

# Reflexive photography, attitudes, behavior, and CALL: ITAs improving spoken English intelligibility

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## Abstract

*Research in the field of Computer-Assisted Language Learning (CALL) has frequently taken a top-down approach when investigating learners' attitudes and behavior, both in the course as well as for their personal use. Suggestions are given for use of technology, and future research (Beatty, 2010; Levy & Stockwell, 2006). One perspective that has not been examined in CALL is Reflexive Photography, a method that lends itself to rigorous and focused analysis and can illuminate the participants' experiences and perceptions in a way that the above methods cannot. In reflexive photography, participants are asked to photograph their experience of the phenomenon in question. These photographs serve as the basis for the discussion with the researcher that follows, and help to define the scope of the particular phenomenon. Together, the participants and the researcher co-produce the information regarding the phenomenon (Jenkins, Woodward & Winter, 2008). Reflexive photography has been used to explore issues of identity and experience in other fields, although in CALL, it has been underutilized. The present study identified current uses of technology among International Teaching Assistants (ITAs) taking a course to improve their spoken English intelligibility. Midway through the term, learners photographed what they deemed to be helpful and what they felt obstructed the improvement of their oral English production. They then shared seven to ten photographs in a focus group of peers. At the end of the term, the researcher interviewed the learners regarding these experiences. The photos and the interviews were coded and the researcher examined the emergent findings, using observations and electronic communication from*

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*throughout the term to triangulate and support the data. The findings revealed valuable insights through the eyes of the learners regarding what technology the learners found to be helpful and/or obstructive, both in the course as well as for their personal use, and suggestions for improvements in use of technology are given. Finally, future research directions in CALL using reflexive photography are discussed.*

KEYWORDS: CALL; FOREIGN TEACHING ASSISTANTS; GRADUATE TEACHING ASSISTANTS; INTERNATIONAL TEACHING ASSISTANTS (ITAs); PHENOMENOLOGY; PHOTO ELICITATION; REFLEXIVE PHOTOGRAPHY

## Introduction

While considerable research has been done on CALL (Computer-Assisted Language Learning) and how teachers implement it, there is a need to understand language learners' subjective experiences regarding technology for learning both in and out of the classroom. Made easier with mobile devices, the ubiquity of cameras has allowed people to more easily share their thoughts and opinions not just with words, but also with images as a means of expression. Snapping a photo and uploading it for friends and acquaintances to see world-wide through social media platforms such as Facebook, Instagram, Twitter, and Snapchat has become a mundane experience to millions world-wide. The popularity of image-sharing could be attributed not only to the ease of use, but but also to the ability to to communicate an idea more succinctly, especially where words are lacking or unimportant.

Visual methods are becoming increasingly popular in the social sciences. As long as students are willing to share photos, it is reasonable that educators and researchers might utilize them in order to better understand students' perspectives and help them to engage with the material. In the area of second or foreign language learning, this should be a natural fit. Having students communicate with teachers and researchers in part through images is advantageous because photos are a way to express oneself both concretely and symbolically; additionally, images can compensate for developing language skills in an interview scenario (Jenkins *et al.*, 2008).

Because of the rich, potential data that photographs provide, the present phenomenological study utilized reflexive photography to identify the experiences of International Teaching Assistants (ITAs) enrolled in a requisite ITA preparatory course; specifically, the role that technology played in their English studies. Participants photographed what helped and what blocked their efforts to improve their spoken English halfway through the term. They shared a selection of photographs in focus groups to discuss the reasons for taking them along with relevant stories behind the images. The researcher

interviewed the participants at the end of the term, focusing on the photographs and content of the focus group discussions. Both the photographs and the interview transcripts were coded, and a phenomenological analysis was undertaken; electronic communication and researcher observations were used to triangulate the data. Select findings relating to the ITAs' experiences with technology will be highlighted, followed by an evaluation of the use of reflexive photography in this project and how it could be used to investigate other areas of CALL.

Before delving into the particulars of the study of the study, an overview will be given of how photographs have been used in qualitative research so that the distinction can be made between reflexive photography and other forms of photo elicitation, and so that the reader will understand the potential of reflexive photography as a convenient and effective way to investigate learners' subjective experiences with technology and language learning.

## Photographs in Qualitative Research

Primarily in the social sciences but more recently in other fields such as business, health studies, and education, photography has been used as a research tool not only for documentation but also for data collection in the form of photo-elicitation interviews (Collier & Collier, 1986; Harper, 1986; Heisley & Levy, 1991; Hurworth, 2003; Knoblauch, Baer, Laurier, Petschke & Schnettler, 2008). Photo-elicitation interviews are a means of data collection whereby the interviewee interprets images in photographs, the photographs being the focal point of these open-ended interviews (Harper, 1994). In these interviews, photographs act as powerful tools for insight into participants' experiences and attitudes as 'they can carry or evoke three things – information, affect and reflection' (Rose, 2007: 238). There are many benefits to this method. Collier and Collier (1986), leaders in using photography as a research method in anthropology, explain the power of images:

Photographs can be communication bridges between strangers that can become pathways into unfamiliar, unforeseen environments and subjects. The informational character of photographic imagery makes this process possible. They can function as starting and reference points for discussions of the familiar or the unknown, and their literal content can almost always be read within and across cultural boundaries. (p. 99)

Indeed, photographs can help the interviewer to probe more deeply using the image as a reference point and to remain on-topic.

One way that photographs have been used in photo-elicitation interviews is autodiving. Autodiving, at its core, 'indicates that the interview is "driven" by informants who are seeing and hearing their own behavior' (Heisley & Levy,

1991: 257). In their study of this technique (Heisley & Levy, 1991), Heisley photographed informants during family meals. Once developed, the researchers asked the informants to talk about each of the 10 to 17 photographs that the researchers chose. Their study yielded insights into both photo-elicitation as a methodology as well as the phenomenon of the family meal. This top-down approach of the researcher taking and selecting photographs was the norm until more recently. In a step towards greater understanding of the interviewees, some researchers gave cameras to the participants themselves so that through their photos the researchers could see through the eyes of the participants (Douglas, 1998; Harrington & Lindy, 1998; Hill, 2014; Schulze, 2007; Stockall & Davis, 2011; Wang & Burris, 1997; Zenkov, Ewaida, Bell & Lynch, 2012).

The use of photographs taken by participants in photo-elicitation interviews typically falls in two categories: photovoice and reflexive photography. Although there is some overlap between them, each type has its own objectives, and the participants are the photographers. Photovoice, developed by Wang and Burris (1997), 'is a process by which people can identify, represent, and enhance their community through a specific photographic technique' (p. 369). Because of its critical consciousness and feminist theory underpinnings, the authors note 'The ideal "who"...for using photovoice is a community or group in which people are involved in all major phases of selecting and planning [a] process' (Wang & Burris, 1997: 377). Facilitators are involved in helping the community's stories come to light, and for them to be effective, the authors explain that facilitators must have an 'understanding of photovoice as a Freirian process of discussion and action and ... the ability to facilitate dialogue about the social and political context of [the] images' (Wang & Burris, 1997: 376). Studies in education using photovoice are few, but among them is an examination of at-risk youth's perception of cooking and application of food literacy skills (Thomas & Irwin, 2013) and an identification of 'the educational realities of...Hispanic ELLs [English Language Learners] from an urban elementary school in the Southwest' (Graziano, 2011: 2). Photovoice has also been used as a tool for university student advocacy of health needs (Goodhart, Hsu, Baek, Coleman, Maresca & Miller, 2006). The end goal of photovoice is to 'reach policy makers' in order to effect change (Wang & Burris, 1997: 307). Although photovoice was not the method used in the present study, this photo-elicitation technique speaks to the potential power of photography in qualitative research.

Reflexive photography, like photovoice, seeks the perspectives of the participants, but its aim is not policy change; rather, it is to better understand people's individual experiences and perceptions. The primary goal of reflexive photography is data collection and interpretation. Of the three studies in

higher education and one from secondary school that have sought to determine whether this method is effective, all remarked positively that it is (Douglas, 1998; Harrington & Lindy, 1998; Hill, 2014; Schulze, 2007). Douglas (1998) and Hill (2014) reported that the participants enjoyed a deeper level of thought about the issue under study since before the interview even took place, participants spent time thinking about how to capture their ideas, what the photographs meant, and which photos to share with the researcher or in the focus group.

Studies that have been conducted using photo-elicitation interviews of the participants' reflexive photography are often perceptual and attitudinal. For example, college freshmen's perceptions of their universities have been examined; Douglas (1998) asked African-American freshmen at a predominately white university to photograph their impressions of the university, and Harrington and Lindy (1998) sought a random sample of 10 students' impressions in order to see whether reflexive photography as a method could help researchers to better understand the desires and expectations of first-year students in order to shed light on retention problems. Nursing students' development of cultural competence while studying abroad in Guatemala was researched using reflexive photography (Amerson & Livingston, 2014), and in the field of tourism, reflexive photography was used for working with local residents in rural Indonesia on how to develop their area for tourism in a responsible way would respect the community's wishes (Cahvanto, Pennington-Gray & Thapa, 2013). By photographing these somewhat abstract concepts, participants have the time and perhaps greater ability to reflect on them, and their critical thinking process is drawn out in the discussion about the photographs. When participants finally sit down with the interviewer, they have already begun thinking about their experiences, and can arguably provide more insight than they might have if thinking about the topic for the first time. Because the purpose of the present study was to learn about participants' experiences as language learners and their use of technology from their own perspectives, reflexive photography was the clear choice of the photo-elicitation techniques.

Although these photo-elicitation techniques can be powerful tools to gain entrée into the minds of participants, there are some conditions, considerations, and limitations that have been noted in the literature. Because the photographs are the focal point of the interviews, it is first of all important to choose a small number of them since participants may tire of explaining too many photographs (Heisley & Levy, 1991; Collier & Collier, 1986). Interviewing participants about only five to seven photos per sitting may reduce exhaustion. Second, it is not only expensive but also time-consuming to provide cameras to each participant, to instruct participants on how to take photographs, and subsequently to develop the photographs (Schulze, 2007).

Because of the ubiquity of cameras on mobile devices, however, it is possible to have the participants use their own digital cameras. This limits the need and expense of lending cameras and instructing participants on their use. Furthermore, uploading the photos to Dropbox, Google Drive, or another cloud storage and sharing service eliminates the cost of printing them.

In terms of what was photographed, participants in past studies have commented on the occasional restrictions about photographing objects or events they were unable to access or that they did not have permission to access (Hill, 2014; Schulze, 2007). Other participants found it “awkward” to ask people to sign consent forms so that their images could be used, and wondered if they could face negative consequences for photographing illegal behavior (Goodhart *et al.*, 2006: 55). One way to avoid this problem is by not allowing participants to photograph other people (Graziano, 2011); however, this might result in the exclusion of some stories. Perhaps a better solution is to have participants record what they wanted to photograph and why in a journal that they would bring to the interview. This could be in the form of a small notebook that they carry with them for the duration of the reflexive photography project, or an app such as Penzu – a private, password-protected journal. Whether because of time or space restrictions, the lack of consent, or worry of illegal activity, participants could write what they wanted to capture but could not, and the interviewer could ask participants to explain their notes regarding these missed photos.

Thanks to lessons learned by other researchers and advances in technology, problems encountered in past research using reflexive photography can be overcome. Today, it is easier than ever to take, share, and view photographs, and they can easily facilitate conversation on a topic, taking the focus and pressure off of the participant and putting it on the photo. Paired with careful examination of the photos and interview transcripts, reflexive photography can yield rich data.

One lens through which it is possible to analyze such data is phenomenology. Phenomenology is both ‘a philosophy of human beings in the lifeworld (*Lebenswelt*) and a qualitative methodology for describing, thematizing, and interpreting the meanings of this largely taken-for-granted world in a rigorous manner’ (Nelson, 1989: 224). It is a way to examine and explicate the ordinary phenomena of everyday life in a systematic way (Aho, 1998). To do so requires data that can be obtained by ‘methodologically, carefully, and thoroughly capturing and describing how people experience some phenomenon – how they perceive it, describe it, feel about it, judge it, remember it, make sense of it, and talk about it with others’ (Patton, 2002: 104). As done in the present study, the combination of reflexive photography, focus groups, and interviews can provide a means to gather data.

Once the data is collected, the researcher consciously distills his or her own interpretation of each image, sentence, and word into ‘the most objective views possible by recognizing the pragmatic, cultural, and theoretical baggage that might ordinarily accompany the object within the natural, or everyday-uncritical, attitude’ (Wallace, 2014). This process is called phenomenological reduction, and in so doing, the participants’ descriptions are thematized. Following this stage, the data is interpreted in an attempt to ‘dis-cover meanings’ (Nelson, 1989: 237). For a guide on how to undertake phenomenological research, the reader is directed to Moustakas (1994).

## The present study

As explained in the previous section, reflexive photography can be a useful tool for investigating participants’ experiences of certain phenomena in CALL. To illustrate, the research I conducted using reflexive photography as the core method of data collection will be presented.

## Background

The present study examined ITAs’ experiences as English language learners (ELLs) and their use of technology in the context of a requisite course they took because their spoken English was insufficiently intelligible. In universities across the United States, ITAs’ spoken English is assessed through a screening process or spoken English exam, such as the SPEAK Test, that determines whether a person has an adequate level of spoken English intelligibility in order to teach (‘Department’, 2014; Gorsuch, 2011; ‘International’, 2014; ‘SPEAK Exam’, 2014; ‘SPEAK Test’, 2014; Wallace, 2014; ‘What is’, 2014). Despite the body of literature on assessment practices (Dick & Robinson, 1994; Isaacs, 2008; Noor, 2004; Papajohn, 2006; Xi, 2007; Yule & Hoffman, 1993) and teaching ideas (Anderson-Hsieh, 1992; Anderson-Hsieh & Dauer, 1997; Capraro, 2002; Davies, Tyler & Koran, 2002; Graham, 1992; Myers, 1995; Salomone, 1998; Stevens, 1989), the ITAs’ voices regarding the learning of oral communication skills are not highlighted, and little has been written recently about the role of either student-selected technology or technology that is used in conjunction with ITA preparatory classes in the acquisition of oral communication skills to ITAs (Crumley, 2006, 2010).

While undergraduates and the institutions in which they study consider the poor speaking skills of ITAs to be problematic, the ITAs also have many challenges of their own to confront. When I first began teaching the class nearly a decade ago, I wondered at the slow progress the ITAs made with their speaking skills and the lack of effort many put into their English studies since if they did not speak more intelligibly, they risked losing their funding. Even under such a threat, many ITAs taking the requisite course did not seem to

prioritize the improvement of their spoken English. Reticence in the classroom has been well documented (Kim, 2006; Lee & Ng, 2010; Tsui, 1996; Wu, 2009), but the reasons why students do not seem to make an adequate effort to improve their speaking skills is unclear. Early conversations I had with these students inspired me to undertake the present study because over the years of talking with the ITAs taking the course, many explained that they felt much pressure to prove themselves in their major areas of study, were grappling with the largest workloads they had ever had (teaching, grading, studying, taking an English class), and felt the demands of navigating daily life in a foreign culture away from family to be more pressing than improving their oral communication in English. Nevertheless, attaining a certain level of skill with spoken English was necessary, and to do so required time, effort, and will from their end.

Through reflexive photography, the present study helped give voice to ITAs in order to understand more about their experiences as language learners taking a required oral communication course, and to gain insight into the effective teaching of ITAs from these participants' perspectives. By learning about what the ITAs felt helped and what obstructed their efforts to improve their spoken English – particularly in terms of their use of technology – it should be possible to better anticipate and prepare for the needs of future students.

## Methods

### Participants

Thirteen ITAs taking a requisite ITA preparatory course volunteered for the study over one term of the academic school year. There were eight females and five males; the ITAs varied in age from 22 to 35 years old. Five ITAs were from China, three were from Ghana, two were from India, two were from Nepal, and one was from Iran. For most of the ITAs, it was their first term at a university in the United States. Four had been in the US for two to three years already, completing other degrees or working on their current degree at the same institution. The ITAs came from 11 different departments across campus including engineering, fine arts, modern languages, mathematics, the sciences, education, and media arts.

### Data collection

Primary data collection took place in three stages. Halfway through the term, participants were given a week to photograph anything that benefited them or obstructed their efforts in improving their spoken English intelligibility. With the exception of one student who borrowed an iPad, the participants used their own cameras during this first stage of data collection. Of the photos,

they were asked to pick seven to ten images to share in a focus group discussion. For ease of sharing and to limit the cost, participants uploaded these photos to Power Point, captioned each photograph, and indicated whether it was something positive (helpful) or negative (limiting). The second stage was the discussion of their photographs in focus groups. The focus groups were conducted in the ITA preparatory class with two participants and one facilitator. Most of the facilitators were ITAs who were former students in a similar compulsory ITA preparatory class; however, due to scheduling conflicts, other facilitators stepped in: two were ITAs who never took the class due to their high-level speaking skills, and one was the director of the program in which the class was offered. Focus group facilitators were instructed to keep the sharing of the photographs on-topic, and to elicit stories behind the photographs if they did not occur naturally in the discussion. After the conclusion of the term, the third stage of data collection was conducted: individual interviews with each participant using the reflexive photography projects as the focal point. In these semi-structured interviews, I drew upon the original interview protocol and the content that arose in the focus groups as a result of the discussion of the photographs with their peers. To support the analysis, student work, in-class observations, office hour meetings, and electronic communication were recorded throughout the entire term.

### Data analysis

The individual photographs and the one-on-one interviews were coded; these formed the basis of the phenomenological analysis. During the initial noting stage, ten topics emerged that were common to most or all of the participants. These topics were: (1) attitudes towards taking the required ITA preparatory class; (2) sense of community; (3) study strategies; (4) English use in everyday life; (5) L1 (first language) use in everyday life; (6) time management; (7) future career plans; (8) TA duties and experiences; (9) experiences with the SPEAK Test; and (10) use of technology. Using HyperRESEARCH, qualitative data software that is useful for coding, organizing, and sorting, I set these topics as overarching themes assigning photos, interviews and my own observations to the different categories.

Working up from the 620 codes, I used HyperRESEARCH to build a report for each topic. Then, I further worked through them in order to '[discover] patterns, themes, and categories' (Paredes, 2010: 58). Taking my cue from phenomenological inquiry, I then determined which of these were 'essential' to the participants' lived experience (Van Manen, 1990: 106).

In the end, I reduced the ten topics into four themes: the ITA preparatory class; speaking opportunities; general English language skills improvement; and obstructions to spoken English improvement. Although questions

regarding technology use were not part of the original interview protocol, the participants' photographs revealed their use of technology to create an English language environment that could increase their speaking opportunities, and the participants' use of technology was found within each of these four themes. These steps combined with a content analysis of the photographs (positive, negative, and themes; number of photos and participants) helped me to interpret the data in a rigorous fashion in order to shed light on the essential qualities of the ITA experience in improving their spoken English while taking the ITA preparation course. Participants' use of technology formed one important aspect of the study and will be the focal point of this paper.

### Summary of findings

This section begins with an explanation of how technology was used in relation to each of the four emergent themes. A summary of the findings and the content analysis of the photographs that relate to technology will be in the tables preceding the detailed explanations. An analysis of the data will follow.

#### Theme 1: ITA preparatory class

**Table 1:** Ways in which technology was used in the ITA preparatory class and number of images reflecting these ways.

Technology Used in Class	Use of Technology	No. Images and +/- classification	No. Participants
Audio journals	Hear speech through audio recordings and see speech through the transcription	2 (+)	2
Video recordings of presentations	See and hear ITAs' own performance	1 (+/-)	1
Native Accent pronunciation software	Gave feedback on pronunciation accuracy and provided pronunciation-focused speaking practice	8 (6+, 2 +/-)	8
Apps introduced in class	TED Talks, Merriam Webster dictionary for pronunciation and definitions	8 (+)	6

Reflexive photography gave insight not only into the participants' perceptions, but also into their attitudes and behaviors towards language learning, and towards how technology can help or hinder their process of learning more specifically. Nine of the 13 participants documented the use of technology in the ITA preparatory class as being helpful for learning (see Table 1); it

was common for motivated ITAs to continue using technology on their own afterwards. For instance, after watching TED Talks in class to listen for and practice certain pronunciation targets, several participants began doing the same on their own, without the motivation for completing an assignment (see Figure 1).



**Figure 1:** TED Talks (Lili)

One reason why participants were willing and able to adopt such practices for their own use was because the mobile nature of the technology allowed the participants to take their learning just about anywhere, whether they were using laptops, smart phones, or tablets. Regardless of what apps they used or where they used their devices, everything that they needed was contained in one place. The participants used their smart phones to access e-mail, to record themselves (Voice Memos on iPhone and Tape a Talk Android app, see Figure 2), to search for definitions and words with Merriam Webster and Youdao, to build vocabulary or hear English phrases for everyday life.



**Figure 2:** Voice recording software on a cellphone (Evelyn)

Recording themselves and listening back was often mentioned as useful since it allowed the participants to hear and see themselves as another person might through recordings. As one participant pointed out when talking about the audio journals, she did not feel that she needed to take the class until she listened to her first recording and noticed ‘a lot of pausing, and it even sound[ed] like there’s not a complete sentence’ (Polly). In other words, it had become clear to her that she was not speaking fluently. Another participant explained:

If I go to my audio and listen to it, ... I can understand ‘I made mistake here like this.’ So it makes me realize what are my problems, and the technology, it played a lot. I mean if there’s no recording, no nothing like that, then I can’t get the idea of what I’m doing. (Sanu)

Class assignments such as audio journals and recording themselves in their free time seemed to be useful fluency practice even for unprepared, spontaneous speech.

Apart from audio and video recordings of extended speech, many participants cited Native Accent software (by Carnegie Speech) as playing a role in showing them the accuracy of their focused speech at the word and phrase level. Several said that Native Accent’s voice recognition abilities was useful

in that it would give immediate feedback on the accuracy of their production. While the feedback helped some people to understand when their production was inaccurate, it had a negative effect for others, and this will be discussed later (see Figure 3).



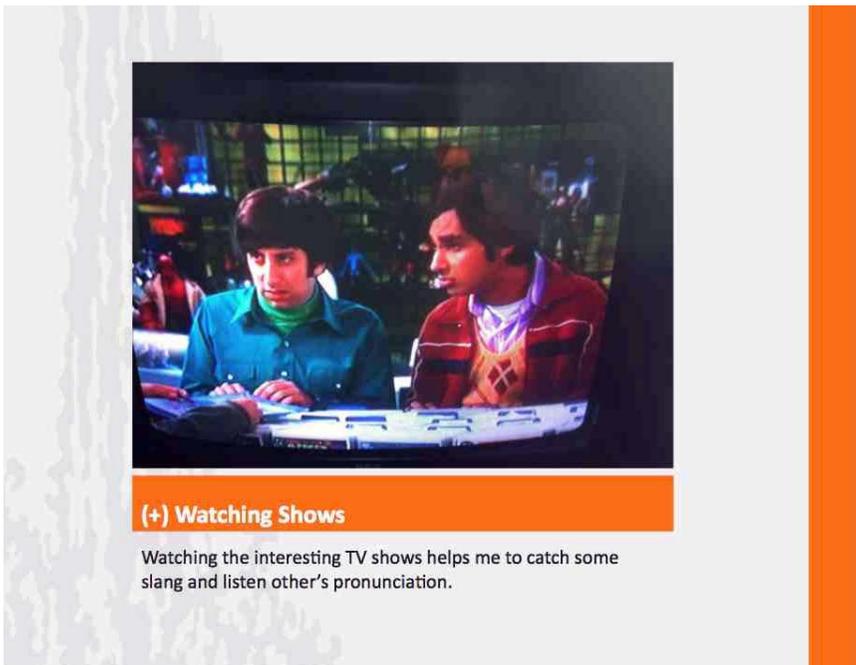
**Figure 3:** Native Accent (Isaac)

## Theme 2: Speaking opportunities

**Table 2:** Ways in which technology was used to create speaking opportunities and number of images that illustrated these ways.

Speaking Opportunities	Use of Technology	No. Images and +/- classification	No. Participants
American TV shows, videos, and movies (including the news)	Conversation topics with native speakers	7 (+)	4
Audio recordings	Recording themselves in absence of speaking opportunities with native speakers	2 (+)	2

Immersion and motivation are key factors in second language acquisition (Krashen, 1981), and several participants, through their use of technology, immersed themselves in the L2 (second language) atmosphere during some of their free time whether they were listening to podcasts, reading, or watching TV. Mei explained that she would watch a single episode of *The Big Bang Theory* with subtitles about four times, and once dubbed into Chinese, in order to understand what the characters were saying and to familiarize herself with the dialogue so that she could imitate their words, pronunciation and intonation, in essence, ‘doing it their way’ (see Figure 4). She found that television program particularly useful because of the mix of academic and colloquial English.



**Figure 4:** Watching Shows (Mei)

Watching sitcoms, movies, and sporting events had another benefit in that what participants watched was then used as a topic of conversation with native English speakers. As Jon noted in regards to his experience, ‘[t]he more you can learn what's currently happening, then the more you can be involved. You can have a normal kind of conversation.’ Many participants cited the difficulty of beginning and maintaining conversation with native speakers, but those like Jon, who shared common interests, were

more able to interact with natives, thus increasing their exposure to and practice of English.

Sting, for example, was surfing the university's website and came across the Wildlife Club (see Figure 5), and decided to go on an excursion with them, in his words, 'not only because of my interest to go climb rocks, of course, because then it would be a nice bunch of people who you can share ideas with.' Although 'being in a group [of native speakers] ... was a new idea' to him, he felt it worth the risk of discomfort since if he had difficulty connecting with anyone, he could always take pictures of the wildlife. In fact, Sting — unlike the other participants — took the reflexive photography project a step further from data collection; he included photos of creatures he found in order to strike up conversations with native speakers who had similar interests (see Figure 6). Had it not been for reflexive photography, I might not have learned of how the participants were using technology to create speaking opportunities.



**Figure 5:** Hiking Trip with Wildlife Club (Sting)



**Figure 6:** Unexpected Visitor (Sting)

Also useful for a few participants was talking to themselves on their cell phones when they felt they needed more speaking practice but lacked the opportunity to do so. Similar to Mei's imitation of TV characters and engaging in imaginary dialogue with them, Evelyn found it useful to record her speech, pretending to talk on the phone as she walked between classes in order to save time and to gain fluency practice (see Figure 2). The therapeutic side effect of this behavior might not have been apparent were it not for the focus group discussions of the photos. When I asked her about a particular story she related to the focus group, she explained that adjusting to life by herself in a foreign country was difficult at times, and she did not want to burden family back home with her troubles (in this case, the trouble was an argument with her boyfriend); instead, she said 'I just talked on the cell phone and to express my feeling ... even burst out crying'. By recording themselves or otherwise interacting through the use of technology, participants were able to create safe speaking opportunities at their convenience, regardless of the time of day or the presence or absence of native speakers. Since they were the only ones who might listen to the recordings, there was no risk of losing face.

### Theme 3: General English skills improvement

**Table 3:** Ways in which technology was used to improve general English skills and number of images that illustrated these ways.

Skills	Use of Technology	No. Images and +/- classification	No. Participants
Listening	Podcasts, TV and movies, TED Talks, recordings of class lectures from major area of study, English phrases in everyday life	10 (+)	6
Vocabulary building	Reading blogs, articles for classes, and fiction on the Kindle; TV shows and movies; English phrase and word of the day apps; dictionaries like Merriam Webster and Youdao; Twitter to purposefully use new words	9 (+)	5
Reading	Articles, blogs, fiction, social media	3 (+)	2
Writing	Twitter to practice paraphrasing; word processing programs for writing papers; Kindle for taking notes	1 (+)	1

Another theme that arose as a result of the participants' photographs was their recognition of the need to strengthen all-around knowledge of English rather than focusing only on their speaking skills. This was apparent in the photographs by the Chinese participants, in particular. While some of the uses of technology for this purpose were modeled after activities done in the ITA preparatory class, several other creative uses of technology came from participants' efforts to increase their overall level of English. Listening activities, vocabulary building, and reading were recognized as useful for increasing overall English skills, and vocabulary acquisition was the most often discussed. Lili, a Fine Arts major, found it useful not only to study words from her TOEFL preparation materials, but also from online art supply sites (see Figure 7). Another participant, Polly, had a Kindle app on her smart phone that synced with her Kindle. Through the app, she was able to read, highlight, and take notes. The way she learned vocabulary, she explained, was through repetition and seeing it in context: '[t]he first time I saw [an unfamiliar word, I thought], 'okay'. The second time I saw it, 'oh, okay, I saw it but I still don't know what it means', but the third time, yeah [I understand]'. She would sometimes post the words she had just learned from reading on Twitter or tweet a sentence in which she used the words. This was both fun and educational for her as she worked to improve her overall English.



Figure 7: Art Supplies (Lili)

Theme 4: Obstructions to learning

Table 4: Ways in which technology obstructed English language learning and the number of images that illustrated these ways.

Obstructions	Use of Technology	No. Images and +/- classification	No. Participants
Ease of creating an L1 environment	Skype, websites in L1, videos and music from the internet	3 (-)	2
Native Accent pronunciation software	Time consuming, frustrating since it demanded perfection, frustrating when it froze (frequent occurrence), the specific feedback was confusing since it was not tailored to the individual learners and their production	2 (-)	2

Although technology facilitated the participants’ efforts to improve their spoken English, a few also documented through reflexive photography how it obstructed their efforts. Thanks to the Internet, participants could surround themselves with sights and sounds of their home countries despite living in

a small, Midwestern college town in the US where English was the predominant language. As one participant noted, watching Chinese TV shows, surfing Chinese websites, and listening to Chinese music kept her in the ‘Chinese environment’. Another participant spent a few hours daily seeing and talking with friends and family back home via Skype (see Figure 8).



**Figure 8:** Skype with Family (Ciela)

The other recognized obstruction to improving their spoken English was related to the limited nature of the Native Accent software. While many participants found it useful, there were drawbacks. For one, its speech recognition demanded perfection; therefore, it was frustrating. Coupled with this demand was potentially confusing feedback in the descriptions of how to articulate target sounds along with videos of a side-view diagram of a mouth and a front-facing actual person modeling the sound. Participants found this feedback to be unclear since it was not only abstract, but generalized, rather than giving participants specific feedback on the nature of their actual production errors. Jolod explained her frustration pronouncing the word ‘ball’:

[S]ometimes you say ‘ball, ball’, and open your mouth, and the – the first time [Native Accent] say, ‘Open your mouth wide, close it’, it’s like, you don’t know exactly what to do ... It’s like, well, how do I do that? Open your mouth, open your tongue, you know, you don’t know exactly what to do. If somebody’s showing you and you are

talking to the person as we're doing right now, you'd be able to really just get it, what a person expects you to do.

She and several other participants would then reportedly repeat the word in question between ten to fifty times to try to get the green light of accurate production. Another frequent complaint was that the software would freeze, thus taking much more time than necessary. Although some participants determined that using Native Accent was a waste of time, others found the challenges less burdensome and the software helpful because it provided 24/7 practice and modeling of English.

### **Analysis and discussion**

Through the participants' photographs and their reflection upon their experiences as ELLs taking a requisite course, I gained insight into the various ways that the ITAs used technology. Again, while the content of the photographs was informative, the photos mainly served as an entryway into the participants' experiences, and were the focal point of the interviews. As such, the content analysis of the number of photos of each instance of technology and the classification of whether their experiences with technology were positive, negative, or both, was used as a stepping stone to arrive at a deeper understanding since the numbers themselves are of little importance at face value.

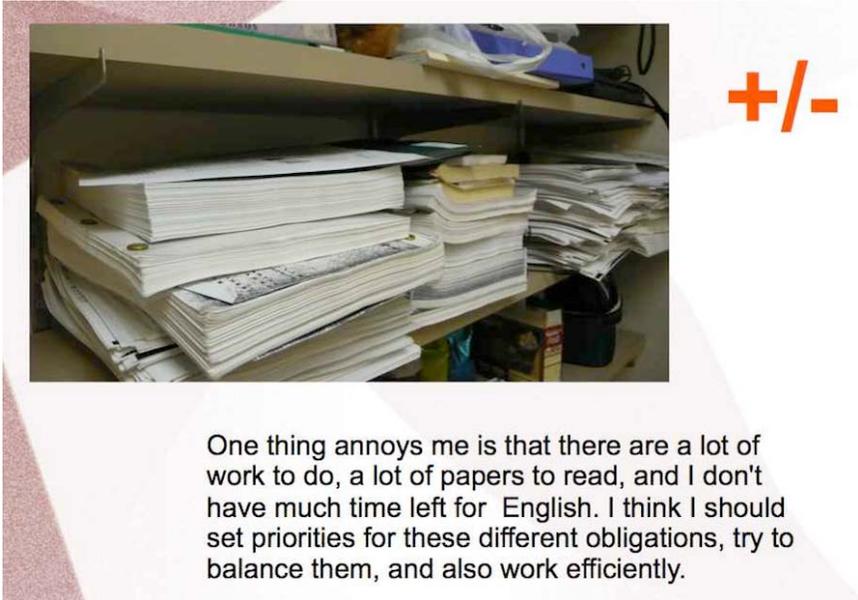
One reason for the limited nature of the content analysis was that the interviews were semi-structured; as such, the protocol was not uniform. As I learned more about participants' experiences through their photography, I was able to ask other questions in subsequent interviews that were informed by these experiences. For instance, noticing that technology figured in most of the participants' photographs, I asked Polly about how she used technology even though she took no photos of it. As it turned out, she used technology in a variety of ways that others did not (as can be seen above with her use of the Kindle and Twitter). As well, when only taking into account the content analysis of technology use in the photographs, it would seem that most use of technology was attributed to general English language skill improvement (Table 3). However, once the data from the interviews was taken into account in the analysis, it was clear that the themes of the ITA preparatory class and speaking opportunities were much more prominent, and more participants found these helpful than those seven who used technology to improve their general English language skills. Another reason why the numbers in the content analysis must be qualified is that participants shared more nuanced opinions of their use of technology after several more weeks of reflection. An example of this is how Native Accent was depicted in the photographs contrasted

with how it was discussed in the focus groups and during the interviews. In the photographs, six participants labeled Native Accent as positive, or helpful, whereas two participants found it to be both positive and negative (helpful and obstructive). Of those six who labeled it as purely positive, two had more negative critique of the software than positive during the interviews. There could be many reasons for this discrepancy, including changing opinions over time, lack of desire to express anything negative about what was required in the class, or deeper reflection as a result of the process of reflexive photography.

Delving deeper than the four themes, clear patterns of the participants' experiences as ELLs with technology emerged based on the circumstances in which the participants found themselves. These circumstances included whether they grew up using English in an institutional setting or learned it in an external L2 (second language) setting as a subject in school, the departments in which they studied (and consequently the people they would meet in these spaces), and the amount of work they were required to do both as TAs and graduate students. Although their situations were defining, there was an opportunity for agency and learner autonomy within these circumstances.

The participants who learned English only as a subject in school (from China, Nepal, and Iran), or in an external L2 setting (Gorsuch, 2008), were linguistically at a disadvantage compared to the other participants who grew up using English as a means of communication. Those who learned English only as a subject had to improve their all around English skills – increase their vocabulary, use grammar in a more varied and sophisticated way, improve their listening comprehension, and speak much more than they were accustomed to. The participants who recognized this need and made it a priority used technology to facilitate their improvement of these skills. Unlike interacting with a person, the solo speaking opportunities they created for themselves through technology were a safe way to practice speaking – there was no risk of embarrassment by miscommunication. These participants who prioritized additional English language learning and practice were also the ones who reported that they spent much time alone or had little free time (see Figure 9).

Not everyone made this extra study a priority, however. Instead, they opted to spend most of their free time with friends of the same language background. At the end of the semester, the participants who used their time to improve their overall English scored much higher on the SPEAK Test than those who spent most of their unscheduled time with other members of their L1 community. Having the desire to score higher coupled with allocating their time in such a way that they could study is likely to have contributed to the improved SPEAK Test scores.



**Figure 9:** Workload (Polly)

The participants who learned English in an institutional L2 (from India and Ghana) context did not have much work to do in terms of improving grammar, vocabulary, and reading (Gorsuch, 2008); however, their experiences were not without challenges. Apart from slowing down their speech rate, they needed to acquire a new accent with distinct word stress patterns, different sounding phonemes, and distinct rhythm and intonation patterns that greatly affected the tone and meaning of their words.

For these learners who had been speaking English for much of their lives in an institutional L2 context, the physical aspect of learning a new accent was complicated by the psychological conflicts that many experienced since their identities were wrapped up in the English dialect they used at home and with others from their regions. When being asked about his photo (see Figure 10), Isaac recalled a time when he was made fun of for his attempt at rhoticity in NAE:

[O]n our way to Parkersburg ... we were speaking and ... I was trying to practice my /r/, and then ... one of them said, 'Isaac, what do you think you're saying, what do you think you are doing? ...When did you become an American?' He said, 'You've just got here one week ago and I've been here for a whole year. No, probably two years, and there you are, just one week, and you are saying /r/, Parrkersburg.'

Isaac laughed about it, but the photo triggered this lingering memory. In order to stave off jokes at her expense, another participant from Ghana, Maryam, said that she repeatedly told her Ghanaian friends ‘You know what? These days I’m taking native accent class, so you should be mindful of my accent. It’s changing now. I may pronounce certain words that sound funny to you.’ She said they seemed to be tolerant, but ‘they may think [to themselves], “Maryam is getting so very unrecogniz[able]”’. Maryam, Isaac, Jon, and Jolod all saw this new accent as a tool that they would use to facilitate communication with native speakers. They noted in the interviews that when an American would enter the conversation, they would attempt to speak in this different way in order to make themselves understood.



**Figure 10:** Non-Native Friends (Isaac)

At the end of the term, all but one of these participants who learned English in an institutional L2 setting passed the SPEAK Test. The one who did not pass was a Spanish major who had very little chance to interact in an NAE environment, and was also averse to recording his voice. He

was uncomfortable even leaving voice messages for his friends since as he made clear in the interview, he despised the lack of humanity inherent in technology-mediated communication. The decision not to use technology as a tool for recording himself prevented him from benefiting much from the technology-mediated practice throughout the term, and may have impacted his performance on the SPEAK Test as well.

As for the participants who learned English in external L2 settings, those who indicated that they feared alienation from their L1 communities made little to no improvement on their SPEAK Test scores. In contrast, all participants who thought of and used their new pronunciation patterns as a tool passed the test or scored much higher on it at the end of the term. Regardless of circumstances, it seems that participants' attitudes towards the L2 may have influenced their performance on the SPEAK Test.

Apart from the possible influence of attitude on test score improvement, another interesting finding is how participants used technology to improve their spoken English in absence of speaking opportunities with others. Participants used technology to set the language of the environment in which they found themselves, and through the use of technology they employed learning strategies; anything they wanted was at their fingertips as long as they had connection to the internet: movies, TV, podcasts, dictionaries, vocabulary-building apps, reading materials, and more. Even without the internet, participants were still able to record themselves and play back the audio in order to gain fluency and analyze their speech.

As a result of learning just how valued speaking opportunities were for the participants in this study, whether solo speaking opportunities made possible by technology or talking with others, two major changes have been made to the ITA Preparatory Class. First of all, the classroom is now flipped so that the students watch videos of the lecture material and do related practice activities before class in order to learn the concepts. This has freed up time in class for students to spend practicing the topics at hand rather than listening to the teacher. Second, students are required to attend a goal-focused conversation hour in which they actively try to incorporate new pronunciation patterns into spontaneous speech with native speakers in an attempt to bridge conscious competence to unconscious competence (Sprague & Stuart, 2000). Apart from these changes to the class, learners continue to be encouraged to use technology – especially in the ways the participants of the present study did – in order to increase their speaking opportunities. The ease, availability, and convenience of mobile devices makes it possible to practice speaking in their own time. As the participants illustrated, it is not always necessary to interact with another human to practice speaking; similarly, language learning does not need to be confined to the classroom or the language lab.

Until recently, language learners were restricted to certain places in order to use these different learning strategies, and they would need to have access to several devices: TVs, DVD players, radios, tape recorders, dictionaries, books, video cameras, and other technological devices. Even when mobile devices were more expensive and not as common, in one study it was found that given the opportunity, ITAs overwhelmingly preferred to make recordings at the time and in the place of their choosing with mobile devices rather than in a computer lab (Kessler, 2010). With the growing accessibility of mobile devices that serve these multiple functions, learners are now free to explore and learn whenever and practically wherever they want.

Just because these mobile devices are ubiquitous, however, this does not mean that learners are proficient in utilizing them for efficient and effective learning (Hubbard, 2013). One participant in the present study, for example, lacked clear strategies for language acquisition, and reverted back to the techniques she used to study for the TOEFL.

Something similar can be said about how to use voice recognition software like Native Accent. As several participants noted in their photographs, it is of limited use in an ESL context without sufficient guidance and feedback, particularly from human tutors. To solve this problem in the ITA preparatory course, there are now set computer lab hours students attend where they can work under the supervision of a knowledgeable tutor until they know how to best use the software on their own. Properly trained, the tutors fill in the gaps where the software's feedback may be vague, and help students to cultivate effective study practices. For example, tutors can have students write down words they simply cannot pronounce correctly so that they can return to the words later and complete the exercise, or the tutors could stop and give more pointed feedback so that the learner may understand. Until the software is more sophisticated, tutors can also help learners to know when their speech is intelligible since it is often difficult to achieve the level of precision demanded by this software.

Thus, as teachers, it is our role to educate students on how to use technology to become autonomous language learners not just in the classroom, but outside as well using their own mobile devices. As Hubbard (2004) points out, for students to be autonomous learners, they must be 'able to make informed decisions about how to use computer resources effectively to meet their learning objectives' (p. 51). Teachers can begin by enlisting students' help in learning about what applications there are, then should guide the students in how best to use them if the students do not already know. Allowing class time to give the students an opportunity to try out these apps, whether it is looking up words in a dictionary to see and hear the pronunciation or recording one's voice and analyzing it, will not only set the stage for what is possible in

self-study, but will hopefully promote dialogue among the students on how best to utilize technology as a resource. Judging by the many photographs of technology used in learning, participants in the present study thought that the strategies introduced in class were worthwhile for improving their spoken English.

### **Reflexive photography and the future of using photo elicitation in CALL**

Due to the combined availability of the digital camera in cell phones and the familiarity and ease of using images to express ideas whether through social media or projected on-screen in class, there is much potential for the use of photo-elicitation techniques as a method and means of data collection in CALL. In the present study, what technology the ITAs found useful and what they found obstructive to the improvement of their oral English became apparent through their photo depictions of this and subsequent interviews about the photos. Reflexive photography has the potential to be used more widely in CALL research to give insight into students' perspectives and perceptions of certain types of technology, different software, approaches to teaching, and relationships with their classmates and native speakers.

More can be learned about mobile-assisted language learning by asking students to photograph the ways in which they use their mobile devices for language learning, something that is easily done by taking screenshots whenever they find themselves using the target language. Photo-elicitation interviews could be used to examine concepts in online learning, such as learners' perceptions of the class community or the relationships they have with others in the online class. In terms of teacher training, what is important to teachers who are learning to use technology in language teaching could be determined. It could even be used to help software developers improve or create new products based on student and teacher needs. In short, these photographs can help the researcher to see through the eyes of their participants and to get more detailed and nuanced responses than they otherwise might have in a simple interview without any visual input.

Not only could the use of photos help us to understand attitudes, perceptions, and uses of technology in CALL, but as a class activity, the students also benefit from thinking critically on these issues, and their reflections can be used in a variety of language practice and language learning activities. In the present study, the focus group discussions were deep, personal, and meaningful conversations in the target language that appeared to strengthen the bonds between participants. The reflexive photography project was not only a chance to reflect on their own learning and to talk about it, but the photographs themselves also served as springboards for discussions with others outside of class.

Walter, Baller, and Kuntz (2012) described a similar assignment that they used with their health science students where the students photographed different dimensions of health and then discussed them. Zenkov *et al.* (2012) used reflexive photography as a means to spur critical thinking in discussion and writing in a middle school language arts class for ELLs. Through their students' photography and writing, the authors also learned what motivated these learners to attend school despite the high drop-out rate of their peers (Zenkov *et al.*, 2012). These discussions about the photographs can take place in real time, or asynchronously through either an online class or by using VoiceThread, an app where conversations can be recorded about an image or series of images. Whether as a class activity or research method, reflexive photography is a natural fit for investigating certain topics in language learning and technology.

To conclude, it is my hope that the CALL community will continue this discussion on how reflexive photography and other photo-elicitation techniques can be used for research on perceptions, attitudes, and behavior. This method is fun for the participants, insightful for both the participants and the researchers, and can be incorporated into language activities when conducting research in the classroom. To better understand language learners, researchers can invite participants to show them the world through their eyes, beginning with the familiar visual language of photography.

### About the author

Lara Wallace began teaching in Ohio University's Linguistics Department as an instructor in the intensive English program in 2004, and has taught in the English Language Improvement Program (an academic literacies for specific purposes program) since its inception. In addition to lecturing, she coordinates the Pronunciation Lab and goal-focused conversation hour. Prior to 2004, she taught abroad in both Spain and Mexico. Lara holds an MA in Linguistics and a Ph.D. in Cultural Studies in Education. Her research interests include CALL, International Teaching Assistant (ITA) training, pronunciation, and student-centered teaching. For more information, please see [http://linguistics.ohio.edu/ELIP/?page\\_id=452](http://linguistics.ohio.edu/ELIP/?page_id=452).

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