

Second language proficiency, academic language, and digital literacy for LESLLA learners

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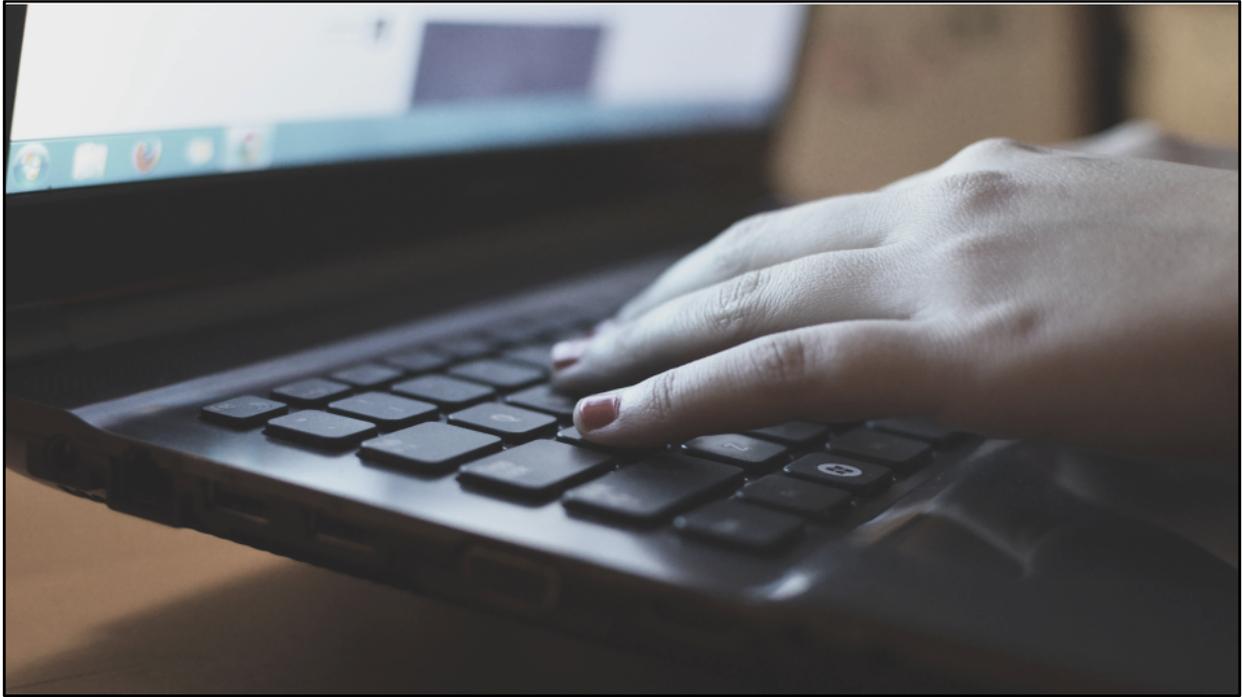


Department of
Curriculum and Instruction

Thank you for being at this presentation. Name – I've work in adult ESL for over 20 years as a practitioner, curriculum developer, and teacher. recent grad of doctoral program at UMN – currently director of IDEAL Consortium, a project of the Ed Tech Center at World Ed Where we provide PD and technical support to ABE programs in the US on topics of classroom technology integration and online learning. This presentation is an analysis of a subset of data that I gathered for my dissertation research.

This study investigates the issue of English as the primary language of instruction in computer classes held in community technology labs and frequented by English language learners (ELLs). Taking a functional approach to describe language, I investigated instructional strategies employed to teach computer skills and the academic language used to do so.

This study was motivated by the idea that learning specific academic content requires learning the language used to describe it (Lemke, 1990) and that if teachers recognize where and how vocabulary and specific linguistic structures are central to success with academic content, they can determine how to best provide support for comprehension and help learners develop command of the language used in specific academic contexts.



I'd like to start with a story that illustrates the issue that drew me to this work. This narrative is drawn from my field notes from *November 2013*. The setting is a computer lab in a community-based organization that works hard to mitigate poverty in the city it which it's located.

The students, including six English language learners (ELLs) from East Africa, Southeast Asia, and Central America, trickled into the computer lab, until all of the 20 computers were occupied. The learners had all been referred to the class at their intake session at the CBO. Several had come seeking housing assistance, two were seeking help finding employment. A few had just heard that there was a computer class. The six English learners possessed diverse levels of English language proficiency. One elderly East African woman seemed to have the lowest proficiency, she could say hello and ask very basic questions; she was also sight- impaired.

The workshop leader, a new AmeriCorps member, greeted everyone as they came in and handed out a seven-page document on the topic of the Internet, the instructional resource on which every minute of the class was to be based. The handout included screenshots of computers, websites, and Internet browsers, along with English text explanations of what would be covered in class, things like opening a browser,

understanding different types of broadband, and searching the Internet. She stood at her computer, which was hooked up to a projector, and for 90 minutes talked through the entire handout; the students, expected to click along, did their best. They listened attentively, searched for the screenshots that corresponded to what they saw on the big screen at the front of the room, and tried to follow the required 'clicks' using their own computers.

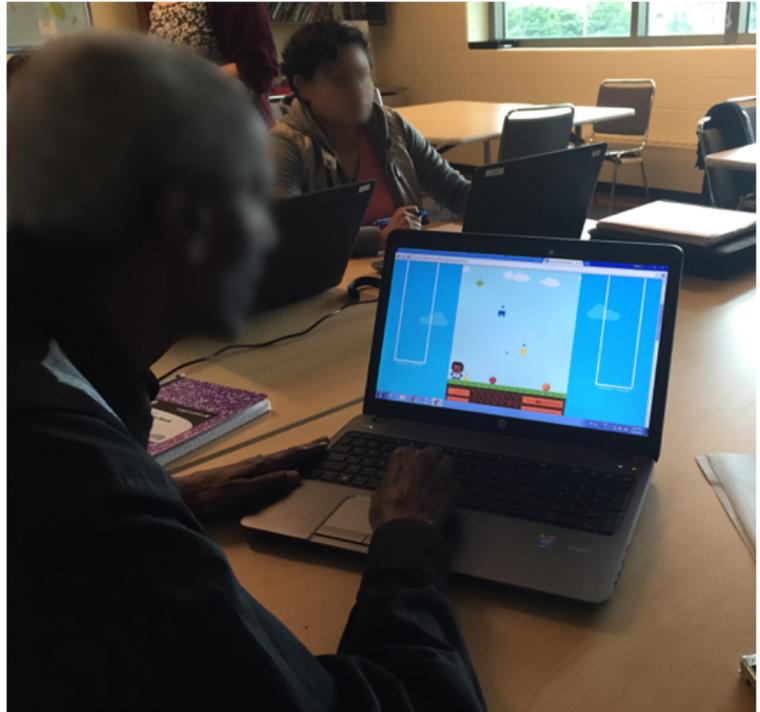
Though it was evident from the very beginning that not everyone could attend to her instructions or keep pace, could understand her language or see the tiny URLs displayed on the projected screen, the volunteer teacher marched forth, covering each page of the handout and delivering imperatives about when and where to click. I witnessed several of the ELLs try to ask clarifying questions to confirm verbal commands and attempt to recognize the letter names the teacher spelled out in an effort to get everyone on the same webpage.

By the end of the ninety minutes, the teacher looked exhausted. Trying to keep the learners on pace with the clicks had taken a great deal of effort and was frustrating. Most learners did not make it to the final summative, "the practice part" as the teacher called it, at the end of the lesson.

These are the learners and teachers that motivated this project. In the US many LESLLA learners study in formal education programs, with trained or licensed teachers. The capacity of these programs falls far short of accommodating all learners with such needs. Consequently, many go to CBOs to attend computer skills classes

The Issue

Community-based organizations work hard to fill gap, but often lack resources and trained teachers to meet needs of many English language learners who visit.



These labs in CBOs provide much needed educational opportunities; however, the teachers working there are often minimally trained and struggle to support the learning needs of adults for whom English is not a first language and are challenged by the wide range of skill level and educational background of the diverse learners who show up.

Additionally, because they lack funding and expertise for materials development, CBOs depend on an assortment of web-based learning resources developed for literate English-speaking, learners. This research sought to better understand how to maximize the positive impact of the resources that are there – including how to best support volunteers or AmeriCorps member who often serve as teachers there. - particularly around issues of language and the role of language instruction in support of digital literacy skills development.

Methodological Approach: Design Based Research

Educational Design Research Cycles
(McKinney & Reeves, 2012, p. 78)

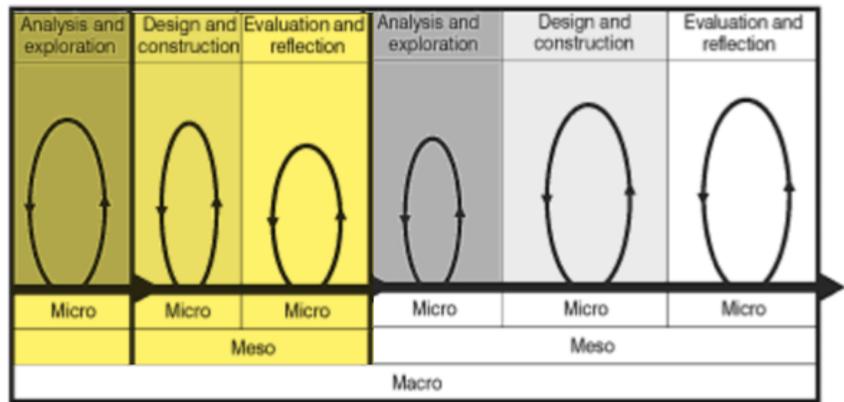


Figure 3.4 Micro-, meso-, and macro-cycles in educational design research

The methodology I used, Design Based Research (DBR) is collaborative, informed by and aligned closely with the needs and priorities of participating stakeholders to ensure the relevance of the process and the resulting intervention (Brown, 1992; Cobb, Confrey, diSessa, Lehrer, & Schauble, 2003; Wang & Hannafin, 2005). In addition to being collaborative, it is iterative and has both far and near relevance, solving a local problem and, in the process, arriving at theoretical conclusions. Theoretically, this DBR dissertation research contributes to disciplinary knowledge in the areas of digital literacy instruction and the English language proficiency required for it. The project thus simultaneously strives to solve a local problem while it contributes more generally to learning theories in order to support the extension of findings to similar educational contexts.

There are many different approaches to DBR, I've chosen two to guide the work. The first, Educational Design Research nicely frames the phases required for completion of design. A macro-cycle reflects the overall process for an EDR study. The meso-cycles that constitute each macro-cycle represent what McKinney & Reeves refer to as a regulative cycle: "problem; identification; diagnosis; planning; action; and evaluation" (p. 8) There is no fixed number of meso-cycles required for a macrocycle; rather, it depends on the scope of the research.

Within each meso-cycle there are micro-cycles, which embody what the authors call

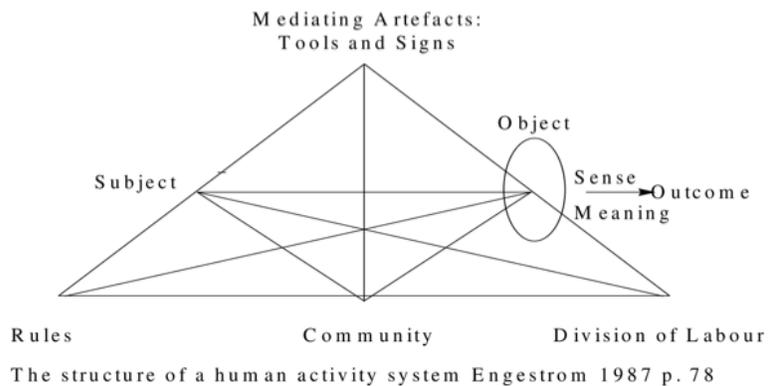
“logical chain of reasoning” (p. 78). Each micro-cycle allows for its own cycle of flexible and iterative exploration of ideas. This is illustrated by the circular arrow within each rectangle.

McKenney and Reeves suggest that ‘analysis and exploration’ and ‘evaluation and reflection’, the first and third phases, are empirical cycles because they require data collection and analysis. The ‘design and construction’ phase is informed by the empirical study that preceded it but does not “by itself” constitute an empirical process, rather it will “follow a sound, coherent process to produce an intervention in draft, partial, or final form” (p. 78). For this reason, I paired EDR with a second DBR approach – conjecture mapping.

Orienting Framework (diSessa and Cobb, 2004)

Sociocultural Theory
(Vygotsky, 1978; Lantolf
& Poehner, 2008)

Activity Theory
(Engeström, 1987; 1999)



DELETE?

As in all qualitative research, the methodology I'm using DBR, requires work to rest on a theoretical foundation, including grand theories that give us a shared language for describing current and emergent knowledge --- In this case, because I'm talking about teaching and how learning is mediated, I rely on sociocultural theory that rests on the work of Leon Vygotsky, where the organic (the brain) and the cultural both impact the mind, leading, over time, to development and learning (Lantolf & Poehner, 2008).

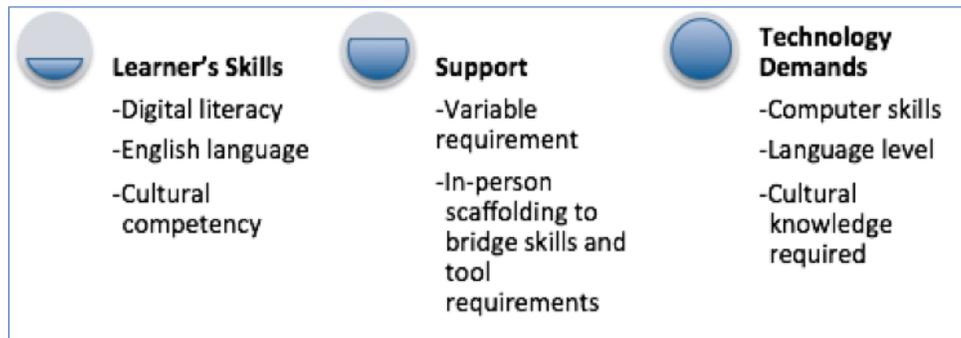
More specifically, I draw on Engeström (1999) and his activity system model, which illustrates well the impact of environment impact on learning. It is comprised primarily of: Subject – the one engaged in an activity, Object – the intention of the activity or the goal, AND Tools and signs – anything used to complete the activity (computer, language, curriculum).

Additionally, several components impact the way that subjects use tools or signs to affect the object: Community, rules, and division of labor.

Together, each part of the activity system contributes to shaping how the activity of the subject results in an eventual outcome (Engeström, 1999). All components are at play in determining the shape of that outcome. The activity system in my research is each of the participant site classrooms, where the 'subject' is the TAC member, the

'object' is learners, the 'mediating artifacts' include instructional strategies and resources, and the 'outcome' is computer skill development.

Framework for Action (diSessa and Cobb, 2004)



Silver-Pacuilla and Reder, 2008

What is needed to make instruction accessible for ELLs in community technology labs.

it's useful to have a bridge between the orientating framework and ideas about design. A framework for action provides concrete focus that shapes design and serves as a heuristic for determining impact. Frameworks for action are significant because they help us manage a gap between theory and design.

Silver-Pacuilla and Reder's 2008 literature review defining minimal skill level for learning online determined that what is needed is an equitable distribution among three areas: learner skill, support available, and the demands of a task.

This framework not only provided important foundational knowledge that sharpened the study design, it also points to a gap in research; – one of the goals of this study was to determine how to provide an equitable distribution amongst these three components when working in the particular context of this study: CBO computer labs supported by minimally trained teachers attending to a diverse range of adult learners.

This led me to my overarching research question.

Summary of important prior research

SFL and Academic Language

Functional approach to SLA and developing academic language

Schleppegrell (2004, 2013).
Schleppegrell & O'Hallaron (2011)

Academic lg in diverse classrooms and for ELLs

Fitts & Bowers (2013).
Gottlieb & Ernst-Slavit (2014).
Zwiers (2007, 2013).
Lemke (1990).

Critique of academic language pedagogy

Faltis, Christian, J. (2013). Demystifying and questioning the power of academic language

SFL

Halliday (1978, 1985, 1993, 2003)

L2 Vocabulary Instruction

Vocab instruction for English lg learners

Graves, August & Mancilla-Martinez (2012).
Beck, McKeown & Kucan, (2013).
Beck, McKeown, & Omanson (1987).
McKeown & Curtis (1987)

Vocab and reading or knowledge

Perfetti, (2007).
Atkinson, D. (2011).

Graves, M. F., August, D., & Mancilla-Martinez, J. (2012). Teaching words second language. In *Teaching Vocabulary to English Language Learners*. New York: Teachers College Press.

Beck, I. L., McKeown, M. G., & Kucan, L. (2013). *Bringing words to life: Robust vocabulary instruction*. Guilford Press.

Beck, I. L., McKeown, M. G., & Omanson, R. C. (1987). The effects and uses of diverse vocabulary instructional techniques. In M. G. McKeown & M. Curtis (Eds.), *The Nature of Vocabulary Acquisition* (pp. 47–163). Hillsdale: Lawrence Erlbaum Associates, Inc.

Perfetti, C. (2007). Reading ability: Lexical quality to comprehension. *Scientific Studies of Reading*, 11(4), 357–383. <http://doi.org/10.1080/10888430701530730>

Atkinson, D. (2011). A sociocognitive approach to second language acquisition: How mind, body, and world work together in learning additional languages. Taylor and Francis. Kindle Edition. In D. Atkinson (Ed.), *Alternative Approaches to Second Language Acquisition*. (pp. 143-166) New York: Routledge.

Schleppegrell, M. J. (2004). *The language of schooling: A functional linguistics*

perspective. Mahwah, NJ: Lawrence Erlbaum Associates.

Schleppegrell, M. J. (2013). The role of metalanguage in supporting academic language development. *Language Learning*, 63(March), 153–170. <http://doi.org/10.1111/j.1467-9922.2012.00742.x>

Fitts, S., & Bowers, E. (2013). Developing academic English with English language learners. In M. Arias & C. Faltis (Eds.), *Academic Language in Second Language Learning* (pp. 27–56). Charlotte, NC: Information Age Publishing.

Gottlieb, M., & Ernst-Slavit, G. (2014). *Academic language in diverse classrooms: Definitions and contexts*. Thousand Oaks: Corwin Press.

Zwiers, J. (2007). Teacher practices and perspectives for developing academic language. *International Journal of Applied Linguistics*, 17(1), 93–116. <http://doi.org/10.1111/j.1473-4192.2007.00135.x>

Zwiers, J. (2013). *Building academic language: Essential practices for content classrooms, grades 5-12*. John Wiley & Sons.

Faltis, Christian, J. (2013). Demystifying and questioning the power of academic language. In M. B. Arias & J. Faltis, Christian (Eds.), *Academic Language in Second Language Learning*. Charlotte: Information Age Publishing.

Lemke, J. L. (1990). *Talking science: Language, learning, and values*. Norwood: Ablex Publishing Corporation. <http://doi.org/citeulike-article-id:748226>

Halliday, M. A. K. (1978). *Language as social semiotic*. London: Arnold.

Halliday, M. A. K. (1985). *An introduction to functional grammar*. New York: Routledge.

Halliday, M. A. K. (1993). Towards a language-based theory of learning. *Linguistics and Education*, 5(2), 93–116. [http://doi.org/10.1016/0898-5898\(93\)90026-7](http://doi.org/10.1016/0898-5898(93)90026-7)

Halliday, M. A. K. (2003). *On language and linguistics*. (J. J. Webster, Ed.) (Vol. 3). London: Continuum

Academic Language

"...the language of school related to acquiring new and deeper understandings of content related to curriculum, communicating those understandings to others, and participating in the classroom environment. These understandings revolve around specific dimensions of language use including discourse, sentence, and word or expression levels within sociocultural contexts."

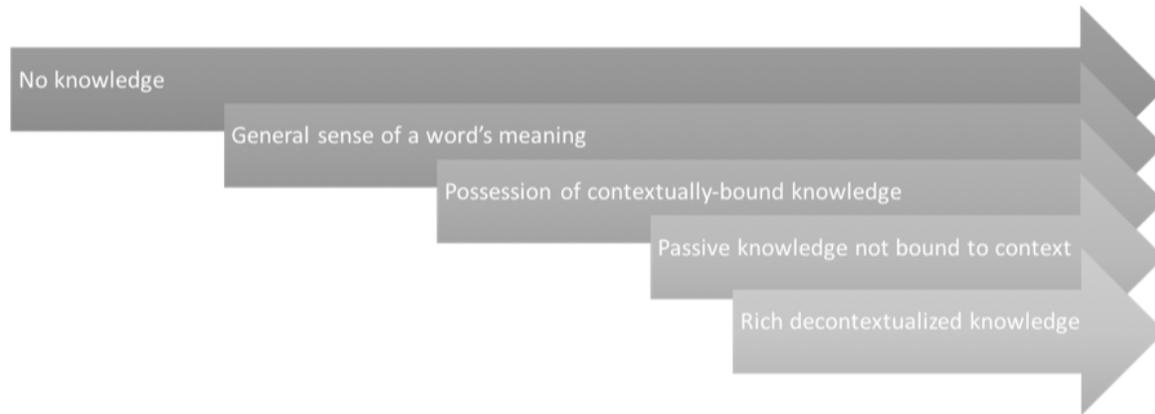
(Gottlieb & Ernst-Slavit, 2014, p.189)

Academic language is an important construct for considering adult language learning contexts, including those focused on digital literacy. AL is an approach to thinking about language that views the language of schooling as the means by which to support learning of academic content.

Gottlieb & Ernst-Slavit (2014) provided a useful current and very useful definition of AL:

The concept of academic language can be located in several theoretical perspectives in SLA: cognitive, functional, skills-based, sociocultural, and social action.

Vocabulary: What does it mean to know a word?



Continuum of word knowledge (Beck, McKeowan, and Omanson; 1987)

Understanding a parallel line of inquiry on vocabulary teaching and learning is necessary to analyze the instruction observed for this study. Though much of it focuses on either K12 or higher-level L2 vocabulary development, it is useful for theorizing the role of vocabulary with low-level ELLs in computer classes, particularly the literature that characterizes what it means to have knowledge of words.

A useful frame is this spectrum of depth of knowledge from Beck, McKeown, and Omanson (1987), as illustrated here. It shows their theory that Knowing a word is also understood as a continuum

In related work they wrote that a person starting with no knowledge of a word gradually progresses to eventually understand its meaning and make use of it in a variety of settings. Knowing a word may also mean knowing the connection of words to broader concepts, topics, or situational discourse where words are relevant or useful (Miller, 1978 as described in Beck, McKeown, and Kucan, 2013).

Perfetti (2007) in his writing on lexical quality hypothesis, articulated specific features required to true know a word, for example: semantics, phonology, orthography, morphology, and syntactic rules. Perfetti also suggested that hearing a word and

becoming aware of its meaning likely triggered mental connections to past experiences or relations to prior knowledge and that the resulting abstract representation made it possible to make meaning of a word in a new context. If one could draw on relevant prior knowledge, he or she was essentially providing a form of familiar context, cuing a personal schema to support understanding the word. This is a problem for learners touched by my study, who had little prior knowledge with the content, which made connections to schema either difficult or not possible at all.

Vocabulary – frequency of occurrence

... studies of learning from context show that context can produce learning of word meanings for both native English speakers and ELLs, that the probability of learning a word from a single occurrence is low, and that the probability of learning a word from context increases substantially with additional occurrences of the word

(Graves et al., 2012, p. 21)

Also challenging for my learners was the number of exposures required to learn a word.

Graves et al. (2012) wrote,

... studies of learning from context show that context can produce learning of word meanings for both native English speakers and ELLs, that the probability of learning a word from a single occurrence is low, and that the probability of learning a word from context increases substantially with additional occurrences of the word (p. 21).

So, how might one overcome this challenge? Beck et al. (2013) pointed out that students needed to develop an interest in learning vocabulary, to encourage them to notice new words in their environment and to start to reflect on how words are related conceptually. Atkinson theorized that, from a sociocultural perspective, learning is “a default state of human affairs. If we constantly and sensitively adapt to our environments, then learning is continuous, at least insofar as durable adaptive change occurs in the learner– world system” (Atkinson, 2011, p. 144). So, tuning-in students to representations in their daily life of the skills and vocabulary they hope to master can support learning.

This prior research leads to questions.....

- What are the particular lexical structures (i.e., vocabulary) evident in classroom discourse of digital literacy?
- How do corps members draw on key vocabulary in their instruction?

Functional approach to academic language

(Schleppegrell, 2004, p. 47)

TABLE 3.1
Grammar and the Context of Situation

<i>Contextual Variable</i>	<i>Linguistic Realization</i>
Field (Presenting ideas)	Ideational Choices Noun phrases/nominal groups (participants) Verbs (process types) Prepositional phrases, adverbial adjuncts, and other resources for information about time, place, manner, etc. (circumstances) Resources for marking logical relationships
Tenor (Taking a stance)	Interpersonal Choices Mood (statements, questions, demands) Modality (modal verbs and adverbs) Intonation Other resources for evaluative and attitudinal meaning (e.g., resources for appraisal)
Mode (Structuring a text)	Textual Choices Cohesive devices, including conjunctions and connectors Clause-combining strategies Thematic organization

Note. Based on Halliday (1989, 1994).

Schleppegrell (2004) adopted a functional approach in her work on academic language. Successful application of AL requires identifying the configuration of grammatical structures that are typical, expected, or socially relevant in any context. By doing so one can define the register, “the configuration of lexical and grammatical resources which realizes a particular set of meaning” (p. 46). Drawing on Halliday, Schleppegrell (2004) presented the following structure for organizing elements of a register.

Utilizing academic language as a means to support the academic development of adult ELLs provides scaffolding that supports language development, the learning of content knowledge, and nurtures identity as students. For example, in an age of technological ubiquity, where learners have been found to privilege building computer skills over English language learning, as pointed out in Chapter 3, a pedagogy based on known academic language can invite learners to participate in language skill development that at the same time gives the valuable skills needed to participate in daily life. Hence, AL holds promise as a means to provide adult ELLs with relevant input to engage as a both a learner and legitimate participant in broader world by elucidating the language required to fully engage in learning by affording the cultural capital the language holds (Pierre Bourdieu, 1991). Zwiers

(2013) wrote that such capital is critical for knowing what to say, do, or write in an educational setting.

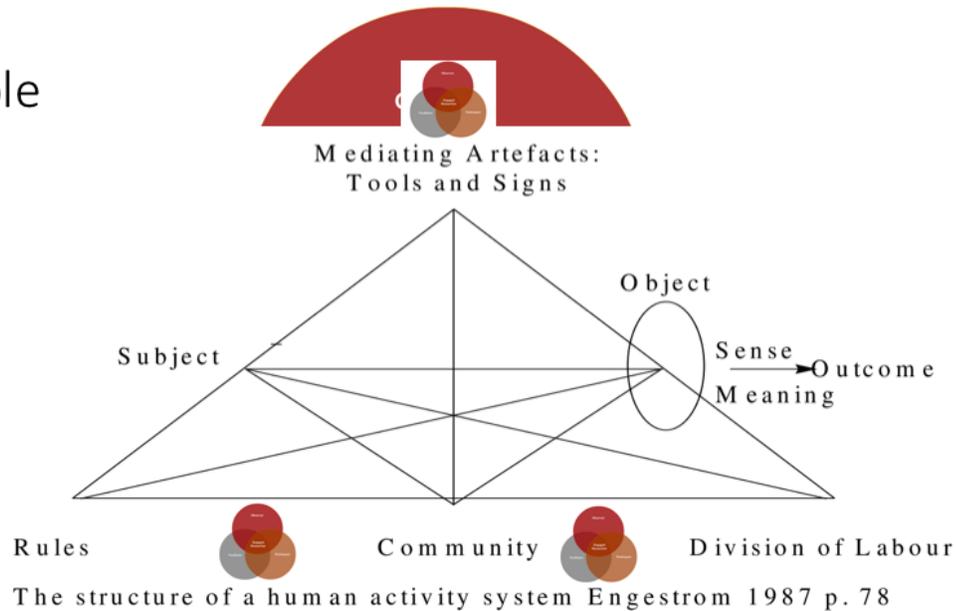
Methodology



This is a qualitative case study of the language used in instruction in two basic computer skills classrooms in two of the six focal sites represented in the larger dissertation study, Newcomer Home and Ascend. Case study is commonly employed in SFL research, where context is critical for determining meaning of language. (Schleppegrell & O'Hallaron, 2011). For this study, I focused on representations of "field," the ideational choices presented in instruction in the two sites and by comments about teaching made by the participants in focus group discussions. Particularly important in this context are those nouns and verbs that constitute the vocabulary of the basic computer skills classes observed. Vocabulary is an important component of ideational choices in language use. Schleppegrell (2001) writes Vocabulary is an obvious feature of register differences, as it is the lexical choices that realize the ideational content of the text. Through lexical choices, students also situate themselves as members of particular discourse communities, displaying their ability to adopt the lexis of the field. (p. 438)

The study sought to define the vocabulary employed in basic computer skills classes.

My role



In qualitative research, the researcher is an important part of the analytical process, so a researcher's positionality impacts the analysis. For this study, I was situated as a participant observer and researcher known by the participants as seeking knowledge about how to best support ELLs in digital literacy classes. When needed, I helped both the participant AmeriCorps members and their students. This was an ethical choice stemming from my opinion that persons with expertise should contribute when put in a position to do so.

The TAC members who staff the computer lab who, though they have been successful students, had little formal training in teaching and were at times unaware of the issues that served as barriers for the ELLs in their labs. Therefore, I was actively engaged in supporting both the learners and the service corps members during my time at the CBOs. This positioned me as observer, participant, and facilitator - combined together I argue made me an engaged researcher in the settings. I think this positionality would place me in a number of places in the Activity System model

Data sources

Method	Focus group and interviews	Classroom observations	Presentations
Number of Sessions	17 sessions	15 sessions	3
Hours transcribed	13 hours	22.2 hours	0
Supporting materials	n.a.	Class handouts, photos of learning environment	Power Point slides

To account for the vocabulary required for participation in basic computer classes, I analyzed data from recordings of classroom observations and focus group discussions, which included data from conversations where participants described their beliefs about the role of explicit language instruction in the classroom and the relationship between English language proficiency and digital skill development. I took note of language used to describe the content skills that served as the focus of skill instruction, the explanatory language used to make those content skills clear, and instructional strategies employed to teach them. I also analyzed any artifacts employed in instruction of the focused computer skills. This data is reflected in Table 5.1 below

Sites



Site	Students' home language(s)	Education/English level
Project Integrate	Somali & other African, Spanish, English	Adult learners. Mixed level; early literacy to college transitions
Ascend	Mixed Horn of Africa languages	Adult learners. Mostly very low literacy; some GED prep level
Newcomer House	Spanish; Some diverse African and Southeast Asian languages	Adult learners. Mixed level; early literacy to transitions
Global Institute*	Diversely international context	Adult learners. Mixed level, but both levels of previous education and English language higher than in other sites. Several students from professional class in home country
Library Lab*	Mostly English; periodically Spanish, Somali or Vietnamese	Adult learners. Very mixed; mostly low-educated; little to no prior computer experience
Digital Youth*	Mostly English	Middle to high-school aged; high literacy

* These sites did not have serve low-level ELL adults.

Using these mythology combined, my goal was to collaboratively create a resource to help support ELLs in community-technology labs; deepen theoretical knowledge on teaching in this context. To do this I needed to answer the question: What is needed to make instruction accessible for ELLs in community technology labs.

The participating sites are all part of the same umbrella AmeriCorp program, Which I call Technology Access Collaborative or TAC. TAC serves over 30 organizations in metro area in which it is based; it's mission is to support digital literacy for adolescents and adults. The sites I chose represent the range of CBOs that host TAC AmeriCorps members. Though each played a role informing my work, the two organizations serving the most low-level ELLs were the most generative.

These sites are listed in this graph - named by pseudonym - and defined by characteristics of the learners who attended the computer classes led by the TAC members.

Participants

Site Pseudonym	TAC member	Prior education	First language	Languages shared with students
Project Integrate	Leanne	Bachelor of Arts	English	
Ascend	Erik	Bachelor of Arts	English	
Newcomer House	Marty	Bachelor of Arts	English	Spanish
Global Institute	Donna	Bachelor of Arts	English	Spanish
Library Lab	John	Prior education and career in Computer Science field	English	
Digital Youth	Samantha	Bachelor of Arts	English	

11. The participants of the study were the collaborating stakeholders who experienced the instructional challenge - they were a convenience sample, who actually self-selected to join to support their AmeriCorps work. Each year TAC asks it's AmeriCorps members to participate in a community engagement project - to leave some legacy of their year of service. The goal of this group's project was to create resources to make it easier to teach ELLs in TAC sites. As you can see none of the TAC members was a trained teacher and for the most part, did not share the home language of the students they supported.

All of the TAC members introduced in Chapter 2, except Leanne who was only available for the pilot study, participated in the focus group discussions as part of the larger study, but the data presented here draw primarily on contributions from the two participants who provided instruction to low-level ELLs, Erik and Marty. At Ascend, Erik offered classes to adolescents and adults supporting workforce training and computer skills with the goal of helping community members achieve economic and social stability. Instruction in the computer lab was characterized by a rolling cohort with very few learners coming every day and no way of knowing who will attend each day. Marty's work Newcomer House was a bit different, in that Newcomer House enrolled ELLs in formal English language learning and provided

computer classes to supplement language classes. These computer classes were several weeks long and supported a cohort group of students that remained largely intact throughout the course, with new students joining in along the way.

Data analysis

..Individual Help	16	[Examples of volunteer and Ethan helping students with activity]
..Teaching Vocab	17	[Lots of repetition of the articulated skills B, I, U in the section where they are providing]
..Articulated Skills site info	18	E: So the first thing we're going to do is the language. Let me get you these sheets. we're starting on these two pages here. So we'll start here.
language Analysis	19	E: What you see up here on the top of your bar on the page is called the ribbon. That's just a reference point. Do you remember that one A...? The ribbon? So this entire thing here is the ribbon. So that's what we're going to reference throughout the program. The ribbon. It contains all formatting changes. So the first one we're looking at is right here. And you can look on your screen. There's a B an I a U. So who can tell me what this B is? [no one responds] Bold. So that makes it thick, darker. Next one, I?
..Cohort model	20	S: Italics.
..Articulated Skills	21	E: Italics, yep. Italics slants it to the left and makes it look fancy. Next one, what do you think?
..Cohort mode	22	Underline. Yep, so we'll practice these three. If you want you can write the numbers corresponding to each, so 1, 2, 3. You can practice these. Bold, italics, and underline.
..Demonstratic	23	V: Do you want them to actually type the word?
..Articulated Skills		E: So I was going to first have people write it so they know the corresponding and then afterwards.
..Individual Help		
..Cohort model		
..Display questions		
..Differentiation		

I coded these data using in two cycles. I used first cycle coding identified by (Saldaña, 2012) as descriptive, creating categorical labels. As I moved through transcripts, audio files, and field notes, I identified relevant themes, resulting codes like *Learning*, *Computer skills*, *Attitude*, *Social capital*, *Investment*, and *Teacher-centered*. I also integrated demographic data into my coding to better see patterns in the data and to shape observations. Next, I drew on data from online assessments and online learning activities to further inform my understanding of the work of the learners in the program. I went through a second cycle creating subcodes to better draw out salient themes.

I used the qualitative research software MaxQDA to support an analysis of my codes - showing me where in these data salient themes were represented. This process was not quite as linear as it sounds - as I needed to repeat the process of coding and use of analytical tools iteratively, until my findings became evident.

Analysis

Code Sub-codes	Code Sub-codes
1. Instruction of content	2. Student Info
Process of Instruction	Levels
Review	ELLs
Using student home language	Class demographics
Classroom management	
Individual Help	3. Language Analysis
Cohort model	Conceptual understanding
Transferrable skills	Teaching Vocab
Display questions	
Activity	4. Needs
Resources	Multilingual
Use of Northstar	Class logistics
Articulation of skills	Differentiation

Data were qualitatively coded in a multicycle process (Sal dana, 2012). In cycle one, I applied structural codes, for example *Language analysis*, *Instruction of content*, and *Needs* to draw out data that represented use of language or instruction of the language or digital literacy. First cycle coding also included what Saldaña referred to as attribute codes, used for marking useful demographic information about learners and context, for example: *Student info*, *levels*, *ELLs*, *class demographics*. I took a second pass still drawing on first cycle codes for as Saldaña (2012) suggests, “a more attuned perspective (p. 10). During this phase of coding, I applied descriptive codes to flag immediate salient themes within this subset. Table 5.2 shows the codes employed in both cycles that are most relevant for this part of the research.

Q1 Analysis –
 What are the particular lexical structures (i.e., vocabulary) evident in classroom discourse of digital literacy?

Occurrences of codes in data gathered from Ascend and Newcomer House

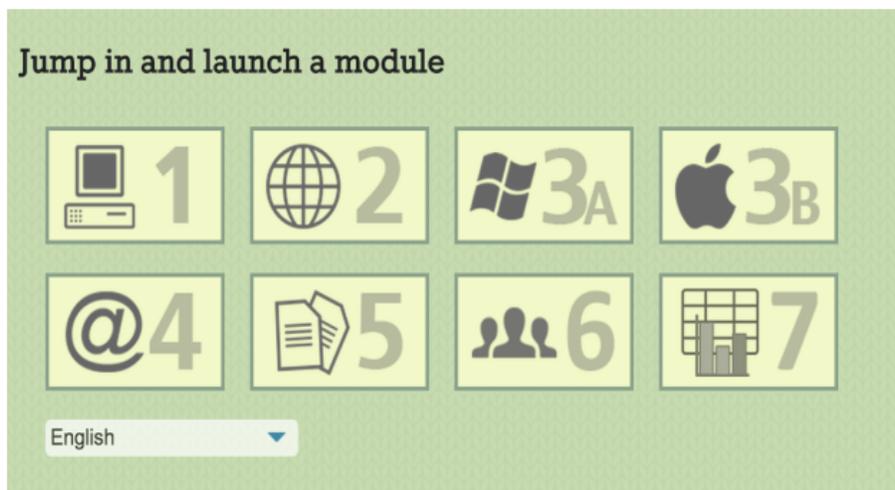
	Language Analysis	Vocabulary Inconsistency	Teaching Vocabulary	SUM
Instructional Materials	0	0	13	13
Focus Group Notes and Transcripts	11	1	29	41
Observation Notes & Transcripts	106	4	35	145
SUM	121	5	77	203

As I analyzed field notes, analytic memos, transcriptions of focus groups and class observations, and classroom artifacts to answer the question: *What are the particular lexical structures (i.e., vocabulary) evident in classroom discourse of digital literacy?* I noticed ample data that informed identification the key vocabulary in this context. illustrated in the table, which shows the frequency of codes (the first row of the table) for each data source.

I didn't code lg of instructional materials – would have been double counting because it was consistent w/ what was found in Observation notes and transcripts

Q1 Finding 1- Assessment determined the “field”

What are the particular linguistic structures evident in classroom discourse of digital literacy?



Diving into each coded group of data revealed a common theme; these data suggested that the ‘field’ in this context was constituted by key vocabulary articulated in skills tested in the Northstar Digital Literacy Assessment. Each of the participating agencies used the assessment as an outcomes measure, TAC members were encouraged to provide instruction that supported growth on the assessment. The standards on which the assessment is based, therefore, motivated the vocabulary used in the classroom. Evidence for this finding was most neatly reflected in a comparison of the instructional materials from the focal site, Ascend, and the actual Northstar standards.

Focus vocabulary drawn from Northstar

Coincidence of key terms and concepts in course materials and assessment standards

Skill area	Number of times class terms are articulated in both standards and materials	Number of times class terms are articulated only in materials; but implied by standards*	Number of standards not covered in class materials	Number of terms articulated in class materials but not in standards
MS Word	24	3	5	2
Computer Basics	26	12	6	0

*Terms used in course materials reflect more detail than what is articulated in the standard, but teaching standard necessitates use of the term.

Basic Computer Skills

1. Distinguish between desktop and laptop computers.
2. Identify specific computer hardware: a system unit, monitor, printer, keyboard, mouse or touchpad, USB port
3. Turn computer and monitor on and off
4. Log on to computer
5. Demonstrate knowledge of function and placement of keys on keyboard: Enter, Shift, Control, Backspace, Delete, Arrow Keys, Tab, Caps Lock, Number Lock
6. Identify types of mice: mouse and touchpad
7. Identify mouse pointer shapes and match them to the correct context of use: typing arrow (text), arrow (basic clicking), hand pointer (clickable links)
8. Demonstrate appropriate use and ability to right-click and left-click
9. Double click and right click
10. Drag and drop
11. Use mouse to select check boxes, use drop-down menus and scroll
12. Adjust volume and mute audio
13. Plug in headphones correctly and use when appropriate
14. Identify icons on desktop (Internet Browser, Control Panel, Recycle Bin, Skype)
15. Demonstrate the ability to use the recycle bin correctly for trashing and retrieving items
16. Demonstrate understanding that it is possible to customize a computer for increased accessibility
17. Demonstrate understanding that mice can be customized for left-handed people and that the speed of clicking can also be customized
18. Demonstrate understanding that screen resolution can be changed
19. Demonstrate understanding that software programs are upgraded periodically and that different versions may be installed on different computers
20. Identify storage media: USB/Flash drives (external) and hard drive (external and internal)

So the standards on which the assessment is based motivated the vocabulary used in the classroom.

Q1 Finding2: Explanatory language varied

<u>Minute</u>	<u>Speaker</u>	<u>Excerpt</u>
17:25	Volunteer	Try swiping that
17:42		Swipe
17:53		Put your cursor here and swipe
18:00		No. Put your cursor here. Now swipe .
20:30 -	Erik	1 So, highlight all of your text, we're going to do copy
21:02		2 paste and cut. So, if you highlight all of your text. So,
		3 you want to click. So, make sure you click and
		4 highlight . Try copy. So, if you highlight and try the
		5 copy button. Go to the end of that one and then you
		click right there.

Transcript excerpts showing varied explanatory language (Classroom observation, April 4, 2016)

Varied Language Employed in Explanations. Beyond the focus on vocabulary motivated by the assessment, there was not much consistency in the language of explanation that TACs provided to support instruction of the skills.

At Ascend and Newcomer House, explanations that students received for different skills generally started with a group presentation led by the teacher and then shifted to individual practice supported by one-to-one help when needed. Explanations provided in the whole group instruction were hardly ever just explicitly articulated, but were supported by slides and demonstration of the skill.

The one-to-one support that followed depended on the learner's needs, from casual observation to literal handholding as the facilitators monitored practice. Each corps member seemed to tailor their explanations to their community of learners. Because these students varied, the explanations had to vary too. Additionally, each of the sites had volunteers who volunteers came with their own way of describing things.

Q2 - How do service corps members draw on key vocabulary in their instruction?

Finding - Shift in corps members' perception of role of vocabulary instruction and practice



The end goal of this functional analysis was an understanding of the key vocabulary employed during instruction in computer classes. The second focus of inquiry, then, investigated whether or not and how the vocabulary of computer skills was made accessible to learners by answering the following question: *How do service corps members draw on key vocabulary in their instruction?* The data from the two sites serving low-level ELLs, Newcomer House and Ascend again, provide the most elucidating data. The most useful finding presented here was a shift in the corps members' perception of the role of vocabulary development in instruction.

Starting point: Vocabulary not a focus

- 1 Donna I'll explain something in English and one of them with higher proficiency in English and who gets
2 the concept will turn to others and will explain everything I just said in Somali. And they'll be
3 like OK I understand. So, the goal is for them to take that home [inaudible].
- 4 Erik That's almost what you want to have happen in a classroom. What you just described.
- 5 Donna Yeah
- 6 Erik That's I think maybe best case scenario, though maybe the one thing you hope for is that then
7 eventually they start learning terminology to associate with that concept.

(Transcript from focus group, January 8, 2016, minute 3:40)

Starting point: Vocabulary not a focus. At the beginning of the study, these data suggest that vocabulary instruction was viewed as secondary or attendant to the skills instruction, rather than the focus of instruction. For example, in the first focus group meeting there was an acknowledgment that language was an issue in teaching computer skills, but there was no conversation about how language instruction or vocabulary support should figure into instruction.

The transcript shows that there is an awareness that language comprehension is an issue when teaching computer skills in L2 English and that conceptual understanding is the goal of instruction. In lines 1 and 2, Donna provided a strategy (i.e., relying on a more proficient learner to leverage L1 for explanation) and Erik suggested the desired outcome of that or any strategy they employ in their computer classes is a conceptual understanding of the skill associated with the language. His comment in line 6 illustrates his belief that terminology is secondary to skill, that “eventually” acquisition of the vocabulary will happen.

Gradual shift to vocab

- 1 John But I like the way in your class you talk about vocabulary even though it's technology it's
2 vocabulary [To Donna; John had just observed her class.]
3 Jen Marty does the same thing too.
4 Marty Yeah and so I started integrating okay if we're going to talk about there will be some new
5 vocabulary and I will introduce and say, "Okay this is the new word for... this is the new... this
6 is a new word." and then I can see them writing things down on their handouts that I gave them
7 and that kind of stuff.

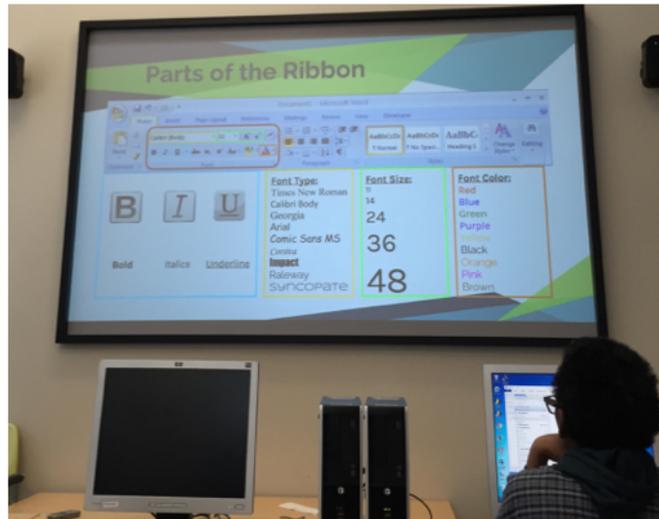
(Transcript from focus group, March 18, 2016. Starting at 11:38)

Early shift: Considering vocabulary. Language was not again represented directly in focus group data until two months later. In answer to the prompt from the researcher, "So, let me ask a follow up question; you guys have talked about technology as the content. To what extent is English language the content that you're teaching? What do you think?" The TAC member answers represented in the transcript suggest that there had been some growth in their understanding of the role of vocabulary specifically in the instruction of computer skills. Erik responded as follows: "*The first day of my class in particular is just, what is this called? It's called a mouse. What is this called and then to learn the functions before that they have to understand why it's called that...*" (Focus group transcript, March 18, 2016, minute 9:07). Note that though the question asked about language more generally, the response was focused specifically on vocabulary.

Later in the same transcript, there is more data representing how they approached the language issue at the time, again showing vocabulary as a focus. This final excerpt shows further evidence that the focal participants, in this case Marty, were beginning to think about skills and vocabulary as connected.

Classroom observation data also support these observations about early efforts to integrate vocabulary in support of computer skills, and how their work shifted over the months of the research

Vocab embedded in instruction



PowerPoint slides shown by Erik at Ascend on April 4, 2016

Erik's work at Ascend. Data from parallel lessons taught by Erik show how his thinking about vocabulary building shifted. In the first lesson, taught on April 4, 2016, vocabulary was embedded into the skills instruction. This finding was elucidated through descriptive coding process applying the labels: *Activities*, *Articulation of skills*, and *Vocabulary instruction*. In his lesson, key terms were included on PowerPoint slides projected to a presentation screen, as seen in Figure 5.5, and introduced as he talked through the slide. This instruction included some provision of definitions and comprehension checks done with display questions all supplied in large-group cohort instruction.

The slide shows a screenshot of the Ribbon in Microsoft Word, seen along the top of the screen. Underneath that, it shows blown up images of the formatting options featured on the ribbon, for example B, I, and U, which are labeled underneath the icons (i.e., "Bold", "Italics", and "Underline"). This intentional but very limited introduction showed some effort to support vocabulary development; however, vocabulary was not the focus of the class.

Recognizing the importance...



Recognizing the importance of vocabulary instruction. Data from both Newcomer House and Ascend suggest that as time progressed Marty and Erik began to allow more time for focused instruction and practice of vocabulary and attendant skill development.

Erik's instructional slides -- spring of 2016

Instructional strategies used in Erik's parallel lessons on text formatting in Microsoft Word

<i>Instructional Activity</i>	<i>April 4, 2016</i>	<i>June 17, 2016</i>
Vocabulary instruction embedded into skill explanation.	x	x
Power Point slide showing skill and key words	x	x
Demonstration		
Several words and concepts presented simultaneously	x	x
One word or concept presented at a time		x
Vocabulary worksheet	x	x
Supplemental vocabulary and review activities		x
Practice skill	x	x

Data from Erik's class on the same topic three months later shows that over time, Erik began to integrate activities to support vocabulary instruction in more ways. This shift is evident in the table, The table shows that the class taught on June 17 included each of the instructional activities observed in the earlier class, plus a demonstration and extra vocabulary review activities. It also featured concepts presented one at a time, rather than several terms at once, as happened in the earlier lesson.

More practice resources

The screenshot displays the Learning Chocolate website interface. At the top, the site title "Learning Chocolate" is followed by the subtitle "a Vocabulary Learning Platform". Below this, there is a navigation bar with a home icon, a "Category" dropdown menu set to "Choose one category...", a search bar, and language selection options for "Use English(US)" and "Learn English(US)".

The main content area features a practice activity titled "Microsoft Word Font" by user "hnouvang" in the "Engineering/Technology" category. The activity is presented in a "Match up" format with three options: "Match up 1", "Match up 2", and "Match up 3", along with "Fill in" and "Dictation" buttons. The central focus is a yellow-bordered image of a Microsoft Word font ribbon. Labels with arrows point to various elements: "font face" points to the "Calibri (Body)" dropdown; "font size" points to the "11" dropdown; "bold" points to the "B" icon; "italics" points to the "I" icon; "underline" points to the "U" icon; "highlight" points to the yellow highlighter icon; and "font color" points to the red font color icon.

On the right side of the page, there is a vertical sidebar with the text "VRBO" at the top, followed by "Choose flexible when no proper travel" and "List for pay-per-". At the bottom of the sidebar, it says "No upfront commission booking" and "List".

Welcome to the Digital Homeroom!

Computer Skills



COMPUTER BASICS VOCAB



MS WORD VOCAB



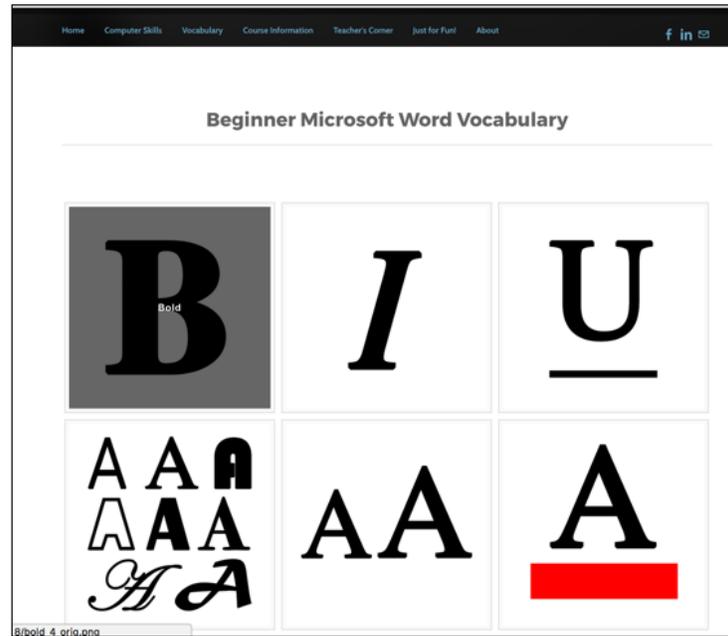
INTERNET VOCAB



EMAIL VOCAB

This is where we are now.

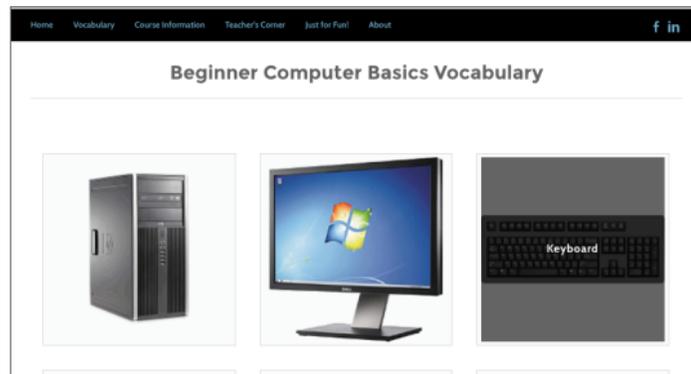
More practice resources



Glossary added to web resource – DiHo for self reference and extra practice

Impact of more focus and practice

I also saw how people reacted to the beginning vocabulary [page] which I think went really well. Because it gives people sort of a needs assessment, allows them to assess themselves on where they're at and words they know and then they can fill in the blanks and then we can review it as an entire class. So, I will continue to build out the website as it continues and do my best to make it user friendly.



Erik, June 24, 2016 focus group

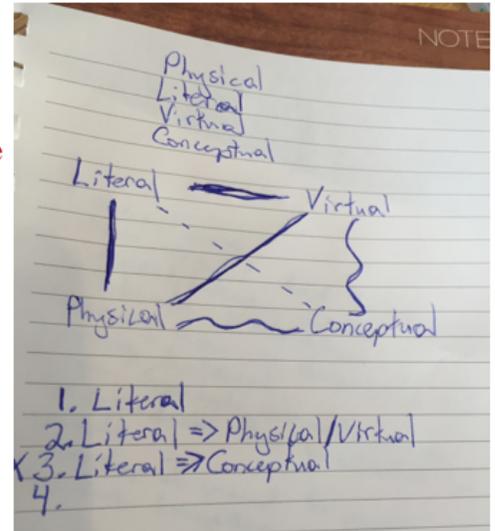
As the TAC members observed each other teach throughout the needs analysis and reflected on their own teaching, it became clear that they need a glossary as part of their explicit focus on vocabulary. In his field notes from mid-June, Erik wrote this observation about the impact of the glossary - "I also saw how people reacted to the beginning vocabulary [page] which I think went really well. Because it gives people sort of a needs assessment, allows them to assess themselves on where they're at and words they know and then they can fill in the blanks and then we can review it as an entire class. So, I will continue to build out the website as it continues and do my best to make it user friendly."

The glossary was an important part of the instruction and practice, which became more complex over the course of our time together. In field notes documenting a debriefing conversation after class on my last visit, Marty observed that, over the 17 months she had been at Newcomer Home, she had realized the importance of making time for ample vocabulary support. To make this possible, she said that she had slowed down the pace of the assessment cycle from three instructional hours before an assessment to 40 hours, with nearly half of those hours dedicated to vocabulary development and other language required to make use of computer.

Finding Q2 - Pushing understanding of concepts

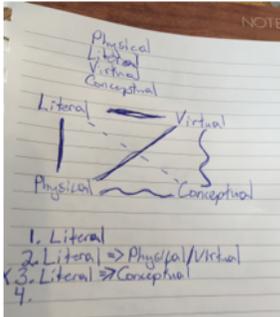
So I said **the literal are the words**, the actual words sometimes. **The physical is like a computer like this** [demonstrates something you can touch]. **The virtual is the presentation I make** on a web interface or on a PowerPoint **and then a conceptual is what they do**. And the literal to the physical and the literal to the virtual make complete sense people get that. They know how to name things very quickly. We learn that quickly and then I try to go to the conceptual, like from the word to the concept and that's the least connection, like that's where I'll lose people.

Erik - Focus Group 16.06.24



What accounts for this shift? I think the Corps members were arriving at a more sophisticated sense of the role of language, specifically key vocabulary, in their learners' skill development. Shown in this excerpt from a focus group transcript.

Clues about what it means to know a word



- 1 Jen [Clarifying question about concept map Erik drew] So, for example they might be able to succeed in a mousing activity but if you asked them to do something in a Word exercise they won't be able to do mousing?
- 2
- 3
- 4 Erik Yes.
- 5 Jen Or their inability to use [physical manipulate] with the mousing or the conceptual understanding in mousing gets in the way of actually being able to like make a word bold because they can't pick and drag to highlight?
- 6
- 7
- 8
- 9 Erik Yeah exactly and to me the conceptual means the ability to transfer that knowledge to other things. And that's how I define it at least ... So basically, the X is where I kind of lose people. So, then after I noticed that words [his literal] to concept doesn't work, I'll try to go physical or virtual to concept, so then I try to show them this or say, "What does it do?" That still doesn't work. And so I'm, I think I've kind of hit a wall in my teaching, is the ability to get to the conceptual level.
- 10
- 11
- 12
- 13
- 14
- 15 Marty Oh, I totally identify with that.

(Transcript from focus group on June 26, 2016, minute 26:00)

What is it to know a word? Excerpts

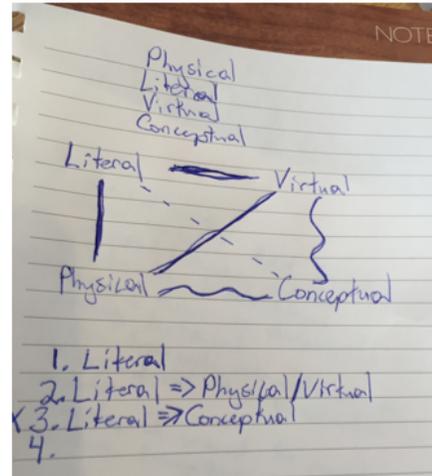
- Erik: ... to me the conceptual means the ability to *transfer that knowledge to other things*. And that's how I define it at least.
- Erik: I have an example ...let's use for example Bold in Microsoft Word. Almost all my learners can identify and name it and show you where it is and they can't tell me what it does exactly, but they can do it. Then we go to email and I'll point to the B and people won't be able to tell me what its for.
- Marty: Thinking about like you're lack of students not be able to apply skills across the cross context . With the Northstar my students will look at the click and drag question and say I've never seen this before teacher. [I say] I do this every day you guys. But seeing it in it in the assessment. It's just so difficultt

(Transcript from focus group on June 26, 2016, minute 26:00)

The corps members developed a sophisticated understanding of what it means to know a word.

What is it to 'know' a digital literacy concept?

- 1) recognizing a word supplied in instruction, often the signifier of a skill being taught (the signified);
- 2) knowledge of how the signified is enacted or how to accomplish the skill;
- 3) the physical capacity to enact the skill, and
- 4) knowing when and why to enact the skill, or ability to recognize the vocabulary within and transfer to skill to a new context.



They came to realize that understanding a concept is complicated. The notion of “concept” was introduced by the corps members several times in data presented above. They used the term as a practical description of the knowledge of a vocabulary and its associated skill in this context. Though they had not intended to, they hit upon a very useful theoretical construct in sociocultural theory. Vygotsky (1987) also used a Russian equivalent of the term; he equated “concept” as a way to frame a word’s meaning, defining concept as a thematically unified entity that encompasses individual elements. He suggested that the meanings attributed to words are abstractions that gain meaning through observing its use and interaction (mediation) in a particular context. He understood that knowing a word’s meaning reflects an understanding of the development of one’s consciousness and an understanding of a concept. Vygotsky wrote that the development of concepts or word meanings presupposes the development of a whole series of functions. It presupposes the development of voluntary attention, logical memory, abstraction, comparison, and differentiation. (p. 166)

The development of conceptual knowledge, while supported by instruction, also requires lived experience to make the abstract more personal and comprehensible. Vygotsky noted that this required practice, activities necessary for the development

of concepts. Practice is a social process because a person works toward development of cultural practice. It is mediated by use of tools and activities that focus attention on desired knowledge.

Implication for practitioners

The image shows two screenshots. The left screenshot is from a website titled "INSTRUCTIONAL RESOURCES FOR TEACHERS". It features a video player for "Effective Teaching Strategies" and a "Resource Evaluation Rubric" section. The right screenshot is from a website titled "Beginner Computer Basics Vocabulary" and shows images of a desktop tower, a monitor, and a keyboard. Below these screenshots is a diagram consisting of five horizontal arrows of increasing length pointing to the right, representing a knowledge spectrum. The arrows are labeled from top to bottom: "No knowledge", "General sense of a word's meaning", "Possession of contextually-bound knowledge", "Passive knowledge not bound to context", and "Rich decontextualized knowledge".

The development of conceptual knowledge, while supported by instruction, also requires lived experience to make the abstract more personal and comprehensible. Vygotsky noted that this required practice, activities necessary for the development of concepts. Practice is a social process because a person works toward development of cultural practice. It is mediated by use of tools and activities that focus attention on desired knowledge.

If we constantly and sensitively adapt to our environments, then learning is continuous, at least insofar as durable adaptive change occurs in the learner– world system” (Atkinson, 2011, p. 144). So, tuning-in students to representations in their daily life of the skills and vocabulary they hope to master can support learning.

The data from this study showed that this theoretical interpretation of what it is to know a word or, rather, concept, is reflected in the efforts demonstrated by both Marty and Erik in the final months of the research process. Within what was possible at their respective sites, given learner demographics and the environment of the lab, each corps member, in some measure, arrived at the realization that simply knowing a word was not enough to support computer skill development. Consequently, each added instructional strategy expanded upon the direct instruction critiqued in the quote above to provide focus and mediated activities to offer a semblance of practice or lived experience necessary for the learners to not only understand the vocabulary

and skills but also reach the conceptual level of understanding necessary for transferring those terms and skills into new contexts.

Implication for research – proficiency & embodiment

No knowledge

General sense of a word's meaning

Possession of contextually-bound knowledge

Passive knowledge not bound to context

Rich decontextualized knowledge

Continuum of word knowledge
(Beck, McKeowan, and Omanson, 1987)

TABLE 3.1
Grammar and the Context of Situation

<i>Contextual Variable</i>	<i>Linguistic Realization</i>
Field (Presenting ideas)	Ideational Choices Noun phrases/nominal groups (participants) Verbs (process types) Prepositional phrases, adverbial adjuncts, and other resources for information about time, place, manner, etc. (circumstances) Resources for marking logical relationships
Tenor (Taking a stance)	Interpersonal Choices Mood (statements, questions, demands)

(Schleppegrell, 2004, p. 47)

This research add a layer of complexity to research on vocabulary

Jenvanek@moreliteracy.com

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