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THE DEVELOPMENT OF ADVANCED LEARNER ORAL PROFICIENCY USING IPADS

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In this study, I investigate the use and integration of iPads in an advanced German conversation class. In particular, I am interested in analyzing how students learn with this new technology and how it affects the development of their oral proficiency level. Overall, my results suggest that iPads are well suited to practice listening and speaking proficiency at advanced levels, as learners were engaged in meaningful, purposeful, and goal-directed discourse. The learner-centered, task-based language learning approach using iPads facilitated interactions and provided scaffolded assistance. On average, students spent twenty-four minutes a week in video conversations on Face-Time alone. In addition, the required weekly recordings increased from a little over one minute at the beginning of the quarter to more than seven minutes for the last assignment. Although task complexity and linguistic complexity increased over the course of the quarter, students still felt comfortable and competent enough to produce increasingly longer speech samples.

Keywords: Technology-Mediated Communication, Speaking, Language Teaching Methodology, Computer-Assisted Language Learning

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INTRODUCTION

With the growing emphasis on multiculturalism and globalization, attaining advanced L2 language competence at the college level has become an important topic of discussion in the areas of curriculum, instruction, and assessment (Byrnes, 2007; Byrnes, Weger-Guntharp, & Sprang, 2006). Many believe that it may be difficult for students to attain advanced-level language proficiency in four years of college classroom instruction alone (Collentine & Freed, 2004). Reasons for this that are often given include a lack of class time during the regular four-year curriculum (Rifkin, 2003, 2004, 2005) and inappropriate classroom practices that do not encourage extended discourse as these practices limit the discussion to a question and answer format (Donato & Brooks, 2004; Mantero, 2002). To help students acquire advanced L2 proficiency, many universities provide opportunities for their students to study abroad. Byrnes (2007), however, argues that it may not be the stay in the foreign country but rather the quality and breadth of learning opportunities that help students acquire advanced proficiency. She believes that a well-designed instructional setting may be what is needed to attain advanced level language skills as this offers "… a richer palette of acquisition-attuned textual varieties and tasks, along with scaffolded learning environments" (Byrnes, 2007, p. 3). Whether mastery of a foreign language is best achieved through classroom practice alone or complemented by an extended stay abroad, most language practitioners would agree that becoming an advanced speaker of a foreign language is a lengthy process, and this must involve a combination of various learning opportunities as the process of learning a language does not follow a linear path. Rather, it is a dynamic process that is recursive and repetitive (Byrnes, 2007).

The goal of this study is to investigate the oral language development of learners of German in an advanced conversation class. In particular, I will analyze whether a well-designed instructional setting—one that allows for additional conversational practice inside and outside of class through the use of

iPads—has a positive impact on the amount and the quality of language the study participants are able to produce at the end of each practice unit and at the end of the nine-week class. One of the motivations for this experiment was that I had taught the advanced conversation class several times before and had been struggling with two issues: a rather short instructional period (nine weeks in a quarter with less than three hours of instruction a week) that provided insufficient practice/speaking time to significantly advance the level of language proficiency; and a lack of opportunities for students to be exposed to a variety of authentic materials. My theoretical framework that guides this research is based on the literature of conversational interactions and the role of instruction in the development of L2.

Literature Review

Research on Conversational Interactions

The idea that language acquisition is fostered by conversational interaction was first developed by Hatch (1978) who proposed that conversational interactions in the target language are beneficial for language learning, especially in the area of syntactic structures. In a similar vein, Long (1981) shows that there are different interactional modifications present in native/non-native conversations and that these modifications are used to insure that each conversational partner understand what the other wanted to say. Long (1996) subsequently expressed these ideas as the interaction hypothesis, stating that language learning is facilitated or enhanced in communicative learning activities when learners negotiate for meaning in an effort to make the input more comprehensible to each other. Equally important for the advancement of language learning and tightly connected to the idea of interactional modification is the input hypothesis developed by Krashen (1981). He argues that exposure to the target language is crucial and that the amount and quality of comprehensible input learners receive—defined as *i+1*—determines how fast they will learn. While many have criticized Krashen's construct of *i+1* as being vague, there is clear evidence that input and language achievement are related. For example, the variation in speed in child language acquisition can be explained by the quality of input children receive (Ellis & Wells, 1980). There is similar evidence for second languages (L2s) in study abroad experiences. Generally, the longer students stay in a foreign country and the better the input they receive, the more fluent they will be upon return.

Subsequent studies on interaction shift the focus from investigating the impact interaction has on learning to questions such as "How does interaction create opportunities for learning?" and "What are the relationships among interactional feedback, internal cognitive processes, and L2 learning outcomes?" (Mackey, 2007, p. 10). Conversational adjustments such as for example confirmation checks, comprehension checks, clarification requests, reformulations, or topic-focused questions can modify the input and influence subsequent task performance (e.g., Ellis, 1999; Gass, 1997; Gass & Selinker, 2001; Gass & Varonis, 1994; Larsen-Freeman & Long, 1991; Mackey & Philp, 1998; Pica, 1994; Varonis & Gass, 1985a, 1985b). In her introduction to *Conversational Interaction in Second Language Acquisition*, Mackey (2007) lists more than forty empirical studies that were published in the last three decades investigating the role of interaction in languages such as English, Japanese, and Spanish. Only one study was listed for German, in which error feedback given by the instructor was correlated with the results of a subsequent grammar test focusing on the German plural system (Lochtman, 2002).

A meta-analysis published in the same volume by Mackey and Jaemyung (2007) analyzes the results of 28 recent empirical studies on interaction. From these data, Mackey and Jaemyung conclude: (a) interaction is helpful in the learning of lexical and grammatical target items; (b) learners benefit more when interactional activities target lexical items rather than grammatical items; and (c) there were no apparent differences in learning outcomes with regard to feedback or feedback during interaction. Clearly, the data suggest that interaction is an important factor in oral language development. The next section considers how to promote conversational interactions in instructed language learning situations.

Conversational Interactions and Instructed Language Learning

In his essay "Principles of instructed language learning," Ellis (2005) lists ten principles of instructed language learning to maximize language acquisition. Principle 8 deals with interaction ("The opportunity to interact in the L2 is central to developing L2 proficiency"). For Ellis, who acknowledges that input and output are necessary for acquisition, it is the interaction that is crucial to providing necessary opportunities to negotiate meaning. Ellis lists four key requirements for interaction that were identified by Johnson (1995) to ensure an acquisition-rich classroom environment (Ellis, 2005, p. 218): (a) create a context of language use where learners are attending to language; (b) provide opportunities for learners to express their own personal meanings; (c) encourage students to participate in activities that are beyond their current level of proficiency; and (d) expose the learner to a full range of contexts. These conditions are best achieved, according to Johnson (1995), when the organization of the various tasks and the interactional patterns are less rigid and when the control of the discourse topic is given to the students (Ellis, 2005).[1] Giving more control to the learner to decide what, how, and when to learn is also an intrinsic part of van Lier's (1996) approach to interaction in language teaching. Borrowing from Vygotsky's ideas that social interaction is the key to learning and that language and cognition are interdependent processes, van Lier posits three essential learning principles: awareness (learner must first notice to learn (p. 11)), autonomy (learner must be ready to learn and must be able to decide what he learns, how, and when (pp. 12–13)), and authenticity (each learning act must be intrinsically motivated (p. 13)). To conceptualize the learning process, van Lier refers to Vygotsky's theoretical construct of the zone of proximal development (ZPD). The ZPD is defined as the developmental zone where potential learning can occur under guidance or collaboration of an instructor or a peer. The guidance an instructor or a peer provides through questioning and discussions is called scaffolding. Within the context of language learning, van Lier defines scaffolding as a "multilayered…teaching strategy consisting of episodes, sequences of actions, and interactions which are partly planned and partly improvised" (p. 100), with a focus on task-based and content-based activities. In such a curriculum, interaction is the most important element as it stresses the central importance of learning as a social process to provide the necessary scaffolding. Van Lier furthermore concludes that "conversational interaction among language learners of roughly equal ability might be particularly useful" (p. 193) because it promotes symmetry—"the equal distribution of rights and duties in talk" (p. 175)—which in turn creates contingency among learners—"the quality of language use that can most directly be associated with engagement and learning" (p. 171).

Creating an environment that promotes scaffolded work that is within the ZPD—work that is "challenging" but also "attainable" (van Lier, 1996, p. 94)—can be a major challenge for language instructors. This is especially true in the case of advanced speakers where opportunities may be scarce to engage in extended meaningful discourse to provide the necessary scaffolding for learning, either because learners do not have the opportunities to interact in the foreign language outside of class, they are not encouraged sufficiently, or they simply do not find the time. Zhang (2009) observed a similar situation with Chinese English learners, who failed to speak English fluently because they had no real need or desire to interact in English.

To provide additional scaffolded learning opportunities through engagement with peers in conversational activities and to provide authentic input to boost cultural knowledge about significant political and cultural events in the target language, I experimented with iPads in the advanced conversation class.

iPads for Teaching and Learning

The use of mobile technology for language teaching and learning is not new (e.g., Kukulska-Hulme & Shield, 2007, 2008) but many instructors hesitate to integrate these devices into the language classroom for lack of understanding how language learning and teaching could benefit from it. Senior eloquently writes that "even though countless teachers intuitively teach in more dynamic, interactive, student-

centered ways, the acquisition model of teaching and learning, for a complex range of reasons, has continued to prevail in face-to-face classrooms in educational institutions throughout the world" (2010, p. 138). Godwin-Jones attributes this problem not so much to "hardware / software shortcomings" but refers to a genuine lack of "conceptualization of how language learning could be enhanced in new, innovative ways with the assistance of mobile devices" (Godwin-Jones, 2011, p. 7). In a paper presented at EuroCALL in 2007, Kukulska-Hulme and Shield survey the use of mobile assisted language learning in the context of social and collaborative learning and conclude that "as of yet, few researchers appear to have considered how to use mobile devices to support a pedagogical approach that is not teacher-led," and that devices that should encourage collaboration "seemed to have been employed primarily to support a teacher-learner rather than a learner-learner collaborative approach" (Kukulska-Hulme & Shield, 2007, p. 14). These authors were particularly surprised to see that there were few collaborative speaking and listening activities and that of those few, most focused on asynchronous speaking and listening. The synchronous studies they found were mostly text based.

In the last two years, numerous anecdotal reports have surfaced that attest to the impact of the iPad on learners of all ages and background (e.g., Mulholland, 2010; Roscoria, 2011a, 2011b) but only a few empirical studies have been published examining the impact of the iPad on teaching and learning. The results, however, are encouraging. Positive learning effects have been found in reading and writing (Harmon, 2012; McClanahan, Williams, Kennedy, & Tate, 2012), in collaboration and engagement (Henderson & Yeow, 2012; Milman, Carlson-Bancroft, &Van den Boogart, 2012), in motivation to learn (Kinash, Brand, & Mathew, 2012; Webb, n.d.), in online research (Webb, n.d.), and in confidence in being in control of the learning (McClanahan et al., 2012). The iPad is also seen as an important tool to extend learning opportunities beyond the classroom (Bennett, 2011; Melhuish & Falloon, 2010). The attempts to integrate iPads into classroom teaching and learning are mostly in the subjects English, Mathematics, Science, and Social Studies. Nevertheless, these studies provide innovative ideas and much needed expertise from the field of learning technology as they "demonstrate general principles in terms of ways of using tools, physical spaces, time allocation, means of communication, distribution of roles, resources and so on" (Kukulska-Hulme, 2009, p. 158).

Measuring Oral Language Proficiency

Measuring oral language proficiency is challenging because, in contrast to written language, oral language is often fragmented with frequent elliptical constructions and run-on sentences. In assessing the speech samples, I use two types of measures: a global proficiency rating as well as in-depth measures such as length of language samples, syntactic complexity, and fluency.

Reviewing the current literature on oral language assessment, Iwashita (2010) points out that there are problems with both approaches. For example, instructors using more established global rating scales paid more attention to vocabulary and pronunciation when evaluating a speaker at a lower level. As the proficiency level increased, the importance of fluency and grammar increased as criteria. Problematic as well according to the studies Iwashita summarizes is the use of objective assessments such as analyses of learner performances with regard to syntactic complexity, grammatical accuracy, and fluency. Not only are different measures used across different studies (T-units, AS-units, subordinating and coordinating clauses, verb phrases, embedding, and a variety of other structural types), descriptions such as "varied" or "sophisticated" used as criteria to assess syntactic complexity (e.g., Wolfe-Quintero, Inagaki, & Kim, 1998, as cited in Iwashita, 2010) are open to interpretation. Iwashita also stresses the difficulty of assessing grammatical accuracy by coding errors. From her review, she concludes that studies of global accuracy (coding all errors) showed little inter-coder reliability and studies recording and analyzing specific types of errors were too narrow to assess overall proficiency. Researchers also do not seem to agree on the definition of fluency. Some use temporal features such as speech production rate, number and length of pauses, or length of fluent speech run (e.g., Freed, 1995; Freed, 2000; Morley & Truscott, 2006), while others consider automaticity of language use as the sole measure. Iwashita (2010) presents a

comprehensive overview of features and approaches used in the current literature assessing oral language performance.

Like Isabelli-García (2003), I define fluency of oral speech as the quantity of speech, the length of utterance per answer, the general flow of the speech sample, and noticeable struggle with the language. She adapted her criteria from the ACTFL descriptions "an intermediate speaker's fluency is characterized by extreme to frequent hesitation, extreme brevity and long pauses. On the other hand, an advanced speaker's speech sample generally flows with occasional hesitation and a moderate quantity of speech" (Isabelli-García, 2003, p. 150). I use the mean length of each sentence (T-unit, an independent clause and all its dependent clauses (Polio, 1997)), as well as the use of independent and dependent clauses in these sentences as determinants of the complexity in the language sample. I add one additional measure to determine progress in language learning, namely the overall length of the recorded speech sample as an indicator of how detailed an answer a student was able to produce. Purposely, I did not limit the lengths of an answer a student could provide, and I analyzed the entire speech sample. I first attempted to evaluate accuracy by counting the sentences that had no errors. There were few such error-free sentences. Moreover, counting error rates to show progression in language learning is problematic as it is not clear what criteria one should use for identifying errors. Clearly, there were "big" errors and "small" errors such as an occasional wrong adjective ending. As the language samples increased in length and in complexity, so did the errors, showing a possible interdependence of complexity, accuracy, and fluency which made it difficult to measure them reliably (e.g., Housen & Kuiken, 2009, p. 66). To address these issues, I evaluated the speech samples holistically with modified categories based on the Interagency Language Roundtable scale.[2] This scale also took into account accuracy in production.[3] [4]

The Study

Part of a larger, two-year investigation at a private research university in the United States, my study examined iPad use and its impact on language learning.[5] There were thirteen students in my class. Their proficiency ranged from the intermediate high to advanced low level of language proficiency on the ACTFL scale. The class met for nine weeks, twice a week for one hour and twenty minutes. All students in the class were given iPads to be used to complete course assignments. Using the iPads, students were actively engaged in a variety of speaking, recording, and listening tasks during the quarter inside and outside of class.

Each week, students were assigned a set of scaffolded tasks, thematic practices, and assignments that targeted a pedagogically sound progression (Harden, Witte, & Köhler, 2006). The design of the tasks followed the ACCESS (Automatization in Communicative Contexts of Essential Speech Segments) methodology described in Gatbonton and Segalowitz (2005). The ACCESS methodology has three phases, as described below.

In Phase One (the creative automatization phase), learners engage in a task or tasks, in which functionally useful utterances are presented, used, and elicited naturally and repeatedly. In Phase Two (the language consolidation phase), learners are engaged in tasks that strengthen the control of problematic utterances elicited and practiced during the first phase, focusing on fluency and accuracy. In Phase Three (the free communication phase), learners engage in free communication activities that deal with topics compatible with those of the creative automatization phase. All of the learning tasks require interaction, negotiation of meaning, and exchange of information in the target language.

The structure of the scaffolded tasks was consistent across the nine weeks, with only the content changing each week. For example, the topic for the second week was "Where students live." As a phase one task, students were asked to view a news segment about the living situation of German students, working with content and vocabulary. This segment was discussed in class through interactive exercises and collaborative group work using *Glassboard* to practice and strengthen control of new utterances and

concepts. During the Face-Time chat outside of class, students were tasked with describing and evaluating their own living situations to that of their chat partner (chat partners for the weekly face-time sessions were chosen in the first class session at the beginning of the quarter) using the vocabulary and phrases they had encountered in the news video. Students were focusing on descriptions, comparisons, evaluation, and asking follow-up questions for clarification in this week's task. The length of each chat session was determined solely by the students. They were asked to keep track of the length of each weekly session and briefly summarize the gist of each discussion for the instructor. As the capstone event of this particular week, each student had to film her/his own room or apartment (or parts of it) with the camera on the back of the iPad while simultaneously describing what the room looked like. Students were free to record as little or as much as they wanted as long as they felt that the task was complete.

In designing the weekly recording assignments, I tried to insure that the elicited tasks progressively enhanced the complexity of the language, the subject matter, and the emotional and cognitive engagement of the students. After recording, each video assignment was sent to a private *YouTube* channel for subsequent reflection on the part of the student, for peer review, and for feedback from the instructor.

For additional listening practice, students were also asked to select, listen to, summarize, and present a short news event or news broadcast of their choice every week. While these broadcasts rarely got discussed in detail during class sessions, students were encouraged to discuss them with their chat partner during the weekly sessions. The goal of watching news broadcasts was to increase the exposure to current cultural information and linguistic models to improve cultural literacy and language.

Among the built-in features and applications that students regularly used on the iPad were the HD video cameras (one on the back and one on the front of the iPad) and Face-Time, a video calling software. With the video camera, students were able to record speaking events, either taping themselves or other students or events. The Face-Time application allowed students to hold regular chats with classmates and their instructor. In addition to using built-in applications on the iPad, I asked students to download several carefully selected applications for language practice. Among the apps I required were: apps for writing and taking notes (*Notes*), for viewing German News (*n-tv*, *ZDF*, *N24*, *Tagesschau*, *Swiss News*, among others), for editing video clips (*iMovie*), for sharing information (*Glassboard*) among students, and various dictionaries and translators. For ease of management, I asked students to download the apps themselves through their iTunes account. To evaluate the effectiveness of the iPad as a learning tool, I asked students to keep track of the length of each chat session. I also evaluated two of the recorded speech samples.

Research Questions

In my study, I address the following thematic areas and related research questions:

1. Conversation between non-native speaker dyads.
    a. How much time did students spend in informal extended conversations between non-native speaker dyads outside of class over the course of the quarter using an iPad?
    b. What was the students' assessment of this activity? Did they feel it contributed to learning the language?
2. Open ended recorded speech.
    a. How long was each open-ended recorded speech sample? Did the speech samples increase over the course of the quarter?
    b. What was the students' assessment of this activity? Did they feel it contributed to learning the language?
    c. What was the quality of the language produced in the open-ended recorded assignments?

d. Was there improvement in terms of fluency, accuracy, and complexity of the recorded language in the nine weeks?

e. Did the students feel that their language improved?

3. Online news broadcasts and short documentary features.

   a. Did students regularly engage in watching news broadcasts and short documentary features using an iPad?

   b. Did the exposure to this authentic material give learners the skill to speak about a wider range of topics on current cultural and political issues?

   c. What was their assessment of this activity, and did they feel it contributed to learning more about the foreign culture?

METHODOLOGY

Participants

Data were drawn from the oral performances of thirteen students of German enrolled in the class. Of the thirteen students, eleven students completed a final questionnaire, which allowed me to learn more about their language background. Ten of the 11 students were undergraduate students (one freshman, one junior, one sophomore, and seven seniors) and one was a graduate student. Three students were double majors with German as their second major and five students were pursuing a German minor. Ten students were native speakers of English; one was born and raised in Ukraine and had lived in the United States since 2001. Six students had studied German abroad; three students between 10 and 12 months and three between two and four months. The number of courses taken in German by the students ranged from two to 14 courses on the intermediate and advanced level. Judging from their first speaking assignment, their approximate level of proficiency ranged from *Intermediate High* to *Advanced Low* on the ACTFL oral proficiency scale (B1 or B2 on the Common European Framework of Reference (CEFR)). According to the ACTFL description, students at the *Intermediate High* and *Advanced Low Level* should be able to handle with confidence most uncomplicated tasks and social situations related to work, school, and recreation. Students at the *Advanced Mid Level* of proficiency should be able to handle a large number of communicative tasks relating to work, school, home, and leisure activities, as well as relate events of current, public, and personal interests or individual relevance.[6]

Data Collection

To elicit a variety of speech samples, the students produced eight recordings. These recordings served as the basis for my analysis. I tracked the length of each recording to assess improvement and ease of language production. At the end of the quarter, the students were asked to repeat assignment # 1, recorded as assignment # 8. These two assignments were transcribed to analyze the pre- and the post-course language for quality and cultural content. In addition, I collected self-reported length of the weekly Face-Time activities. About four weeks after the class ended, students were also asked to fill out an online survey about their experiences and attitudes towards using the iPad.

Measuring Language Performance

My analysis is based on a one-group pretest-posttest design using matched-pairs *t*-tests. Unless otherwise stated, *t*-values below .05 are referred to as "statistically significant." Under the null hypothesis, the mean of the paired differences is asymptotically normally distributed. In addition, I used the approximation formula to compute the standard error, since the sample size is small. While the distribution in each week may not be normal, the paired differences rapidly converge towards a normal distribution. In addition, I complemented the parametric tests with the non-parametric Wilcoxon signed-rank tests and the inferences

were the same (results not tabulated). The features analyzed in the present study are:

> Length of Language Sample: the length of recorded time (in minutes and seconds) as well as the number of individual words produced.
>
> Fluency: the rate of speech production based on the number of words produced in the speech sample, expressed as words per second.
>
> Syntactic complexity: the mean number of sentences (t-units) at T1 (pre-test) and at T2 (post-test), the mean length of each sentence (t-unit, expressed in number of words), and the proportion of complex sentences (defined as including a dependent clauses) to the total number of sentences.
>
> Overall proficiency (which includes the category of accuracy): evaluated holistically using criteria based on a modified ILR scale.[7]

RESULTS

Weekly Face-Time Chats

The (self-reported) time spent in oral discussion varied considerably, ranging from sixty minutes a week to as little as five minutes. The average time spent each week video chatting ranged from 22.55 to 29.45 minutes over the course of the quarter. The length did not change significantly from week to week. The description of the data (mean and standard deviation of weekly conversation time outside of class) has been presented in Table 1 (left side).

Table 1. *Weekly Face-Time Conversation Times and Video-Recording Times*

Weekly Face-Time (minutes)				Weekly Video-Recording (seconds)			
Week	*n*	Mean	*SD*	Assignment	*n*	Mean	*SD*
-	-	-	-	1	12	103.42	22.07
2	11	29.45	19.20	2	11	176.18	68.81
3	11	25.82	9.08	3	12	228.67	77.77
4	9	28.33	13.69	4	12	229.58	100.54
5	11	22.55	7.61	5	12	286.83	87.97
6	11	28.18	12.50	6	11	421.09	130.87
7	12	27.08	11.37	7	12	449.08	242.29
8	12	23.83	8.10	8	12	330.50	107.98

Note. Weekly Face-Time is the participants' self-reporting of minutes of conversation; video recording times are also self-reported and are in seconds.

Weekly Recording Assignments

Students submitted eight recorded assignments during the quarter (one a week), each more complex in terms of breadth and difficulty level of vocabulary and task. The length of the recordings increased each week (see Figure 1). The average time for assignment # 1 was 103 seconds (1 minute and 43 seconds) and the average time for assignment # 7 was 449 seconds (7 minutes and 29 seconds). Assignment # 8 (which was the same task as assignment # 1) was on average 330 seconds long (5 minutes and 30 seconds). It is interesting to note that students reported spending much more time speaking and recording each week because they rerecorded the assignments several times before finally submitting them. In Table 1 (right side), I present the length of the final recordings (mean and standard deviation of weekly recording time

outside of class).

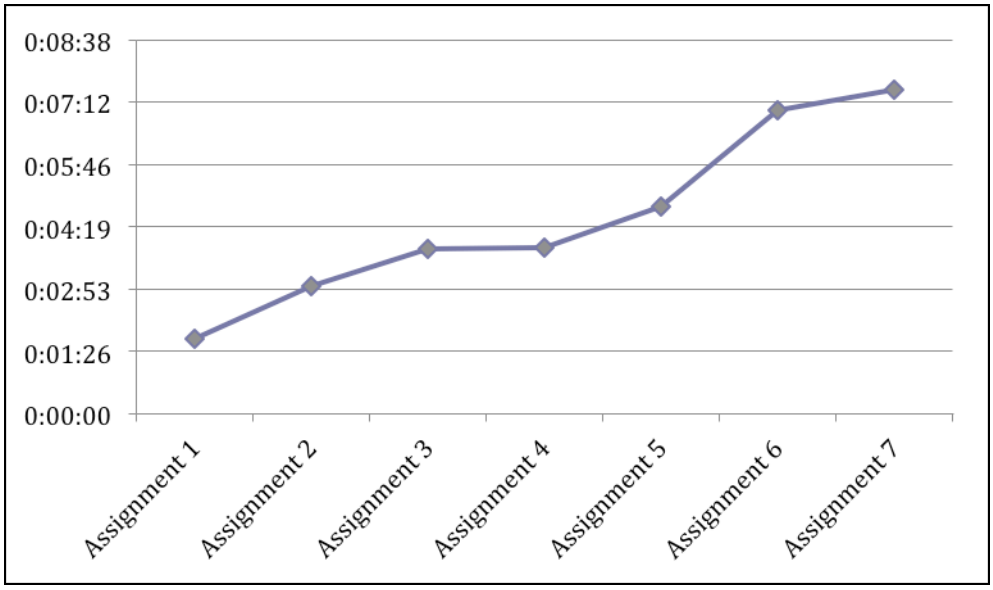

Figure 1. Average Length of Weekly Video Recordings (in Minutes and Seconds)

Fluency, Accuracy, Complexity

Assignments # 1 and # 8 were fully transcribed and I analyzed the increase in length of the recorded speech samples from the beginning of the course (T1) and from the end of the course (T2) as well as changes in fluency, accuracy, and complexity of the speech samples. In assignments # 1 and # 8, I asked students the same questions to ensure that the observed differences were not the result of the difference in task (How would you describe yourself to a person who has never met you? Describe the differences between the United States and Germany. What makes each country unique?).

Time

The average length of the language samples at T1 was 104.83 seconds with a standard deviation of 21.91. The average length at T2 was 334.33 seconds. This represents a three-fold increase over the course of nine weeks. The standard deviation markedly increased as well (from 21.91 to 120.06) which attests to the much greater variability in the data at T2. I hypothesized that the time spent would increase and therefore computed the *p*-value using a one-tailed *t*-test. As I have reported in Table 2, the average increase of 229.83 seconds is significant, $t(11) = 6.50$, $p = .000$, $d = 2.27$, using a paired *t*-test.

Words Produced

Students produced an average of 178.00 words in T1 and an average of 477.33 words in T2, an increase of 299.33 words over the course of nine weeks. Because I hypothesized that the words produced would increase over the nine weeks, I computed the *p*-value using a one-tailed *t*-test. As I have reported in Table 2, the difference in means is also significant, $t(11) = 6.12$, $p = .000$, $= 2.52$, using a paired, one-tailed *t*-test.

Fluency Rate

I calculated the fluency rate by dividing the total number of words produced in the speech sample by the total amount of time expressed in seconds. Because I did not have a directional hypothesis, [8] the *p*-values reported in Table 2 have been based on a two-tailed paired *t*-test. The average fluency rate at T1 was 1.69 (a little over 100 words per minute) and at T2 was 1.42 (a little over 85 words per minute), which represents a decrease in fluency rate of 0.27 (or 15 words per minute). This result is significant, $t(11) = -1.99$, $p = .036$, $d = -.71$ using a paired *t*-test.

Syntactic Complexity

The average number of sentences produced at T1 was 12.62 and the average number of sentences at T2 was 26.23, an increase of 13.61 sentences over the course of nine weeks. This result is significant, $t(11) = 5.29$, $p = .000$, $d = 1.70$. The average sentence length was 12.77 words per sentence at T1 and 15.75 words per sentence at T2, an increase of about three words per sentence. This result is also significant, $t(11) = 2.11$, $p = .029$, $d = .56$. The average number of simple sentences produced at T1 was 9.54 and the average number of simple sentences at T2 was 17.92, an increase of 8.38 sentences over the course of

Table 2. *Language Performance and Fluency Measures at T1 and T2*

		N	Mean	*SD*	*t*-value	*p*-value	Cohen's *d*
T1	Seconds	12	104.83	21.91			
	Words	12	178.00	56.57			
	Fluency	12	1.69	0.4			
T2	Seconds	12	334.33	120.06			
	Words	12	477.33	193.78			
	Fluency	12	1.42	0.3			
Change	Seconds	12	230	122	6.50	.000	2.27
	Words	12	299	169	6.12	.000	2.52
	Fluency	12	-0.27	0.38	-1.99	.036	-.71

Note. : Language performance measures the time students spoke and number of words produced. For language performance, the t-values and p-values are the result of paired one-tailed t-tests. For fluency, the t-value and the p-value are the result of paired two-tailed t-tests.

nine weeks. This result is significant, $t(11) = 3.24$, $p = .004$, $d = 1.00$. I also compared simple sentences versus complex sentences (defined as sentences with clauses with inverted word order such as relative clauses or dependent clauses). At T1 students produced an average of 9.54 simple sentences and 3.08 complex sentences; at T2 students produced an average of 17.92 simple sentences and an average of 8.31 complex sentences, an increase of 8.38 simple sentences (significant, $t(11) = 3.24$, $p = .004$, $d = 1.00$) and 5.23 complex sentences (significant, $t(11) = 5.01$, $p = .000$, $d = 1.43$).

The average ratio of simple to complex sentences at T1 was.24 and the average ratio at T2 was.31, an increase of.09. With a *p*-value of .096, this result is only significant at the 10% level ($t(11) = 1.39$, $p = .096$, $d = .36$). I compute the *t*-values and the corresponding *p*-values using a paired one-tailed *t*-test. Table 3 presents the data (mean and SD) for simple and complex sentences and words per sentence at T1 and T2. It also presents the data (mean, standard deviation, *t*-value, *p*-value) for the change of simple and complex sentences and words per sentence between T1 and T2.

Overall Proficiency and Accuracy

Proficiency and accuracy were evaluated by four experienced instructors not associated with the course using the Interagency Language Roundtable scale. Each sample was read by two instructors. It was a blind assessment. Instructors helping evaluate overall proficiency and accuracy were able to reach a reliable inter-rater agreement.[9] Of the twelve students evaluated, three received the same score at T2 as compared to T1, four received a slightly lower score, and five received a higher score for their second

sample. I will discuss the specifics of this analysis in the Discussion section.

Results of the Survey

Eleven students took the final survey four weeks after the end of the class. The survey results suggest that most students thought that the iPad technology helped them learn the language (see Appendix C for survey results). Eight students agreed or strongly agreed that Face-Time was helpful to engage in speaking activities outside of class. When asked about learning opportunities, seven students agreed or strongly agreed that video chatting was a great way to learn. Eight students agreed or strongly agreed that

Table 3. *Syntactic Complexity at T1 and T1 and Change of Syntactic Complexity*

		n	Mean	*SD*	*t*-value	*p*-value	Cohen's *d*
T1	Simple	12	9.54	4.05			
	Complex	12	3.08	1.61			
	Total	12	12.62	3.23			
	Ratio	12	0.24	0.14			
	Words/ Sentence	12	12.77	3.76			
T2	Simple	12	17.92	10.17			
	Complex	12	8.31	3.62			
	Total	12	26.23	10.32			
	Ratio	12	0.31	0.15			
	Words/ Sentence	12	15.75	3.39			
Change	Simple	12	8.38	4.05	3.24	.004	1.00
	Complex	12	5.23	1.61	5.01	.000	1.43
	Total	12	13.62	3.23	5.19	.000	1.70
	Ratio	12	0.07	0.14	1.39	.096	0.36
	Words/ Sentence	12	2.98	3.76	2.11	.029	0.56

Note. The *t*-values and the *p*-values are the result of paired one-tailed *t*-tests.

the iPad camera was helpful in practicing language. When asked about learning opportunities, 10 students agreed or strongly agreed that re-listening/re-recording deepened their learning experience. Eight students agreed or strongly agreed that they felt more confident about participating in class and communicating clearly as a result of using the iPad. Ten students agreed or strongly agreed that the iPad complemented the classroom. Seven students agreed or strongly agreed that the iPad enhanced their learning: it allowed for a more immersive experience (seven agreed or strongly agreed); it encouraged collaboration (eight agreed or strongly agreed); and the collaborative tools engaged them more (seven agreed or strongly agreed).

During the quarter, students were asked to watch one cultural news segment a week and discuss in class and during chat sessions what they had learned. Students were asked to keep track and report how much they had engaged in listening/viewing activities. Unfortunately, the self-reported data had many missing values (many students could not recall). In the survey, nine students agreed or strongly agreed that news broadcasts increased their cultural awareness. When asked which applications were most helpful in increasing their awareness and knowledge of current cultural and political events in Germany and Europe, most students listed streaming news broadcasts (10 students strongly agreed or agreed) and online newspapers (11 students strongly agreed or agreed). This is surprising since only two students listed

"learning about German culture" as one of their goals for signing up for this class. The easy access to current news broadcasts may have heightened their interest.[10]

I also asked students to self-evaluate their speaking skills before and after the class as an indication of how they felt about their progress. Using the rubrics of the Common European Framework of Reference, six thought they had definitely moved up one level on the scale, one thought she had moved two levels, and four thought they were at the same level as before after nine weeks of class (see Figure 2).

Ten students welcomed the opportunity to use an iPad in the language class. Asked why, one student commented: "It was great to use the device as an opportunity to have something more akin to a study abroad experience while still on campus. I would say that 95% of the videos I watched on the device were in German, and I spoke no English, only German, while using Face-Time." There were, however, some criticisms of the use of this technology. Two students did not think the iPad enriched their learning. One commented that it was a hassle and distracted her/ him from the learning environment; one commented that some of the functions could easily be duplicated on a laptop (Skype versus Face-Time) and that she/ he felt more comfortable with a physical dictionary. Only five of the students liked the multi-sensory input of the iPad. Most students liked the versatility, ease, and novelty of the technology. However, for most of them it was a new device and the learning and mastering of the technologies we used was challenging (video-chatting, recording, uploading and syncing the device, video editing).

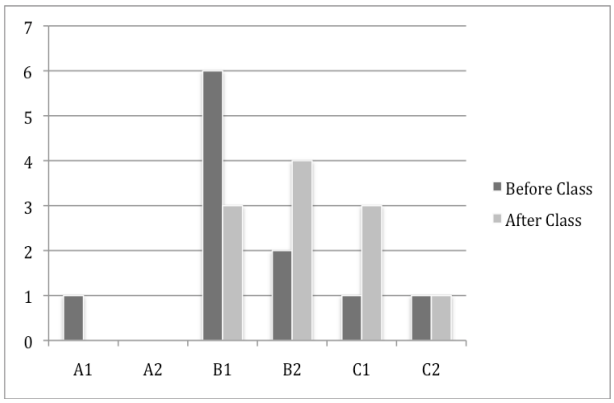

Figure 2. Self-Assessment of Skills before and after Class using the CEFR Scale.

DISCUSSION

The results of my study suggest that getting involved in real-time conversational activities through Face-Time is likely to be beneficial in helping improve oral proficiency in the advanced student. Comparing the students' recordings from the beginning and the end of the class shows that the oral language proficiency increased over only nine weeks across several dimensions. The added conversation and recording time outside of class with the iPad may not have been the sole reason for an increased proficiency, as the work accomplished in class should have been beneficial as well and should have complemented and guided the tasks outside of class. However, there are a number of studies that have demonstrated the potential of increasing L2 competency using real-time conversational exchange via text and speech (e.g., Beauvois, 1998; Payne & Ross, 2005; Payne & Whitney, 2002), also in German (e.g., Abrams, 2003; Kost, 2004). Having taught the class many times before with limited technology (watching news broadcasts in class), I was surprised to see that the language samples produced at T2 after the iPad practice were much better than what I had experienced previously. The added practice gave students on average up to thirty minutes a week in conversational practice time with their peers. This is a considerable increase when compared to the time students generally speak during class. Given the research on interaction presented above, I would have expected the added practice to yield such results.

That students felt more and more comfortable with speaking as time progressed is corroborated by the recording assignments. Recording times increased to more than seven minutes (on average) over the course of the quarter as students became more certain of their skills and had more to say. Students commented in the survey that they felt that Face-Time was a great way to learn the language and that re-listening/re-recording the assignments deepened their learning experience considerably.

Previous research suggests that syntactic complexity increases as learners gain experience in their L2 (e.g., Magnun, 1988). This is also the case here: Sentences became longer (an increase of three words per sentence on average) and more complex as seen by an increase in the ratio of simple to complex sentences of 0.07. The fluency rate, however, decreased between the two samples by approximately 15%, which was unexpected. Still, Norris and Ortega (2009) suggest that accuracy, fluency, and complexity may not develop in a linear fashion but may be seen as interrelated and may constantly change. My results suggest that as the linguistic complexity increased, processing time increased as well as students reflected on how to best express their more complex thoughts. This result is in contrast to Morley and Truscott (2006) who reported a main gain in fluency over 12 weeks for students working in tandem situations as 12% compared with a gain of less than 1% for those studying in the classroom. But this may also be an artifact of the difference in computing fluency.

Evaluating overall proficiency and accuracy proved to be difficult. Students tended to use short simple sentences in their first spoken sample. In the second sample, students used longer, more complex sentences. They varied the structure of the language and the content increased in complexity as well (compare language samples in Appendix A and Appendix B). The language in the second sample was less fluent, and tended to be less accurate as it had more errors. This is again consistent with the literature (e.g., Magnum, 1988). Language learning has been described as a product of rule formation and hypothesis testing. As learners try to integrate more sophisticated language, they may reject previously accepted language forms as part of the process of restructuring their evolving language competence. Learning a language, therefore, is not a linear process but the language learner may exhibit a U-shaped learning behavior, a phenomenon widely discussed among psychologists and cognitive scientists (e.g., Karmiloff-Smith, 1992) and one which has also been documented for learning German as an L2 (e.g., Siebert-Ott, 2000).

Instructors assessing the spoken samples holistically using a modified Interagency Language Roundtable scale could not always agree on the final scores as some tended to evaluate the more obvious features such as errors and pauses first, indicating that different factors may contribute differently to language proficiency at different levels (Higgs & Clifford, 1982). Sentence lengths and complexity were not always that obvious. Some of the samples were very long and the language varied across the sample depending on the task and the content (i.e., it was easier for students to speak about themselves than to compare two countries). The students, however, did not see it this way: according to the survey, they felt more confident about participating in class and communicating as a result of using the iPad.

Analyzing the language samples for cultural topics, students had clearly much more to say about current issues in Germany and Europe at the end of the class, which contributed to the increased length of the samples but also to the less fluent speech. Expressing that you do not know much about Germany is easier than trying to explain the problems in the European Union with Greece. While most students did not indicate that they took the course to learn more about culture, almost all felt that the news broadcasts they had watched on the iPad and had discussed over Face-Time had increased their cultural awareness.

Comparing the results of the instructor assessment, three students were rated the same in T1 and T2, five students were rated higher in T2 than in T1, and four students were rated slightly lower in T2. Converting the results to the ACTFL scale[11] suggests the following: at the beginning of the class, six students were rated as Advanced Mid, five students as Advanced High, and one student as Superior. At the end of the class, four students were still at the Advanced Mid level and two students had moved from Advanced Mid

to Advanced High according to their spoken sample. The fact that some students were able to reach a different competency level on the ACTFL scale after only nine weeks of instruction and practice indicates that at least for some students, the additional language practice was crucial.

Limitations of the Study

There are two major limitations of my study: the small sample size (although the changes were significant at conventional levels) and the absence of a control group. As such, it is difficult to say with certainty how much the added interactional practice contributed to the proficiency gain as compared to what the classroom would have offered alone. Nevertheless, a quasi-experimental design or one group pretest-posttest design—the design I employed in this study—can still provide usable data, especially when the instructor has taught the class before without the introduction of technology. Furthermore, it can help formulate important questions and improve the study design for subsequent experiments.

In hindsight, comparing the first assignment also introduced limitations, for two reasons. First, there were some technical glitches with the recording and uploading of the first assignment which were resolved by the second week. In addition, some students did not feel comfortable with the technology at first, which may have artificially shortened the amount of time they spoke. Based on my experience, I would recommend using the second and last assignments for comparison, allowing time to work out technical problems and to allow students to adjust to the new learning environment. Comparing the content of assignments # 1 and # 8 assured us that giving the same topic twice was not a problem for the design. Students provided completely different answers indicating that they were not duplicating the earlier work.

Morley and Truscott (2006) suggest that the formal interviews they used to assess their students may not have been the ideal way to measure fluency because of the anxiety associated with formal interview settings. In our sample, fluency did not improve despite the fact that students spoke in a very relaxed environment and had the chance to rerecord their final language sample until they felt it was perfect.

CONCLUSIONS

Overall, my results are consistent with a series of findings from the literature. Specifically, I find that the additional practice afforded by using an iPad indeed increased the amount and quality of the oral production in the learners. The increase in proficiency over nine weeks may not have been the result of simply adding conversational practice. In a study assessing language gain in Spanish speaking students spending a semester abroad, only 12 of the 22 students were able to improve their proficiency by one level (from Intermediate Low to Intermediate Mid), even though they had reported that they had used Spanish outside of class for more than forty-five hours per week (Segalowitz & Freed, 2004, as cited in Tschirner, 2007, p. 111). Students apparently blamed the repetitive and predictable nature of many exchanges with their host family. The increase of proficiency in our study may have been a function of the integrated scaffolded nature of the tasks using iPad technology. In van Lier's words: "The aim is to pull (without forcing) the students into an ever expanding ZPD so that they gradually become more confident and independent language users in accordance with their growing proficiency" (van Lier, 1996, p. 198).

Students spent on average almost thirty minutes a week engaged in synchronous speaking activities outside of class. In addition, they spent considerable time recording their speaking. Recorded speaking samples increased over the course of the quarter to seven minutes on average. I found a definite change in the quality of the language when comparing sample # 1 recorded at the beginning of the quarter (T1) and sample # 8 recorded at the end of the quarter (T2). The students produced more language (as expressed in time and number of words). The sentences at T2 were considerably longer and were more complex than the sentences at T1, which tended to be more formulaic in nature. The language at T2, however, was less fluent and less accurate. For one, the students were using fewer formulaic expressions and more complex constructions (increasing the likelihood of errors). The content of the spoken samples was more informed (learners had more to say) but also more complex. The data suggest that fluency does not develop linearly,

but may fluctuate, depending on the complexity of the language and content and that nine weeks is probably not enough to solidify fluency and accuracy, even though the students' language clearly improved.

Implementing iPads in the classroom was not without its challenges. The infrastructure needed to be updated (e.g., connectivity, projection system) and the instructor and the students required technical support throughout the quarter. Students at first tried to use the iPad in the same way they would use their computer and were quite surprised at the differences (e.g., how the iPad handled the saving and conversion of documents, especially large files, as well as the production of large written texts) to the point where some students clearly preferred the laptop because they were more familiar with it.

Nevertheless, the role of mobile devices in enabling individuals to engage in powerful learning experiences outside the classroom is expanding and evolving dramatically. As instructors, we cannot ignore this development as our future students will expect us to provide access to learning to improve motivation and depth of learning through a myriad of learning tools. Using mobile devices is an effective instructional approach by providing learning opportunities that the more traditional classroom alone cannot furnish.

APPENDIX A. Language Samples (describe yourself)

Sample *One*

Das ist Stacy. Ich bin unsicher, wie kann ich mich am besten beschreiben. Vielleicht soll ich mit meinem Alt anfangen. Ich bin einundzwanzig Jahre alt und ich wurde in Kiev geboren. Meine Lieblingsfarbe ist grün. Technomusik und Folkart gefallen mir. Meinen Charakter: ich bin ein bisschen schuchtern und verschlossen und ordnungsliebend aber mit meinen Freuden bin ich ausgelassen und humorvoll. Ich bin immer nervös, wenn ich nach neue fremde Orten reisen muss. Ich bin ein bisschen unsicher über meinen Zukunft aber ich hoffe ein Phd in Chemie zu bekommen.

(Approximate translation: *That is Stacy. I am uncertain, how I can describe myself best. Maybe I should start with my age. I am 21 years old and I was born in Kiev. My favorite color is green. I like techno music and Folkart. My character: I am a little shy and reserved and like to keep everything nice and tidy, however, with my friends I am playful and funny. I am always nervous when I have to travel to new, strange places. I am a little uncertain about my future but I hope to receive a PhD in Chemistry.)*

Sample Two

Ich heiße Anastasia, aber die meisten nennen mich Stacy, weil es einfacher zu aussprechen ist. Ich komme aus der Ukraine aber ich bin in Amerika seit 2001. Jetzt bin ich eine Bürgerin und ich freue mich darüber, weil es eine lange Prozess war. Ich bin ordnungsliebend ..., und es ist sehr wichtig in Chemie und ich will eine Chemikerin werden. Ich bin freundlich aber auch ein bisschen schu...schüchtern, wenn ich neue fremde Leute treffen muss. Grün ist noch meine Lieblingsfarbe und Rock, Folkrock und Techno gefallen mir. Es kommt auf meine Laune, welche Musik ich lausche. Und ich, wenn ich Zeit haben, dann lese ich Science Fiction. Ich finde die Welten, die sie beschreiben, sehr faszinierend sind. Daher lese ich diese Geschichte. Ich habe eine Schwester und auch eine Neffe und diese Wochenende habe ich Zeit sie zu besuchen. Und ich freue mich darüber.

(Approximate translation: *My name is Anastasia, but most call me Stacy because it is easier to pronounce. I am from Ukraine but I have been in the United States since 2001. I am a United States citizen now and I am glad because it was a long process. I like to keep everything nice and tidy... and this is very important in chemistry and I want to be a chemist. I am friendly but also a little shy ... shy when I have to meet strangers. Green is still my favorite color and rock, and I still like rock, folk rock and techno. It depends on my mood, what kind of music I choose to listen to. And I, if I have time, I read*

science fiction. I find the worlds, which it describes, are very fascinating. Therefore, I read this story. I have a sister and a nephew, and this weekend I have time to visit them. And I am happy about it.)

APPENDIX B. Language Samples (Compare the US to Germany)

Sample One

An die zweite Frage. So, ich finde Deutschland, es ist kleiner als den USA und auch es ist ein Teil der [unclear] und die Deutsche sind freundlich, aber mehr reserviert als Amerikaner und sie reisen viel auch. Was die Deutschen wichtig finden. Sie finden die Finanzkrise wichtig und auch Schuldkrise und auch natürlich europäische Union Politik, weil das ist klar. Und ich glaube auch sie finden Energie, insbesondere Alternativenergie wichtiger als Amerikaner.

(Approximate Translation: *To the second question. So, I think Germany, it is smaller than the U.S. and it is a part of the [unclear] and the Germans are friendly, but more reserved than Americans, and they also travel a lot. What the Germans find important. They find the financial crisis important and debt crisis and of course politics of the European Union, because that is clear. And I think also they find energy, particularly alternative energy more important than Americans.)*

Sample Two

Mein nächster Punkt ist, was ich über Deutschland kenne. Zuerst , ... die Deutscher haben Lust für Politik und es ist nicht nur deutsche Politik, sondern auch ... andere europäische Politik, amerikanische Politik, [unclear]Politik. Sie haben auch Lust für Wissenschaft und neue Technologie, insbesondere Alternativenergie. Ich finde das sehr cool, weil ich habe auch Lust für Alternativenergie. Es gibt auch viele soziale Probleme in Deutschland wie in den USA. Zum Beispiel in der Schule gibt es Gewalt, in der Schule, die Problemkinder, es gibt viel Armut, es gibt auch viele Immigranten, viele Ausländer in Deutschland. Ich wusste, dass es gibt Ausländer natürlich, aber ich wusste nicht, dass es so viele Ausländer gibt. Zusammenfassend möchte ich sagen, dass Deutschland ist nicht so anders, ... Deutschland nicht so anders als den USA ist. Wir haben beide soziale Probleme. Ehm, aber haben Deutschland und die USA auch viel Lust für Politik Wissenschaft, Technologie, Reisen. Das ist alles. Danke.

(Approximate translation: *My next point is what I know about Germany. First, ... Germans have a desire for politics and it is not just German politics but also ... other European politics, American politics, [unclear] politics. They also have a desire for science and new technologies, in particular, green energy. I think it is very cool, because I also like green energy. There are also many social problems in Germany as in America. For example, there is violence in school, in school, children with problems; there is a lot of poverty, there are also many immigrants, many foreigners in Germany. I knew that there are foreigners, of course, but I did not know that there are so many foreigners. In summary, I would like to say that Germany is not so different ... Germany is not so different from the U.S. We both have social problems. But Germany and the United States also have a big desire for politics, technology, travel. That's all. Thank you.*)

APPENDIX C. Survey Results

	strongly agree	agree	neutral	disagree	strongly disagree	NA
Overall, I welcomed the opportunity to use an iPad in my language class.	6	4	1	0	0	0
Indicate whether the following Apps were helpful in practicing and engaging in speaking activities.						
• Face-Time connection to talk with a partner outside of class.	4	4	2	0	1	0
• iPad camera to record my own speech samples and listen to it.	7	2	0	2	0	0
• Dictionary apps to check new words and phrases to increase my vocabulary.	5	3	2	1	0	0
Indicate whether the following Apps increased your awareness and knowledge of current cultural and political events in Germany and Europe.						
• Streaming news and television broadcasts such as n-tv, ZDF, and Tagesschau.	6	4	1	0	0	0
• Online newspaper articles.	7	4	0	0	0	0
• Using the iPad in my class enhanced and enriched my learning in multiple ways.	3	4	2	1	1	0
• The tools on the iPad allowed for approaches to learning outside the classroom in ways that complemented the formal learning situation in the classroom.	4	6	1	0	0	0
• The tools on the iPad encouraged people to help each other and to learn from each other.	3	5	1	2	0	0
• Using collaborative tools on the iPad engaged me more in the subject.	2	5	2	2	0	0
What learning opportunities did the iPad provide specifically.						
• Because of the added practice with my partner through weekly Face-Time sessions, I feel more confident to participate actively in small group and class discussions in German.	3	5	2	0	0	1
• Because of the added practice and individual and group feedback with the weekly video sessions, I feel more confident in communicating ideas clearly, fluently, and meaningfully, especially on topics discussed and practiced in class, but also on topics we have not practiced.	1	7	2	1	0	0
• The iPad made it easier for me to speak German to other classmates outside of class. I would not have spoken so much German without the iPad.	3	4	2	1	1	0
• Video chatting with other students (or with the professor) was one of the best ways to learn.	1	6	2	1	1	0
• To repeat content as often as needed (re-listening to news or re-recording video assignments) deepened my learning experience.	3	7	1	0	0	0
• Streaming news and television broadcasts helped me understand current cultural and political events in Germany and Europe.	5	4	2	0	0	0

NOTES

1. In a more recent study involving German as L2, Kasper (2004) also argues for the learning potential of language-activities that are far less pre-structured than tasks (see Eckerth and Tschirner (2010) for an overview of the literature on task-based learning in German as L2).

2. For students' self-evaluation in the questionnaire, I used the Common European Framework of Reference scale. To evaluate the recorded language samples, I redefined the assessment rubrics using the Interagency Language Roundtable (ILR) scale. With six levels, ranging from zero proficiency through native proficiency (including "plus" levels at each stage), this scale covered a wider range of abilities.

3. Magnan (1988) found a significant relationship between Oral Proficiency Interview ratings and percentage of grammatical errors. Iwashita (2010) also showed that in various studies she reviewed, the principal determining factor in evaluating oral language samples globally was grammatical accuracy.

4. In a comprehensive overview on the most recent literature of German as L2, Eckerth and Tschirner (2010) report that the research on oral skills in learning German as L2 is still limited. They list Aguado, Bärenfänger and Beyer (2003) who report on current research on the role of attention, monitoring, and automatization in oral language production, and Adamczak-Krysztofowicz and Stork (2007), Bose and Schwarze (2007), and Huth and Taleghani-Nikazm (2006) with regard to L2 pedagogy.

5. Interested language instructors at this study's university (any language/any level being taught) with a coherent plan on how to use and integrate the new technology into their class could apply for project support. Two projects a quarter were chosen. The instructors received an iPad to keep (an effort to get even novice instructors up to speed on the use of iPad technology and selection of apps) and their students received an iPad for the duration of the class. As part of an effort to share new language teaching models and to report on study results, instructors were asked to provide a short research report of their class, and a presentation to the language teaching community detailing how effective the iPad use was and in what ways it changed the learning and teaching environment. The project website at http://mmlc.northwestern.edu/ipad/ provides a description of the two-year study and survey results as well as individual class reports. A news story and student interviews prepared by the at this study's university on two Chinese classes using iPads in the winter 2012 can be found here: http://www.northwestern.edu/newscenter/stories/2012/04/ipad-chinese-language.html

6. The overall goal for the German program at this university is for our best students to reach the *Advanced High Level* on the ACTFL oral proficiency scale (C1 on the Common European Framework of Reference) by the time they finish their major in German. Given the diverse intellectual potential of students, the lack of experience they may have with regard to study abroad, and the variety of courses students choose to take, we have not set this level as a graduation requirement.

7. The Interagency Language Roundtable scale covers a wide range of language abilities. It has six levels, ranging from 0 (No Practical Proficiency) through 5 (Native or Bilingual Proficiency) with an intermediate level ('plus' level) at each stage. I used a summarized version for the level descriptions for speaking of the version found here: http://www.govtilr.org/Skills/ILRscale2.htm.

8. As students become more proficient in their L2, they begin to use more complicated and more complex constructions accompanied by increased difficulties with lexical encoding. Fluency rates based on temporal features may therefore temporarily decrease (see also Hilton, 2009).

9. Instructors 1 and 2 evaluated the pre-test assignment of students 1-6 and the post-test assignment of students 7-12. The degree of agreement (weighted Kappa) was moderate (0.486) and fair (0.368) respectively. Instructors 3 and 4 evaluated the pre-test assignment of students 7-12 and the post-test assignment of students 1-6. The degree of agreement (weighted Kappa) was good (0.609) and very good (0.987) respectively.

10. Students commented that they especially liked *Nachrichten Kompakt*, a two-minute news summary on *n-tv* and *Tagesschau in 100 Sekunden*, a 100 second news-summary on the program *Tagesschau*. Both programs provided a much-needed overview of current issues facing Europe.

11. I used the conversion to the ACTFL scale that has been suggested by Tschirner (2005).

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