom, Englehart, Furst, Hill, & Krathwohl, 1956). This taxonomy suggests that comprehension of a concept must exist before it can be applied to problem solving. According to Bloom et al. (1956) therefore, questions related to knowledge and comprehension of the text are initially more easily answered than questions requiring analysis, synthesis, or evaluation. However, evidence has not always supported the taxonomy's hierarchical nature (Ormell, 1979; Seddon, 1978). More recent views, emphasizing the contextual nature of learning, question the asserted hierarchy of the taxonomy (Brown, Collins, & Duguid, 1989). Research also suggests that the level of the FL learner may dictate the types of questions the students are able to answer. At the lower levels, students may only be able to listen for the gist, key words, and cues for meaning. On the other hand, students at the more advanced levels may be able to draw inferences and conclusions not overtly presented in the text and understand the text's nuances (Hadley, 1993).

In addition to learning conditions and types of tasks, many second language acquisition scholars agree that second language learning is affected by individual learner characteristics (Brown, 1987; Ellis, 1985; McLaughlin et al., 1983; O'Malley & Chamot, 1989; Wenden & Rubin, 1987). Some researchers suggest that such student characteristics often have an impact on comprehension (Boekaerts, 1997; Rubin, 1994; White, 1999). Such characteristics could include attitudes, motivation, and self-efficacy (Rubin, 1994).

Bandura (1986) suggests that our predictions about possible outcomes of our behavior are affected by beliefs about our competence or effectiveness in a given area. Bandura (1995) defines self-efficacy as "beliefs in one's capabilities to organize and execute the courses of action required to manage prospective situations" (p. 2). These beliefs are the basis for human motivation and personal accomplishment (Pajares, 2002). It has been shown consistently that self-efficacy has direct effects on performance (Bandura, 1986). If individuals have a high sense of self-efficacy in a given area, they will set higher goals, exert more effort, and persist longer in the face of difficulties. Those with a low sense of self-efficacy, however, may give up easily when confronting obstacles and expend less effort (Bandura, 1993, 1997; Zimmerman, 1995).

In line with such research, Gardner and Lambert (1959) found that second language achievement was related to motivation. Gardner's (1985) Socio-Educational Model includes two classes of variables that influence motivation: the integrativeness or positive regard for groups of people speaking other languages and the attitudes toward the language-learning situation. Later studies, however, suggested the importance of persistence and attention in influencing language learning motivation (Crookes & Schmidt, 1991; Kanfer & Ackerman, 1989; Maehr & Braskamp, 1986). Kanfer and Ackerman (1989) describe motivation as "the proportion of total attentional effort directed to the task (intensity), and the extent to which attentional effort toward the task is maintained



over time (persistence)” (p. 661). Similarly, Crookes and Schmidt (1991) indicate that the link between attention and motivation is “extremely close” (p. 484). In light of such research, Tremblay and Gardner (1995) expanded the Socio-Educational model of motivational behavior as it relates to language learning to include measures of attention and persistence. The study described here combines these two measures to form one measure entitled engagement.

In light of this review of literature and the paucity of existing empirical studies on the ramifications of teacher-mediated FL video instruction versus independent viewing on the computer, this study will address the following four research questions:

- 1) Is there a difference in students’ comprehension of FL video in a teacher-assisted viewing (TAV) setting versus an independent viewing (IV) setting on a computer?
- 2) Is there a difference between student performance on fact-based and analytical questions in the TAV and IV conditions?
- 3) What is the relationship between students’ self-efficacy levels and their comprehension in the TAV and IV conditions?
- 4) What is the relationship between students’ levels of engagement and their comprehension in the TAV and IV conditions?

## METHODOLOGY

### *Participants*

Participants in the study were 53 students (26 males and 27 females) currently enrolled in four classes of a 15-week, second semester French course (FREN 102) at Emory University. All classes of French 102 were held four times a week on Monday, Wednesday, Thursday, and Friday. Of the 53 participants, 20 were freshman (38%), 14 were sophomores (26%), 13 were juniors (24%), 3 were seniors (6%), and 3 were graduate students (6%). Sixteen students were humanities majors (30%), 12 students were social science majors (23%), 8 students were business majors (15%), 5 students were math or science majors (9%), and 12 students had not yet declared a major (23%). Thirty-one participants reported having taken 0 to 1 semester of French (59%), 13 students had previously taken 1 to 2 years of French (24%), and 9 participants reported having previously taken more than three years of French (17%). Thirty-six participants (68%) had studied a foreign language other than French, and 17 participants (32%) had never before studied a foreign language (see Table 1).

Chi-square tests for independence were used to assess possible differences among students in the four classes for demographic variables. Chi-square analyses revealed no significant differences among classes with regard to gender and university status (freshmen versus sophomores and above) at the .05 level. A one-way analysis of variance revealed no significant differences among classes for the number of previous years of French language instruction,  $F(3,47) = 2.07$ ,  $p = .12$ .



Table 1  
Sample Student Characteristics by Class

Characteristics	Class A	Class B	Class C	Class D
Gender				
Number of Females	2	9	4	13
Number of Males	4	9	8	4
University Classification				
Year 1	2	3	7	8
Year 2	0	11	1	2
Year 3	2	3	3	4
Year 4	0	1	1	0
Other	2	0	0	1
Years Experience*				
Mean	1.17	1.80	2.35	1.12
Standard Deviation	.68	1.39	.88	.78

\*One semester of college French was treated as equivalent to 1 year of high school experience.

When students were in the IV condition, their teacher distributed the video-viewing test and instructed them to begin working independently on the video and responding to the questions. Although four different French teachers (3 nonnative and 1 native French speaker) instructed the four classes, only one of the instructors presented the target videos in the TAV conditions to the four classes for reliability purposes. One of the classes, therefore, had their regular instructor present the video and administer the video-viewing test, while the other three classes did not have their regular instructor as test administrator in the TAV condition. This difference was minimized by the fact that the teacher/tester used English at all times. The use of English rather than the target language should have reduced the possibility of a bias in favor of the students whose regular instructor was also the test administrator in the TAV condition. This possible bias was assessed at the conclusion of the study by comparing test performance of students in the class where the regular teacher acted as test administrator with that of students in the other three classes. A one-way ANOVA was conducted to evaluate whether students in the test administrator's class performed differently on the video-viewing tests in the TAV condition than students in the other three classes. The independent variable, class, included 4 levels: class A, class B, class C, and class D. The dependent variable was the total scores on the video-viewing test in the TAV condition. The ANOVA was not significant,  $F(3,49) = .574, p = .635$ , revealing no significant differences in TAV test performance between the four classes.



### ***Instrumentation***

The *French in Action* package (Capretz, 1994), a multimedia, video-based beginning French course was the instructional program for all four classes. The *French in Action* approach uses a planned immersion approach to teaching foreign languages in which students are exposed to authentic French language through a continual storyline embedded with targeted grammar points, vocabulary, and culture. The actors' spoken language proceeds at a normal pace, but the video script was designed to create a logically sequenced approach to teaching the French language. The study included eight target videos: videos 23, 24, 26, 27, 28, 29, 30, and 31. Each video is listed in the order in which it appears in the *French in Action* series and the order in which it was presented to the students.

### ***Background Questionnaire***

A general information questionnaire, adapted from a computer usability questionnaire (Barnum, 2002), was administered to the students prior to the onset of the study. The questionnaire explored students' experiences with technology and language background.

### ***Video-viewing Tests***

The items on the video-viewing test to check students' comprehension of the videos in the TAV and IV conditions were chosen from the *French in Action Instructor's Guide*. For each video, the *Instructor's Guide* includes approximately 55 comprehension questions. For the purpose of isolating students' performance in French from reading and writing in French, the investigator translated the *Instructor's Guide* questions from French to English. These translated items comprised the video-viewing test that was given to students either by the test administrator in the TAV condition or individually completed by the student in the IV condition. All test items were in English, and students responded in writing to the questions in English. Due to time constraints for testing, the investigator randomly selected 8 short-answer questions from the *Instructor's Guide* for each video. Each video-viewing test contained two different kinds of items: 4 questions described by Capretz (1994) as *mise en oeuvre* (basic knowledge) and 4 questions described as *mise en question* (analytical). For each video, 4 items were randomly selected from a pool of approximately 35 *mise en oeuvre* questions and 4 items were randomly selected from a pool of approximately 20 *mise en question* items. Item difficulty can of course vary with each video-viewing question, and the *Instructor's Guide* did not rank items in order of difficulty. The process of random selection, however, attempted to balance potential variation in item difficulty. As clarified in the *Instructor's Guide*, *mise en oeuvre* items are video text-based and ask students to recall specific facts and understand the basic information being communicated (Russo, Abbate, &





Lydgate, 1994). Below are two examples of *mise en oeuvre* items translated from French into English for video 27:

1. Why is Mireille going to Chartres?
2. Why doesn't Mireille go to Chartres by car?

The purpose of *Mise en question* items is to ask students to "read between the lines, develop interpretations, make new connections, give their own opinions" (Russo et al., 1994, p. 18). Below are two examples of *mise en question* items translated from French into English for video 27:

1. Did Robert intend to go to Chartres? Explain.
2. Why does Robert hesitate to take the metro?

Items on the video viewing test were listed in the order that they appeared in the video.

### ***Language Self-efficacy Questionnaire***

A language self-efficacy questionnaire designed to measure second language self-efficacy in the independent and teacher-assisted TELL situations was distributed to the participants prior to their viewing of the last two videos (30 and 31). Students completed the questionnaire at this time in order to obtain a self-efficacy measurement for these videos. Observation of the students' behavior during the video-viewing sessions after the onset of the study led the researcher to believe that students' self-efficacy played an important role in their achievement in both conditions. The measurement of self-efficacy was a post-hoc decision, and therefore, was not measured after the first four videos but, rather, after the first six videos. This design, however, allowed the students to answer the self-efficacy questions with experience of the variables being researched, which would not have been possible in a pretest design. For video 30, classes A and B were in the TAV condition and classes C and D were in the IV condition. For video 31, classes C and D were in the TAV condition and classes A and B were in the IV condition. Adapted from the Language Self-efficacy questionnaire (National Capital Language Resource Center, 1994), the items measured self-efficacy in both teacher-assisted video viewing and independent video viewing on an 11-point Likert scale from 0 to 100. Cronbach's index of internal consistency for this study's adapted measure was  $\alpha = .91$  for language self-efficacy items related to teacher-assisted viewing and  $\alpha = .90$  for language self-efficacy items related to independent viewing. Below are several sample self-efficacy questions:



Circle the number on the line that shows how sure you are that you could ...

1. ... watch the French in Action video *with the teacher* and understand the gist of what you heard.

0-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100  
Not                Somewhat                Kind of                Very                Completely  
Sure                Unsure                Sure                Sure                Sure

2. ... watch the French in Action video *independently* and understand the gist of what you heard.

0-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100  
Not                Somewhat                Kind of                Very                Completely  
Sure                Unsure                Sure                Sure                Sure

3. ... watch the French in Action video *with the teacher* and understand the details.

0-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100  
Not                Somewhat                Kind of                Very                Completely  
Sure                Unsure                Sure                Sure                Sure

4. ... watch the French in Action video *independently* and understand the details.

0-----10-----20-----30-----40-----50-----60-----70-----80-----90-----100  
Not                Somewhat                Kind of                Very                Completely  
Sure                Unsure                Sure                Sure                Sure

### ***Engagement Questionnaire***

This measure asked students to determine how engaged they were during the teacher-assisted and independent video viewing activities. The scales were adapted from Tremblay and Gardner's (1995) attention and persistence measures in second language learning and used a 7-point Likert scale with both negatively and positively worded items. Tremblay and Gardner (1995) reported Cronbach's index of internal consistency as  $\alpha = .84$  for the attention measures and  $\alpha = .76$  for the persistence measures. Cronbach's index of internal consistency for this study's adapted "engagement" measure combining persistence and attention items was  $\alpha = .87$  for engagement items related to teacher-assisted viewing and  $\alpha = .89$  for engagement items related to independent viewing. Engagement was measured in both the teacher-assisted and independent viewing conditions. Below are adapted engagement questions:



1. I often did not complete as many questions as I could when watching the French in Action video *with the teacher*.

1	2	3	4	5	6	7
Strongly			No			Strongly
Disagree			Opinion			Agree

2. I often did not complete as many questions as I could when watching the French in Action video *independently*.

1	2	3	4	5	6	7
Strongly			No			Strongly
Disagree			Opinion			Agree

3. I could concentrate very well when I was watching the French in Action video *with teacher assistance*.

1	2	3	4	5	6	7
Strongly			No			Strongly
Disagree			Opinion			Agree

4. I could concentrate very well when I was watching the French in Action video *independently*.

1	2	3	4	5	6	7
Strongly			No			Strongly
Disagree			Opinion			Agree

Procedure

Students enrolled in Emory University’s four French 102 classes in Spring 2002 were asked to participate in the study. They were given an Informed Consent form to summarize the nature of the research and their role in the collection of data as well as the prevideo viewing background questionnaire. On eight different dates throughout the semester, the students in the four classes watched an identical video from the *French in Action* video series in one of two circumstances.

On research day one, classes A and B in the TAV condition remained in their classroom and were provided with directions in English and the comprehension video-viewing test with 8 short-answer questions. In English, the teacher/tester advised the students to read the directions silently before viewing the video. When students finished reading the directions, the teacher/tester showed the *French in Action* video stopping it immediately after the question had been answered in the video. The teacher/tester then directed students in English to read and to answer the questions on the test. Students were given approximately 1-2 minutes to respond to each item. The videos were approximately 7 to 11 minutes in duration; however, the teacher provided 15 minutes for the students



to view the video with teacher assistance and to respond to the short-answer items. The students in classes C and D in the IV condition were in the computer laboratory, and each student had his/her own computer on which he/she watched a CD-ROM version of the same *French in Action* video (QuickTime). The students' regular teacher provided them with the same video-viewing test as the students in the TAV condition. The teacher advised the students in English to read the directions silently. Nothing was said to the students concerning whether or not they should read the test items before viewing the video. Each student was free to choose this strategy or not. The students were then given the opportunity to stop, rewind, and fast-forward the video whenever they deemed necessary. These students were also given 15 minutes to view the video and answer the 8 short-answer questions on the video-viewing test.

On research day two, the conditions were reversed. Classes A and B were placed in the laboratory setting to work independently with the video while classes C and D remained in the classroom setting to view the video with the teacher. In this within-subjects design, the settings for classes A and B and classes C and D alternated between the TAV condition and the IV condition for the eight target videos. In this way, each student participated in both conditions and each video was shown in both conditions (see Table 2). This counterbalancing offset the fact that random assignment to classes was not possible as the classes were preconstituted by the Registrar.

Table 2  
Counterbalancing of Treatments across Groups

Video	TAV condition	IV condition
Video 23	Group A and B	Group C and D
Video 24	Group C and D	Group A and B
Video 26	Group A and B	Group C and D
Video 27	Group C and D	Group A and B
Video 28	Group A and B	Group C and D
Video 29	Group C and D	Group A and B
Video 30	Group A and B	Group C and D
Video 31	Group C and D	Group A and B

The main advantage of within-subjects designs is the control of subject variability, that is, individual differences. Two potential disadvantages, however, are practice effects and differential carryover effects. We addressed the potential confounding due to practice effects by using systematic counterbalancing. Differential carryover effects refer to situations in which earlier treatments continue to have an influence after a test has been completed and thus affect the treatment conditions that follow. The most common way of reducing differential carryover effects is to provide sufficient time between sessions. In this design, there was one week between each lesson.



Before viewing the last two videos (videos 30 and 31), students' self-efficacy in both teacher-assisted and independent video viewing was measured. At the completion of the experiment, after having viewed the eight videos, the students were asked to complete the postvideo viewing questionnaire that questioned their attention and persistence in the TAV and IV conditions.

## **RESULTS**

### ***Research Question 1***

To assess the effect on students' comprehension of FL video from teacher-assisted viewing (TAV) versus independent viewing (IV), the video-viewing test means from each condition were analyzed. Each answer on the video-viewing test was worth 0 to 2 points. A grid of criteria was created for each question: An answer was totally correct (2 points), partially correct (1 point), or totally incorrect (0 points). For each of the eight video-viewing tests, students responded to 8 items. On each test, each participant received a score between 0 and 16 points. Four video-viewing test scores were obtained from the TAV condition and four video-viewing test scores from the IV condition. The tests were scored by a second judge to assure interjudge reliability, and, using a correlation, the interjudge reliability was 94%. When the judges disagreed on the scoring of an answer, they identified and discussed the origin of their disagreement. Based on this discussion, the grading criteria were made more explicit, and the test was rescored according to the new criteria.

Mean test scores were computed for each student in each of the two conditions. To assess the research question of whether there was a difference in comprehension scores in the TAV and IV conditions, a paired-samples *t* test was conducted. The results indicated that the mean video-viewing test score in the teacher-assisted condition, as measured in proportion correct, ( $M = .49$ ,  $SD = .13$ ) was not significantly different from the mean video viewing test score in the independent viewing condition ( $M = .47$ ,  $SD = .14$ ),  $t(52) = 1.45$ ,  $p = .153$ . The nonsignificant mean difference of .02 between the groups suggests that students performed equally well in independent and teacher-assisted video-viewing conditions.

### ***Research Question 2***

Mean test scores for each comprehension question type (basic knowledge or analytical) were computed for each student in both viewing conditions. To assess the research question of whether there was a difference in comprehension scores for basic knowledge and analytical questions in both the TAV and IV conditions, a 2 (TAV, IV) by 2 (factual, analytical) repeated measures analysis of variance (ANOVA) was conducted. This analysis measured the main effect of the viewing condition, the main effect of the question type, and the possibility of a significant interaction between the viewing condition and the type of question. The dependent variable was the comprehension score. The within-subjects factors were question type with two levels (factual vs. analytical) and



viewing condition with two levels (TAV vs. IV). The viewing condition main, the question type main, and the factual X analytical interaction effect were tested. The question type main effect was significant,  $F(1,52) = 7.16, p = .01$ . The univariate test associated with the viewing condition main effect was not significant,  $F(1,52) = .05, p = .823$  and the viewing condition X question type effect was not significant,  $F(1,52) = .79, p = .38$ . These results suggest that there was no significant interaction between the viewing condition and the type of question.

Despite the nonsignificant interaction, exploratory analyses were conducted to assess the possibility of differences in performance on question type within the TAV and IV conditions. Two paired-samples  $t$  tests were conducted, and the researchers controlled for family wise error rate across these tests using Holm's sequential Bonferroni approach (Holm, 1979). Differences in mean performance on factual questions in the IV setting and analytical questions in the IV condition were significantly different,  $t(52) = -.22, p = .002$ . The standardized effect size index,  $d$ , was .45, a moderate value according to Cohen's (1988) description of small, moderate, and large  $d$  values. While viewing the video independently, students achieved higher scores on analytical questions ( $M = .51, SD = .15$ ) than on factual questions ( $M = .44, SD = .16$ ). In the TAV condition, however, there were no significant differences between performance on factual questions ( $M = .45, SD = .19$ ) and analytical questions ( $M = .49, SD = .17, t(52) = -1.16, p = .25$ ).

### **Research Question 3**

Each FL self-efficacy questionnaire was blindly scored by two judges to establish interjudge agreement. The interjudge agreement was 100%. A paired-samples  $t$  test revealed that the mean self-efficacy score toward teacher-assisted viewing was significantly higher ( $M = 47.08, SD = 22.18$ ) than the mean self-efficacy score toward independent viewing ( $M = 35.24, SD = 19.35, t(50) = 4.6, p < .001$ ). The standardized effect size index,  $d$ , was .65, a moderately large value according to Cohen (1988).

To assess the research question of whether there was a relationship between students' self-efficacy levels and their comprehension in the TAV and IV conditions, hierarchical regression analyses were conducted separately for each condition to predict comprehension scores in videos 30 and 31 from gender, the mean comprehension score of the first six videos (mean precomprehension score), self-efficacy, and engagement. The mean pre-comprehension score for teacher assistance, as reported by proportion correct, was  $M = .48 (SD = .13)$  and for independent viewing was  $M = .47 (SD = .15)$ . For teacher assistance, the mean postcomprehension score, as reported by proportion correct, was  $M = .57 (SD = .16)$  whereas for independent viewing was  $M = .50 (SD = .17)$ . Regression analyses were conducted to predict scores in only videos 30 and 31 because the self-efficacy measure was distributed before the viewing of video 30 and because self-efficacy as a predictor of performance could only be compared



to those video viewings following its measurement. Total scores of self-efficacy were calculated from the Likert-scaled values on the language self-efficacy questionnaire with questions related to self-efficacy toward teacher-assisted video viewing and identical questions related to self-efficacy toward independent video viewing. The first analysis included gender as a predictor, the second included gender and the mean precomprehension score as predictors, the third analysis included gender, the mean precomprehension score, and self-efficacy as predictors, and the fourth analysis included gender, the mean precomprehension score, self-efficacy, and engagement as predictors.

The results of these analyses indicate that in the TAV condition, gender did not account for a significant amount of variability in comprehension scores 30 and 31 (postcomprehension scores),  $R^2 = .000$ ,  $F(1,43) = .00$ ,  $p = .99$ , whereas the mean precomprehension score accounted for a significant amount of variability in postcomprehension scores while controlling for gender,  $R^2$  change = .21,  $F(1,42) = 11.35$ ,  $p = .002$ . These first results indicate that the participants' gender did not predict their postcomprehension scores, and the second results indicate that students who had high scores on the precomprehension measures also tended to have high postcomprehension scores. The third analyses indicate that TAV self-efficacy predicted postcomprehension scores over and above gender and precomprehension scores. The self-efficacy measure accounted for a significant proportion of the postcomprehension variance after controlling for the effects of gender and precomprehension scores,  $R^2$  change = .11,  $F(1,41) = 6.74$ ,  $p = .01$  (See Table 3). Further correlational analyses showed a large and statistically significant correlation between TAV self-efficacy and performance on teacher-assisted viewing tests 30 and 31 ( $r(45) = .50$ ,  $p < .001$ ) (See Table 4). These results suggest that the second semester French students felt confident in their ability to comprehend FL video with teacher assistance and performed accordingly.

Table 3  
Hierarchical Regression Analyses (Beta Values) Predicting TAV Postcomprehension

Variables in Equation	TAV postcomprehension			
	Step 1	Step 2	Step 3	Step 4
Gender	.002	.13	-.03	-.03
Precomprehension		.48**	.28	.19
TAV self-efficacy			.40**	.36*
TAV engagement				.21
$R^2$	.000	.21	.32	.36
Change in $R^2$		.21	.11	.03

\* $p < .05$

\*\* $p < .01$



Table 4

Correlations (Pearson Product Moment Coefficients) ( $N = 53$ ) among TAV Postcomprehension scores, TAV Precomprehension scores, TAV Self-efficacy, TAV Engagement, and Performance on Factual and Analytical Questions in TAV Setting

	TAV Postcomp.	TAV Precompr.	TAV Self-efficacy	TAV Engagement	TAV Factual	TAV Analytical
TAV Postcomprehension	—					
TAV Precomprehension	.44*	—				
TAV Self-efficacy	.50**	.41*	—			
TAV Engagement	.12	.30	.28	—		
TAV Factual Questions	.49**	.78**	.33	.21	—	
TAV Analytical Questions	.26	.65**	.28	.31	.10	—

\*significant at the .004 level

\*\*significant at the .001 level

*Note:* The Bonferroni approach was used to control for Type I error. A  $p$  value of less than .004 ( $.05/12 = .004$ ) was required for significance.

The results of the hierarchical regression in the IV condition revealed that gender did not account for a significant amount of variability in the postcomprehension scores,  $R^2 = .000$ ,  $F(1,48) = .01$ ,  $p = .92$  whereas the mean precomprehension score accounted for a significant amount of variability in the postcomprehension scores while controlling for gender,  $R^2$  change = .21,  $F(1,47) = 12.11$ ,  $p = .001$ . These first results indicate that the participants' gender did not predict their postcomprehension scores, and the second results indicate that students who had high scores on the precomprehension measures also tended to have high postcomprehension scores in the IV condition. The third analysis revealed that the IV self-efficacy measure did not account for a significant proportion of the postcomprehension variance after controlling for the effects of gender and precomprehension scores,  $R^2$  change = .02,  $F(1,46) = 1.00$ ,  $p = .322$  (see Table 5). Further correlational analyses between FL self-efficacy for independent video-viewing and performance on independent video-viewing tasks gave similar results ( $r(50) = .15$ ,  $p = .287$ ) (see Table 6). In contrast to the TAV condition, the second semester French students had a lower belief of competence in independent viewing conditions despite similar comprehension performances in the TAV and IV conditions.





Table 5  
Hierarchical Regression Analyses (Beta Values) Predicting IV Postcomprehension

Variables in Equation	IV postcomprehension			
	Step 1	Step 2	Step 3	Step 4
Gender	-.02	.06	.09	.11
Precomprehension		.46***	.55***	.41*
TAV self-efficacy			-.16	-.22
TAV engagement				.33*
$R^2$	.000	.21	.22	.30
Change in $R^2$		.21	.01	.08

\* $p < .05$   
\*\* $p < .01$   
\*\*\* $p < .001$

Table 6  
Correlations (Pearson Product Moment Coefficients) (N = 53) among IV Postcomprehension Scores, IV Precomprehension Scores, IV Self-efficacy, IV Engagement, and Performance on Factual and Analytical Questions in IV Setting.

	IV Postcomp.	IV Precompr.	IV Self-efficacy	IV Engagement	IV Factual	IV Analytical
IV Postcomprehension	—					
IV Precomprehension	.45**	—				
IV Self-efficacy	.15	.55**	—			
IV Engagement	.45**	.52**	.41**	—		
IV Factual Questions	.46**	.83**	.51**	.45**	—	
IV Analytical Questions	.46**	.79**	.41*	.43*	.50**	—

\*significant at the .004 level  
\*\*significant at the .001 level

Note: The Bonferroni approach was used to control for Type I error. A  $p$  value of less than .004 (.05/12 = .004) was required for significance.

Research Question 4

Each Gardner questionnaire measuring engagement (persistence and attention) was blindly scored by two judges to establish interjudge agreement. Both judges scored all Gardner questionnaires, and the interjudge agreement (for the Likert-scaled items) was 100%. Correlations were then conducted between Gardner’s persistence and attention measures in both the TAV and IV conditions. These correlational analyses revealed that the two variables were correlated in the TAV condition ( $r(51) = .66, p < .001$ ) as well as in the IV condition ( $r(51) = .72,$



$p < .001$ ), revealing the possible existence of multicollinearity between these two variables. To avoid multicollinearity and because attention and persistence are notably paired together under “engagement” in motivation literature, these two variables were collapsed into one variable entitled engagement. Total scores of engagement were calculated from the Likert-scaled values on the adapted Gardner questionnaire containing questions related to persistence and attention toward teacher-assisted video viewing and identical questions related to persistence and attention toward independent video viewing. A mean of the mean attention and the mean persistence score was computed to attain the overall engagement score. A paired-samples  $t$ -test revealed that the mean engagement score with teacher-assisted viewing was not significantly different ( $M = 4.6$ ,  $SD = 1.01$ ) from the mean engagement score for independent viewing ( $M = 4.86$ ,  $SD = 1.17$ ,  $t(50) = -1.51$ ,  $p = .14$ ).

To assess the association between engagement levels and performance on independent and teacher-assisted video viewing tasks, the final analysis of the previously described hierarchical regressions were conducted in both conditions to evaluate whether engagement predicted postcomprehension scores over and above gender, precomprehension scores, and self-efficacy. The engagement scores in the TAV condition did not account for a significant proportion of the postcomprehension variance after controlling for gender, precomprehension scores, and self-efficacy,  $R^2$  change = .03,  $F(1,40) = 1.91$ ,  $p = .174$  (see Table 3 above). Further correlational analyses revealed a similar nonsignificant correlation between TAV engagement and TAV postcomprehension scores,  $r(51) = .122$ ,  $p = .42$ , indicating that those who reported high engagement levels toward the TAV tasks did not necessarily score high on TAV postcomprehension tests (See Table 4 above).

The engagement scores in the IV condition, however, did account for a significant proportion of the postcomprehension variance after controlling for gender, precomprehension scores, and self-efficacy,  $R^2$  change = .08,  $F(1,45) = 4.88$ ,  $p = .03$  (see Table 5). Further correlational analyses reveal a similar significant correlation between IV engagement and IV postcomprehension scores,  $r(51) = .45$ ,  $p = .001$ , indicating that those with reported high levels of engagement toward independent viewing scored high in the independent condition (see Table 6).

## DISCUSSION AND CONCLUSIONS

### Research Question 1 (level 2 subhead)

*Is there a difference in students' comprehension of FL video in teacher-assisted viewing (TAV) versus independent viewing (IV) conditions?*

The findings of the present study suggest that second semester French students do not perform significantly differently on comprehension measures in the teacher-assisted versus independent FL video viewing conditions. These



results suggest that individual learner differences greatly affect students' comprehension. Some students' comprehension was facilitated by assistance from the teacher during video viewing, thus, these students benefited from the teacher's navigation through their zone of proximal development. Other students, however, needed minimal teacher facilitation in FL video viewing and benefited from their more active role in developing their understanding of the video material. These students benefited from exploration and discovery and were successful when given the experience to independently solve challenging problems. Such findings could also suggest that these students, successful in the independent condition, have left Vygotsky's zone of proximal development and have reached the necessary performance level to comprehend FL video independently. From these results, one could conclude that the teacher's role in a TELL environment is contextual, varying in accommodation with the different types of learners in the classroom.

The lack of distinction in comprehension performance in both conditions also suggests that, overall, students are as capable of watching the video independently as they are at watching the video with teacher assistance. When given the opportunity to approach the video-viewing process with their own agendas and their own actions, second semester French students can independently check, clarify, and confirm their understanding. Through their own engagement and free from teacher constraint, the students' manipulation of the video allows them to comprehend equally as well as they do with the help of a teacher.

## ***Research Question 2***

*Is there a difference between student performance in fact-based versus analytical questions in the TAV and IV conditions?*

Regarding performance in fact-based and analytical questions, the video-viewing tests did not reveal any significant differences in favor of either learning condition. This result suggests that second semester French students are equally capable of answering factual and analytical questions in the IV condition as in the TAV condition. This finding supports the idea that, in general, students working independently on the computer can solve challenging problems independently as successfully as with the assistance of the teacher. This result does not substantiate Pusack and Otto's (1997) claim that without guidance, the independent learner helplessly wanders through multimedia without direction or comprehension of the material. In fact, independent second semester French students are equally capable of comprehending factual and analytical information presented in the video without guidance. Furthermore, the results of this study call into question Pusack and Otto's (1997) claim that students with low ability or insufficient background knowledge greatly suffer from the independent completion of complex tasks.

However, the research findings did reveal that students in the independent viewing condition were significantly more successful in answering analytical



questions than factual questions. Given the experience of independently watching a video in a foreign language, a real-world task potentially encountered in a foreign country, the students were more capable of performing the complex task of analyzing and interpreting the information presented in the video than understanding factual information. The students' control over the video (e.g., to start, stop, and replay the video as needed) perhaps allowed them to better cope with information overload, read between the lines, develop interpretations, and make new connections. The independent condition, however, did not allow students to better recall specific facts or understand the basic information being communicated. One explanation could be that facts in FL video may be better understood through computerized interactive comprehension tasks or teachers' explanations during independent viewing. For example, an interactive FL video CD-ROM could be designed with "teacher" functions and computerized tasks such as speak and review, vocabulary explanations, comprehension questions, and self-tests. This enhanced FL video technology would enable students to perform the real-world task of viewing videos with the support of further assistance when needed. In this way, students could further develop their analytical thinking while finding support from the program for factual questions. Findings in this study suggest that teachers could promote such independent tasks in the second semester beginning language classroom to enhance analytical thinking as well as to enhance factual-based knowledge.

### ***Research Question 3***

*What is the relationship between students' self-efficacy levels and their comprehension in the TAV and IV conditions?*

With regard to self-efficacy, the findings of the present study suggest that students' beliefs about their competence in TAV were associated with their comprehension in the TAV condition. The results suggest that second semester French students feel confident in their ability to comprehend FL video with teacher-assistance and perform accordingly, thus supporting Bandura's (1995) notions of the power of self-efficacious beliefs in the execution of tasks. Perhaps, students feel competent with the knowledge that the teacher will appropriately manipulate the video to make it more comprehensible. Although confident in their capabilities to comprehend FL video when provided with teacher support, however, second semester French students possess a significantly lower belief of competence in independent viewing. Possessing these overall lower perceptions of effectiveness in the IV condition, students nevertheless attained the same level of comprehension on the posttest in the IV condition as they achieved in the TAV setting in all eight videos. An association was thus not present between students' self-efficacy beliefs toward independent viewing and their independent performance, consequently, in this instance, not substantiating Bandura's (1995) previously described notions of a link between self-efficacy and achievement.



This discrepancy between beliefs about competence and actual performance may be due to students' lack of exposure to self-directed, real-world learning tasks in beginning FL classrooms. Students may perceive themselves to be incompetent as a result of a lack of exposure to these independent FL tasks. Perhaps, with more frequent exposure to self-directed learning activities, beginning language students would feel more capable in their self-directed learning abilities and in turn attain even higher levels of achievement in those tasks. Increased exposure to such real-world authentic experiences potentially experienced abroad, such as independent video viewing, may promote increased confidence as well as improved achievement if/when they are in a country where the target language is spoken. Teachers, therefore, should try to boost students' self-efficacy in independent settings. As previously discussed, the introduction of a FL video CD-ROM with additional computerized-assistance functions, such as computer/teacher explanations, could heighten student perceptions of competence in independent activities and therefore increase student levels of self-efficacy. Another alternative may be less teacher manipulation of the video with regard to teacher questioning and pausing during teacher-mediated FL video-viewing. This may allow for a more active individual participation in one's understanding and less teacher dependence.

#### ***Research Question 4***

*What is the relationship between students' engagement levels and their comprehension in the TAV and IV conditions?*

Hierarchical regression analyses revealed that levels of engagement were a significant predictor of students' comprehension performance while working independently. Those students who had high scores in the IV condition also had high levels of engagement and vice versa. As suggested by Kanfer and Ackerman (1989), "the proportion of total attentional effort directed to the task (intensity)," was associated with the students' comprehension performance when working independently. Those who were more engaged during independent video viewing were able to overcome challenging hurdles in their understanding through higher levels of engagement. In order to attain higher scores, the students may experience a more active need to develop their own comprehension of the video. Without structure, the students need to create their own personal structure and be more independently attentive to the video's cues and prompts.

In addition, however, the findings also suggest that teacher assistance plays an active role in focusing the engagement levels of those less engaged while viewing video material. Engagement levels in the TAV setting were not a significant predictor of comprehension performance. The teacher's expertise may be relied upon to the extent that students become less focused on promoting their own active personal understanding of FL input. Teacher assistance may have helped the poor students achieve higher comprehension scores because the teacher provided them with the needed structure and focus to comprehend



the video. More engaged students, however, did not attain a higher performance level in the TAV condition. Those students may have needed more teacher scaffolding, beyond prompting and questioning, to further comprehend the video's nuances and details. Teacher assistance may have equalized the less and more engaged students' performance and brought the teacher-assisted overall performance to an average level. Another interpretation could suggest that in possessing free choice and individual control in the building of their own understanding of the video, the students may have felt more motivated and engaged in the task at hand.

TAV engagement was not a predictor of performance on analytical questions or factual questions. The findings suggest that the engagement level of students do not predict their ability to answer factual or analytical questions while assisted by a teacher. Students with higher engagement levels were not necessarily more capable of responding to factual questions in the teacher-assisted condition. This may be due to a similar phenomenon as previously explained for relational discrepancies between engagement and achievement. Teacher assistance may have equalized the less and more engaged students' performance and brought the teacher-assisted performance on factual and analytical questions to an average level. One could make the argument that the students were not given the opportunity to persist and engage as they were in the independent condition. With a lack of individual control, the students had less of an occasion to persist through challenging text. Relistening was not an option in this setting. Students may have attempted to persist to their fullest extent in the teacher-assisted setting but still not have achieved a higher level of achievement. Those who showed little engagement in the TAV condition may have achieved a higher level of achievement through the teacher's presence and stimuli to answer questions.

The limitations of this study must be kept in mind when interpreting its results. This study involved only second semester French students. Further inquiries could investigate the performance of French students at different instructional levels. Further research could also incorporate various genres of video such as documentary and film excerpts and investigate other kinds of teacher intervention outside of teacher prompting and questioning such as advanced organizers, vocabulary work, and so forth. Different mediating strategies could produce different results. It may have also been beneficial to distribute self-efficacy questionnaires before the treatment and correlate the results with comprehension scores from all eight videos. The chosen approach, however, allowed the students to answer the self-efficacy questions with experience of the variables being researched: IV and TAV.

Despite these limitations, the significant findings within the IV setting were numerous. Students performed significantly higher on analytical questions than factual questions on all IV tests and were, therefore, more capable of answering analytical questions than factual questions during independent learning. Engagement was also a significant predictor of performance in the IV setting. Highly engaged students were capable of higher performance during IV. With the large



number of significant results within independent viewing, all signs would point to an overall superior comprehension performance in the independent setting. Students, however, possessed significantly higher levels of self-efficacy in the TAV condition than in the IV condition. These results suggest that students' lower self-efficacy toward independent video viewing may have greatly affected their performance and equalized the comprehension performance in both the TAV and IV settings.

The research findings in this study suggest a synthesis of both Piagetian and Vygotskian perspectives. Students' high levels of self-efficacy toward teacher assistance support a more Vygotskian approach toward learning languages with video. Assistance and scaffolding are therefore important for students' self-efficacy, and teachers need to continue teacher mediation in FL video viewing. Teachers, however, may want to think about interspersing independent video viewing in the classroom. With more exposure to independent learning, students may eventually possess higher beliefs of competence toward independent real-world tasks and show less dependence on the teacher. A significant finding within the IV condition revealed that students' engagement levels predicted their comprehension performance. These results suggest a Piagetian perspective toward teaching FL video. Students may exert high levels of engagement in the IV setting and perform accordingly as a result of their more active participation in their own learning. In this instance, autonomy in language learning may transfer responsibility from the teacher to the learner, while providing learners with opportunities to exercise learner independence. This learner independence in autonomous settings may therefore invoke greater engagement in the task at hand, leading, in turn, to better comprehension.

In addition, as suggested by Schalkwijk, Van Esch, Elsen, and Setz (2002), teachers play an essential part in encouraging autonomous video-viewing activities. The teacher needs to help students organize and plan their video viewing by monitoring their learning before, during, and after their video-viewing task. The instructor should encourage students to reflect on their progress and help them develop new ways of tackling comprehension or persistence and attention difficulties. A combination of both exploration and choice as well as guided scaffolding would appear to have a positive effect on students' self-efficacy, persistence and attention, and finally on students' overall comprehension during FL video viewing.





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