Why write in a language that (almost) no one can read? Twitter and the development of written literature

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The development of written literature in languages which are not usually written by their speakers can be confounded by a circular problem. Potential writers are reluctant or unmotivated to write in a language that no one can read. But at the same time, why learn to read a language for which there is nothing available to read? The writers wait for the readership, while the readers wait for material. In this paper I argue that Twitter can be used effectively to support burgeoning writers of languages for which no current readership exists by partnering writers with volunteer readers who do not need to know the target language. I lay out a model for this type of work that is an effective way for outside linguists and their students to support indigenous language activists.

1. Social media and indigenous languages[1] The internet and its social media platforms, including Facebook and Twitter, have drastically reduced the expenses associated with the distribution of the written word. With little financial outlay a writer can make their writing available free of charge to a global audience. The internet has long been viewed as having potential uses for speakers and writers of endangered languages. Buszard-Welcher notes that "the Web can be a virtual speech community, a constructed immersion setting where members of the speech community meet, interact, and communicate in the native language" (2000:342) and Kevin Scannell, creator

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of the Indigenous Tweets Project (www.IndigenousTweets.com), says, "I view things like Twitter and social media as an opportunity for smaller languages" (Lee 2011).

In the last few years, interest in using languages online as a form of language activism has been of growing interest and has resulted in many workshops on digital language activism organized by institutions such as the Living Tongues Institute and the *Biblioteca de Investigación Juan de Córdova*, a research center in Oaxaca City dedicated to the languages and cultures of Oaxaca, Mexico. Individuals as well as groups are making use of social media platforms as spaces in which to use their language. Languages as diverse as Irish, Omaha, and Pipil are being used on Facebook (Scannell 2012:1). The Tongva Language Facebook page publishes a "word of the day" with audio recordings (www.facebook.com/TongvaLanguage). There are Twitter accounts posting in minority languages around the globe including Māori in New Zealand (Keegan et al. 2015), Gamilaraay in Australia (Ungerleider 2011), and Cymraeg in Wales (Lee 2011).

As Scannell points out, the various social media platforms lend themselves to being used in different ways:

> The social dynamics on Facebook and Twitter are somewhat different. On Twitter, connections can be unidirectional; that is, users can follow their friends, but also strangers such as politicians or celebrities, who are unlikely to follow back. Many people find Twitter [to] be a good way to "meet" new people with similar interests. The 140 character limit and the informal register make Twitter especially suitable for language learners and semi-speakers who are able to use the bits of language they know while learning from more fluent speakers.

> On the other hand, Facebook connections are typically bidirectional, and as a consequence people are less likely to connect with people they do not already know in "real life". Endangered language activity on Facebook is often centered around "groups" devoted to a given language, where discussions in or about the language can take place. (Scannell 2012:1)

The case study presented here explores the use of Twitter both as a medium for writing endangered, indigenous languages and as a means of offering support to those writers. The unidirectionality of Twitter seemed particularly apt for this project in that it could allow tweets and the project as a whole to spread beyond the group already committed to it.

Not only was Twitter suited for the project at hand, but speakers of small languages had already been using their languages on Twitter for years. As of 2011, only five years after its inception, more than 500 languages were being used on Twitter (Ungerleider 2011), of which 68 were indigenous languages, according to the Indigenous Tweets Project (Lee 2011). Five years later, as of March 2016, more than 170 indigenous languages were being used on Twitter, according to a list generated by Indigenous Tweets.

The case study explored here involves writing by speakers of Zapotec and Chatino languages, which are Otomanguean languages spoken in Oaxaca, Mexico. Speakers

of Oaxacan languages have been tweeting in their languages since at least 2010; a few accounts can be found in Figure 1. Speakers of indigenous languages, including languages of Oaxaca, have been using Twitter to write their languages since early on and have continued to do so—and in growing numbers.

Chatino languages: @ChaqHilaria (since 2014), @isaneqtnya (since 2014)
Mixe languages: @yasnayae (since 2010), @TajeewDR (since 2010)
Mixtec languages: @cafenu_yoo (since 2016)
Triqui languages: @triquichicahuax (since 2012); @LyC_Triqui (since 2015)
Zapotec languages: @ISF_MX (aka "Zapoteco 3.0", since 2012, account
    currently closed); @DizhSa (since 2011)

Figure 1. Twitter accounts of native-speakers of Oaxacan languages who tweet in their language

Twitter can be an opportunity for speakers of languages that are being used less and less. In fact, it is already being used by speakers and writers of indigenous languages. In the project described here we explore how Twitter can be used to support speakers of indigenous languages who want to write their language but have little or no experience doing so. In §2 I provide a brief overview of the Twitter project *Voces del Valle*. Differences between supporting the development of written literature and the development of a standardized orthography are considered in §3, after which I return to the details of the *Voces del Valle* project in §4. Conclusions and possible future directions are offered in §5.

2. Overview of *Voces del Valle*   *Voces del Valle* is a project that encourages speakers of Oaxacan languages, in particular Zapotec and Chatino, to write their language. The project uses Twitter as the medium for writing and as a means of support. The writers are speakers of the Oaxacan languages; most are native speakers, but some semi-speakers also participated. Each writer is paired with a reader. The reader encourages the writer by engaging with their writing and communicating with the writer about what they wrote. The reader does not need to know the target language, but rather can use another common language, such as Spanish or English, to discuss the content of the tweets with the writer. The goal of the project is to foster writing among speakers of these languages. The hope is that some young writers involved in this project may come to identify themselves as writers of their language and be part of the creation of written literature for their community beyond this project. Recent non-academic descriptions of the project and its impact can be found in Spanish in the Oaxacan newspaper *Noticias Voz e Imagen* (Velásquez 2016) and in English in Penn's Arts and Sciences magazine (Berger 2016).

Not all speakers wish to write their language and there are valid reasons why a community as a whole may choose not to write their language (Hinton 2000). Certainly, speakers of Zapotec and Chatino may have different opinions about writing their language. However, Zapotec in particular has a long history of non-alphabetic writing and a robust and long practice of alphabetic writing, with the first known

alphabetic text appearing in 1565 (Oudijk 2008). While the practice of writing has declined since the Mexican Revolution, many speakers of Zapotec wish to write their language. For example, Zapotec tweeter @BnZunni expresses his motivation for speaking in Zapotec in Figure 2, where he notes that when he speaks his language, he wants others to know how he sees the world. Given that he is writing this on Twitter, one can understand that the same motivation exists when he writes in Zapotec.
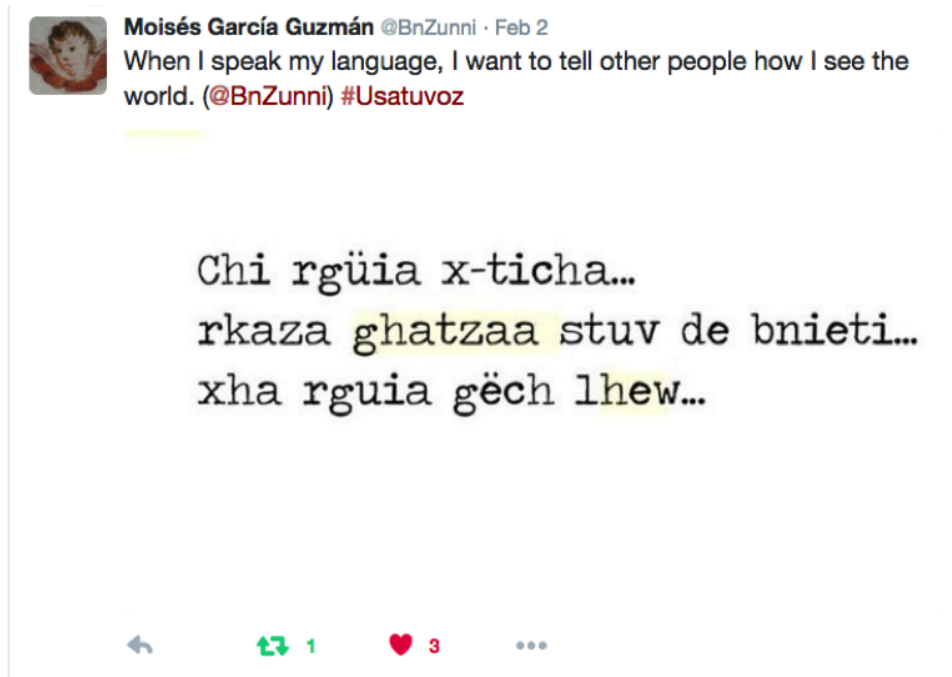

Figure 2. Tweet by @BnZunni in English and San Jerónimo Tlacochahuaya Zapotec https://twitter.com/BnZunni/status/694684181289304064

The core of the *Voces del Valle* program took place at a high school in Tlacolula de Matamoros, Oaxaca. Speakers of Zapotec languages who wanted to practice writing in their language volunteered to be part of the program. The first cohort consisted of speakers of six different varieties of Zapotec spoken in the Tlacolula Valley. During the first Cycle of the program, these writers committed to tweeting in their language 10 times a week for seven weeks. Most of the writers had never written in their language before the start of this program. Each writer was paired with a volunteer reader who committed to reading their writer's tweets and engaging with them to understand the content. Figure 3 shows an example of @DizhSa's writing and my (@blillehaugen) partial translation, contextualization, and retweeting of the text.

We expected that writing without knowing if anyone was reading their work might be challenging for these new writers. Most—maybe even all—writers, new or practiced, enjoy knowing that people are reading what they write. Don't we all ap-

Figure 3. Example of interaction between writer (@DizhSa) and reader (@blillehaugen) https://twitter.com/blillehaugen/status/748291483422253056

preciate when our friends "like" our Facebook posts? But for the Zapotec languages of the Tlacolula Valley there are very few potential readers.[2]

Our experiment, then, was to create a readership—an intentional, invented, and provisional group. Readers for a specific purpose and for a limited period of time—just seven weeks. In this case, the readers were primarily students of mine, college students in the United States. However, anyone who uses Twitter and speaks at least one language in common with the writer could be a reader.

This intentional online language community has parallels with online communities for constructed languages. As Schreyer (2011) points out, constructed languages, like Klingon and Na'vi, rely heavily on intentional online communities for language acquisition and practice—and have found much success (Schreyer 2011:412).

The pairing between writers and readers works as follows. The reader commits to reading their writer's tweets, retweeting them, and adding (partial) translations and context, including hashtags. As the reader does not necessarily understand the target language, communication with the writer about their writing is crucial. The reader and writer must communicate in order for the reader to understand the content of the tweet. For example, a reader might reach out to their writer in a shared language, Spanish or English in this case, saying—*I saw that you tweeted today. I really like that picture you posted with it. Can you tell me about what you wrote?* The writer replies, telling the reader about their tweet. This communication can happen by any means that is convenient to both the writer and the reader. One could use Twitter itself for such conversations through the reply or direct message features. However, as almost all of the writers were unfamiliar with Twitter, they preferred communicating with

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[2]Outside of the Tlacolula Valley there are literary movements which have existed for over 50 years—and thus, there is more literature written in Zapotec languages from other branches of the family. To mention just a few, Filemón Beltrán Morales writes in San Bartolomé Zoogocho Zapotec, a Northern Zapotec language, and Natalia Toledo and Victor Cata produce poetry in Isthmus Zapotec. Toldeo and Cata also run a literacy workshop in the Isthmus entitled *El Camino de la Iguana*. Northern Zapotec and Isthmus Zapotec languages are distinct languages from, and unintelligible with the Zapotec languages spoken in the Tlacolula Valley.

their reader through platforms they were already using, including Facebook chat and WhatsApp, an instant messaging program for smartphones.

By providing each writer with a reader, we hoped that the writer would feel that there is at least one person waiting to read what they write. Figure 3 above shows an instance of this interaction between writer and reader, as does Figure 4 below. In this second case we see the reader @mayhplumb retweeting the writer @PatyTsurina's tweet, adding a partial translation into Spanish, the project hashtag #UsaTuVoz, and a hashtag about the language, in this case #Zapotec.
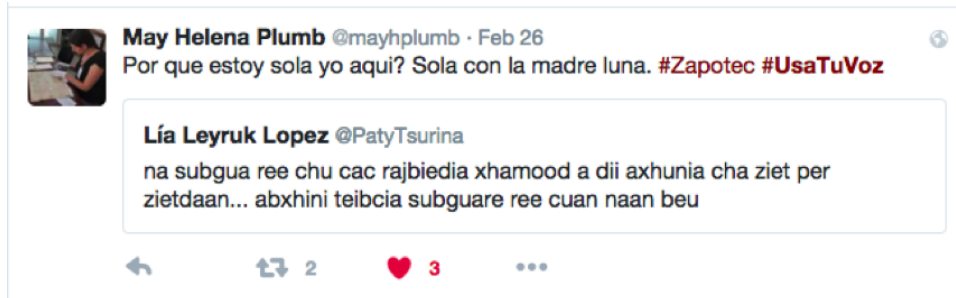

Figure 4. Example of interaction between writer (@PatyTsurina) and reader (@mayh-plumb) https://twitter.com/mayhplumb/status/703431709849751552

In addition to serving to encourage the writer, the reader's translation and retweet in the cases of Figure 3 and Figure 4 also serve to connect the writing to Spanish-speaking audiences. All of the tweeters are bilingual, however, and several are trilingual, speaking Spanish and English in addition to an indigenous language of Oaxaca. It was not uncommon for writers themselves to tweet bilingually or trilingually, as we see in Figure 5. These multilingual writings are a wonderful attestation to the multilingualism in Mexico, especially within indigenous communities.[3]

3. The distinction between literature development and orthography development
Before continuing with the details of the implementation of this project, it is important to address a larger point. This project intentionally focuses on the development of written literature, not the development of orthographies. I lay out the reasons for this choice below.

First of all, as far as I know, only two of the varieties of Tlacolula Valley Zapotec represented in the project have proposals for practical orthographies: San Lucas Quiaviní and Teotitlán del Valle. In neither of these cases is there an official orthography of the community, and in the case of San Lucas Quiaviní there is more than one proposal for a practical orthography.[4] Thus, when working with new writ-

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[3]Mixe linguist and activist Yásnaya Elena Aguilar Gil calls for a "[m]ultilingual literature in a multilingual country" (2016:158). I hope she would count these tweets as a positive example of that potential.

[4]There are several proposals for orthographies for San Lucas Quiaviní Zapotec (SLQZ), none of which have been widely adopted. The phonological systems of Valley Zapotec languages provide particular challenges in designing orthographies, due in part to the complex set of tone and phonation contrasts for vowels. Pamela Munro and Felipe H. Lopez originally designed an orthography for SLQZ which
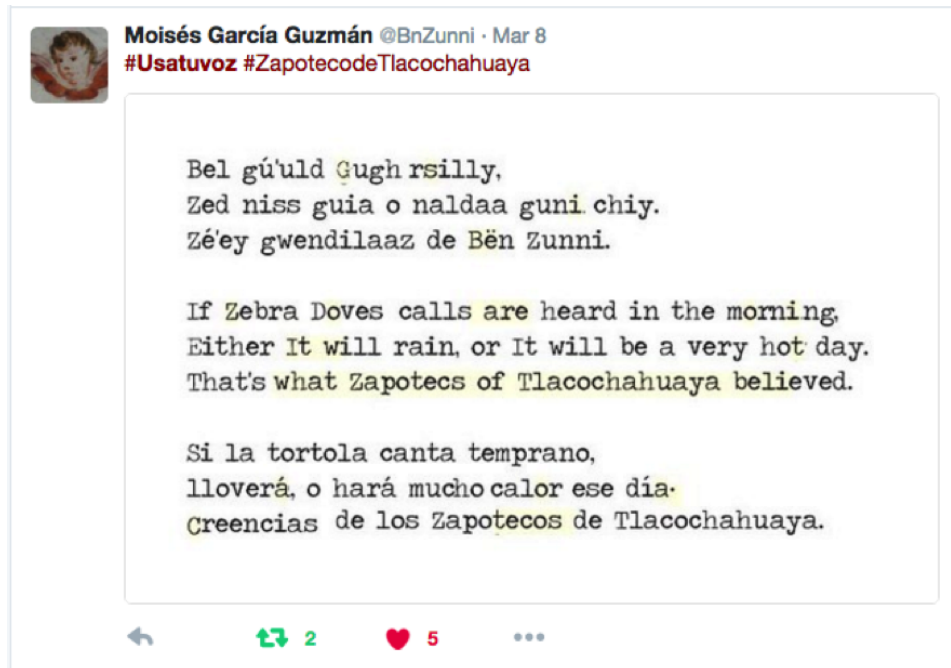
Figure 5. Example of @BnZunni tweeting trilingually https://twitter.com/BnZunni/status/707254676366843904

ers in this project, we decided neither to teach them a particular orthography nor to require them to develop their own.

In order to help the writers with spelling decisions they would have to make, we did the following. First, we provided them with a description of the system used to write Western Tlacolula Valley Zapotec in the book *¿Cali Chiu?* (Munro et al. 2008) as an example. We also talked about common decision points, for example using <k> for /k/ or following the Spanish orthographic tradition of using <c> before <u>, <o>, and <a> and using <qu> before <i> and <e>. When choosing how to represent /ʃ/, some might prefer the more English looking <sh>, while others might prefer the more Nahuatl <x>. We encouraged the students to just start writing, and not to worry about exactly how they were spelling things. At the same time, we made ourselves available for questions and concerns about spelling. The result was that, for the

distinctly represented all 33 different possible tone/phonation contrasts; this is the phonemic orthography described and used in the SLQZ dictionary, Munro et al. 1999. However, the community rejected the system as too complicated. Munro notes that "[a]lthough the people of San Lucas Quiaviní (and the Valley generally) are pleased that a dictionary of their languages has been published, people find the orthography cumbersome and unattractive, and do not believe that they will be able to learn to use it" (2003:18). A simplified orthography was subsequently developed and used in several texts, including a pedagogical grammar (Munro et al. 2008). This orthography underrepresents phonemic contrasts. Thus, although both a phonemic orthography and a simplified orthography have been developed for SLQZ by linguists and native speakers, neither of these orthographies are in wide spread use and each has its drawbacks. In addition, other proposals exist, but with no more traction among the community.

most part, the writers were non-systematic in their spelling decisions—but they were writing.

People involved in projects that aim to increase the use of a language might feel compelled to start with developing and teaching a practical orthography. However, that might not necessarily be the best place to start, depending on the project. Below I lay out some reasons in support of this, which are summarized in Figure 6 and elaborated on in §3.1–§3.4.

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(1) A standardized orthography is not a prerequisite for an active writing culture.
(2) The existence of a standardized orthography does not guarantee the use of the orthography nor the development of written literature.
(3) Unproductive debates over orthography can impede other advances in increasing the use of a language.
(4) Starting to write without a standardized orthography does not prevent the development of an orthography in parallel or in the future.

Figure 6. Orthography is not the only starting point

3.1 A standardized orthography is not a prerequisite for an active writing culture

One might think that developing and teaching a standardized orthography would necessarily be the first step in a program seeking to increase the use of the language, especially a program to support the creation of written literatures. Such opinions can be found in revitalization literature; for example, Schreyer states that "[w]ebsites are also not useful to endangered language communities…that have not yet developed a standard writing system of their language" (2011:420).

However, developing a standardized writing system is not the only first step in projects aimed to increase the use of a language, even projects directly targeted at written language. Changes in writing systems can be viewed as part of a "natural and healthy process" by linguists (Snider 2001:323) and as something that "should not be discouraged" (ibid.). Similar beliefs are expressed by speakers of languages without standardized orthographies, including the interviewees in Brody's work, who related that they believed that "if left to evolve organically, suitable norms and conventions [regarding orthography] would emerge" (Brody 2004:17, cited in Karan 2014:114).

It is very clear that a standardized orthography is not a prerequisite for an active writing culture. Many major languages of the world had active writing cultures long before they had standardized writing conventions, as attested in Figure 7 for English (i), German (ii), French (iii), and Spanish (iv). In fact, a standardized writing system can come from a practice of writing.

Discussions with Hilaria Cruz, linguist and native speaker of Chatino, suggest that that the phonology of some languages, including Chatino languages with their complicated tone systems, might pose significant challenges to beginning to write without a standardized system. Thus, there may be cases where the absence of a standardized writing system would significantly impede the understanding of writing in context, and starting to write without a standardized orthography may not be a possible path forward (Hilaria Cruz, p.c. April 2016).

> **(i)** "At the time of the first English settlements in America the rules of **English** orthography were beautifully vague, and so we find the early documents full of spellings that seem quite fantastic today. *Aetaernall*, for *eternal*, is in the Acts of the Massachusetts General Court for 1646, *adjoin* is spelled *adioyne* in the Dedham Records for 1637, *February* is *Ffebrewarie* in the Portsmouth, R. I. Records for 1639-97, and *general* is *jinerll* in the Hartford Town Votes for 1635-1716" (Mencken 1936, 379)
>
> **(ii)** "The orthography of the [**Middle High German**] manuscripts, however, is anything but regular or consistent. We often find *o, ô, ö, oe*, all rendered simply by *o*. Or *u* and *v* are used indiscriminately for *u, û, u̇; iu, uo*, and *uë*" (Waterman 1966, 86, footnote 5).
>
> **(iii)** "In practice, however, there was considerable variation in spelling [in **13th century French**]. This was partly due to dialectal, conservative and analogical influences, and partly due to hesitation in the graphy of certain sounds, especially those in the process of changing. Thus *oeil*, [öl], was also written *oil, oill, oel, oeul, ueil, hueil*, etc." (Einhorn 1974, 12).
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> **(iv)** "The **Spanish** writers of this time [the 16th and 17th centuries] not constrained by modern rules of grammar or orthography wrote with great syntactic and orthographic latitude. As a result, spelling was inconsistent and variable to the point of individuality" (Carlin 1999, x).

Figure 7. Non-standardized orthographies (emphasis mine)

For the Zapotec languages of the Tlacolula Valley, writing in personal writing systems did not much impede one native speaker's being able to read what was written by another native speaker in their personal system, though trying to read it out loud seemed to aide in understanding. (These are anecdotal observations only, and this would be a fruitful area for a future controlled study.) Consider the dialogue in Figure 8, which took place on a public post on the *Voces del Valle* Facebook page (https://www.facebook.com/VocesDelValleDeTlacolula/). @Veronic25062527's trilingual tweet was posted, the Zapotec written in a personal system. A Facebook user replies trilingually, using a personal system for the Zapotec. He understands the original post and replies in a way that is intelligible to the original writer, as well as others, even though their writing systems are not identical.

The Zapotec portions of the post have been excerpted in Figure 9, though note that the replier begins in English, marked with italics, and code switches to Zapotec after the first word.

The original author uses an acute accent mark in the first word of the post, <Nán> 'grandmother.' In San Lucas Quiaviní Zapotec (SLQZ), a closely related language variety, the word 'grandmother' has rising tone: *nnàaan* (Munro et al. 1999:194; Lillehaugen et al. 2016, entry *nan* [link to audio]), and the writer may be using an acute accent mark to represent the tone. The replier does not use any accent marks of any kind, but does use double vowels, for example in <sacruu>, cognate to SLQZ *zagrùu* 'nice' (Munro et al. 1999:369, Lillehaugen et al. 2016, entry *zagru* [link to audio]). It is not clear what the writer is representing with the double vowels in this case. Consider the word <banni> later in the sentence, which is cognate to SLQZ *bàany* 'alive;' in SLQZ the <àa> in 'alive' and the <ùu> in 'nice' have the same tone/phonation pattern. While there are phonological differences between Zapotec varieties in the

Figure 8. Communication across personal orthographies, original post

> @Veronic25062527: Nán, shati rcasa liu.
> Reply: *Thats* sacruu astnna banni vaa.

Figure 9. Communication across personal orthographies

Tlacolula Valley, it is likely that the cognates would also have the same tone/phonation pattern. If they do have the same tone/phonation in this writer's variety, it may be the case that the writer is not using double vowels to represent tone/phonation, or that the writer is doing so unsystematically.

The writers also seem to be making different choices in regards to some consonants. These Zapotec languages have fortis/lenis contrasts in consonants. Fortis nasal sonorants are "generally longer in duration than the corresponding lenis sonorant" (Munro et al. 1999:2) and in the San Lucas Quiaviní phonemic orthography they are written as doubled. The original author only writes single <n>s, though there are likely both fortis and lenis /n/s in the word for 'grandmother,' SLQZ *nnàaan*. Thus, the writer does not seem to be contrasting fortis and lenis /n/ in writing. The replier only writes double <n>s, e.g. in <nna>, related to SLQZ *nah* 'now' (Munro et al. 1999:169; Lillehaugen et al. 2016, entry *na* [link to audio]), and in 'alive,' SLQZ *bàany* (Munro et al. 1999:63; Lillehaugen et al. 2016, entry *bany* [link to audio]). As both these words are expected to have lenis /n/s based on their cognates in SLQZ, we do not know if this writer would make a contrast between fortis and lenis /n/s. We do see, however, that these writers have chosen to write lenis /n/ differently: the original author wrote it as <n>, at the end of <Nán> 'grandmother', and the replier wrote it as <nn> in both instances.

We see in this example, then, that these writers communicated through writing despite difference in their spelling choices and the lack of a standardized orthography.

3.2 The existence of a standardized orthography does not guarantee its use Not only is a standardized orthography not necessarily a prerequisite for an active writing culture, but the existence of a standardized orthography does not guarantee the use of the orthography nor the development of written literature, as pointed out in a UNESCO working paper on writing unwritten language:

> The existence of a writing system does not in itself lead to the use of a language in literacy and learning. There must be something interesting and worthwhile to read and opportunities for people to express themselves in writing. This entails workshops to train authors and writers in the language and the encouragement of local poets, historians, story-tellers, philosophers and language experts to ply their craft in written form. (Robinson and Gadelii 2003:40)

In fact, not only should we encourage people who already identify as poets, historians, and philosophers to write their language, but we should encourage any speaker who wishes to write their language to do so. For how can someone know if they might be

a Zapotec poet if they have never tried writing poetry in Zapotec? It would be foolish to expect a generation of poets and writers to appear as if by magic. Rather, those of us working as allies supporting communities and individuals can seek ways to create conditions in which those who wish to write their language have the opportunity to do so.

3.3 Unproductive debates over orthography can be impediments   Community discussions about standardized orthographies can sometimes become unproductive, and these debates can even impede other advances in increasing the use of the language. In some cases, these disagreements can turn into "orthography wars" (Hinton 2014), draining the precious time and energy of the activists involved.

Rehg describes the process of developing writing systems for Pohnpeian language varieties. There were at times several different proposals for different dialects. He explains:

> I think that each of the orthographic systems designed for the languages of Micronesia violated one or more of the six principles of orthography design I listed above. A significant consequence is that these orthographies generated a substantial amount of controversy, and **such dissension often came to serve as an obstacle to the development of vernacular literacy programs**. Because the community could not agree on how its language should be spelled, educators and others have found themselves **mired in dissent**. (Rehg 2004:509, emphasis mine)

While Rehg points to potential flaws in orthography design as a source for the tension, in other instances the debate centers around choices between one grapheme versus another, in which there is no linguistic basis for preferring one over the other, but rather sociopolitical reasons, such as in the debate regarding the representation of long vowels in Māori:

> Nothing stirs up the public more than an attempt to reform spelling. A nation-wide controversy erupted…and went on for years. There were public debates; friends fell out; the same book would be printed in rival editions by the opposing camps, one with double vowels, one without. (Hollyman & Pawley 1981:21)

Such contentious debates, then, may not necessarily be the consequence of the design of an orthography; as Cahill points out, "[a]ll orthographies are political" (2014:12). And as Hinton states, orthography "can be a lighting rod for all the personal, social, and political issues that wrack speech communities…and can become a divisive issue within a community" (2014:140).

Thus, in the *Voces del Valle* project, we explored writing in the absence of a standardized orthography. We encouraged speakers to write and let the questions of orthography remain on the sidelines.

3.4 Starting to write without an orthography does not prevent the development of one Beginning to write in the language without a standardized orthography does not prevent the development of such an orthography in parallel or in the future. And it may, in fact, produce writers who will then use the new orthography, recalling the UNESCO quote in §3.2.

Elke Karan notes in her chapter entitled "Standardization: What's the hurry?" that "[g]ranting more freedom in writing might be more motivational for a language community to actively engage in literacy practices than a single prescriptive standard" (2014:107). She presents examples from Arabic (Thonhauser 2003) and Yucatec Maya (Brody 2004) supporting this. In the Arabic case, writing in colloquial Arabic, which did not have standardized rules, created a sense of freedom among the writers. "Individuals are not concerned about making errors. They write freely using their intuitions for spelling and expect their readers to be able to decipher the message" (Karan 2014:125). In contrast, Yucatec Maya speakers found the orthographic rules of Maya intimidating and "claimed that they could not write in Maya" (Karan 2014:215).

The absence of a standardized orthography, then, does not necessarily impede writing, and may in fact encourage writing in certain contexts. The resulting writing of the language may be part of the path to a standardization of the written language, as we saw for English, German, French, and Spanish in §3.1.

4. Voces del Valle As of June 2016, two cycles of *Voces del Valle* have been completed. This is a collaborative project, co-organized by Felipe H. Lopez, Moisés García Guzmán, Abisai Aparicio, and myself. The first cycle was a test case in which the co-organizers, participants, and I were trying out an idea. Along the way, we took note of what worked well and what we would like to change. Cycle 2 allowed us to implement some changes and make further observations. Overall, we believe this is a model that could be replicated in other language communities with success. In Appendix 3 there are links to materials that may be helpful if you intend to try out this model in another project. Below I briefly lay out the structure of the project in §4.1. Some challenges and possible solutions are presented in §4.2, and successes of the project are presented in §4.3.

4.1 Structure of *Voces del Valle* Project, Cycle 1 In Cycle 1 of *Voces*, seven high school students participated. All the students were from the *Centro de Estudios Tecnológicos, industrial y de servicios* (CETis) #124 in Tlacolula de Matamoros, Oaxaca, Mexico. In addition to these students, three other native Zapotec speakers participated.

There are six CETis schools in the state of Oaxaca (CEPPEMS n.d.). They are part of a system of public schools under the directions of the SEP, the Secretary of Public Education. In some ways they are similar to U.S. high schools—the students attend daily and take a variety of classes. However, at a CETis, students can specialize in a range of technological and service-centered subject areas, such as accounting or computer science.

Before the student writers began, native Zapotec-speaking writer @DizhSa began to tweet regularly in Zapotec using the project hashtag #UsaTuVoz. @DizhSa first tweeted in Zapotec in 2011 and is, as far as I can tell, the first Zapotec tweeter. As a collaborator on the project, he felt that providing the students with some examples before they began tweeting would be helpful and encouraging. As his 'reader,' I began to retweet his tweets, translating them and adding hashtags. Thus, when the student writers began the project there were already some example tweets and retweets in place. I found these existing examples especially useful when recruiting readers, because I could show them what we were hoping they would do for their writer; for this reason, I would recommend a similar step to others who might want to follow this model.

The first week of the cycle, the co-directors and I met with the writers daily to provide training in how to use Twitter and some support as they began to write Zapotec for the first time. During weeks 2–6, the writers were for the most part writing independently, with weekly in-person check-ins with an on-site collaborator. At the end of the cycle, we held a week-long workshop on literary arts and concluded with a public event showcasing the students' writing.

4.2 Challenges and possible solutions There were two significant challenges in Cycle 1. The first was that none of the students tweeted 10 times a week, due to lack of internet access outside of school and due to "not knowing what to write about." I will address each of these challenges in turn. As far as providing access to internet outside of school, the long-term prospects for this look promising. Access to internet, even in rural Oaxaca, has increased significantly over the last five years. Short-term prospects to increase internet access require funding. Twice we applied for funding to improve internet access at the school as part of the *Voces* project, but we did not receive the funding. I could also imagine applying for funding to provide internet access at various cultural centers in the smaller towns, though we have not yet submitted such requests.

In terms of the students not knowing what to write about, we made several changes between Cycle 1 and Cycle 2 to try to address this problem. In Cycle 2 we reduced the commitment to writing five times a week. In addition, two of the participants for Cycle 2 who also participated in Cycle 1 were designated as student leaders who mentored the new tweeters. Incorporating peer support had always been our intention, but was difficult to implement in the pilot study, as all of the students were new to the idea of writing Zapotec. The inclusion of peer mentors had a positive impact in Cycle 2, especially noticeable in the first few weeks, though only one of the students fulfilled his role as peer mentor for the entire cycle.

In addition, because many of the students had an interest in poetry, I prepared a list of Spanish poets on Twitter and shared it with the participants, making clear that they could translate poems into Zapotec if they wanted.

Finally, those in Cycle 2 naturally had many more examples to inspire them because of the writing created in Cycle 1. It was clear on the first day of Cycle 2 that even the new participants had a sense of what the project was about, due to its pres-

ence at the school over the last few months, whereas for Cycle 1 it was completely new for everyone involved.

The second challenge had to do with the readers, namely that some of them participated very little. This created an imbalance in that some writers had enthusiastic, involved readers, while others had readers that rarely interacted with them. We tried to assign every writer two readers in Cycle 2, though we were not able to find enough readers to do this completely. However, where we were able to do so, we saw a positive effect. Perhaps unsurprisingly, the total number of engagements with tweets of writers that had two readers was more than with those of writers that had one reader. If you are considering trying a project like this, I would recommend you have two readers for each writer.

4.3 Successes of the project The successes of the project have been more significant than the challenges. The project has grown naturally, in size and scope (§4.3.1); many participants wrote Zapotec for the first time as part of the project (§4.3.2); writers have learned more about the language (§4.3.3); and the use of the language has expanded to new domains (§4.3.4). Global and local connections have been made with other indigenous language tweeters and allies (§4.3.5), and the writers have created a significant corpus of material to read in Valley Zapotec languages (§4.3.6). These successes are discussed in turn below.

4.3.1 Interest and growth In Cycle 1 of *Voces*, seven students from CETis #124 participated as writers, plus three other native Zapotec speakers, for a total of 9 writers. Cycle 2 began with eight students from CETis #124 and an additional six other writers participating, for a total of 14 writers. Three of the additional writers were those from Cycle 1, but the other three indicate an encouraging spread of interest. One, @ChaqHilaria, is a native speaker of Chatino, another Oaxacan language, and is a professional linguist who heard about the project from me. @Izactorres is a semi-fluent speaker of a Tlacolula Valley Zapotec language who wanted to participate as a way of helping himself improve his Zapotec. Finally, @veronic24062527 is a native Zapotec speaker who lives in Los Angeles and originally heard about the project through a request for readers that was forwarded to her through her college. Thus, the writership in Cycle 2 more accurately reflected the transnational nature of the Oaxacan indigenous communities.

This leads us to another interesting area of growth, and that is in terms of the demographics of the readers. Two students at the CETis who are not native Zapotec speakers wanted to participate to learn more about Zapotec, so they joined in as readers. Three Oaxacans living in the United States volunteered as readers as well: one fluent speaker of Zapotec and two semi-speakers. In addition, two scholars and one member of the CETis administration were also readers.

The addition of Zapotec speaking readers and writers who are living in the United States is an exciting one. The natural expansion of this project into the California diaspora community supports the idea that the Internet can be used to foster connec-

tion in a non-physically adjacent speech community, as put forth by Schreyer (2011) for constructed languages.

One important area of interest is yet to be seen—will some of the writers continue to tweet in Zapotec outside of an official program? As of June 29, 2016, three weeks have passed since the end of Cycle 2. Over 50 tweets have been posted since then using the hashtag #UsaTuVoz. These posts have been made by 14 different Twitter accounts, four of which have never been official writers or readers in a *Voces del Valle* cycle, but rather have 'joined in' from exposure on Twitter. The start date of the next cycle has yet to be announced and it will be interesting to see how often participants choose to write in the meantime.

4.3.2 First writings   For most of the participants, their first tweet was also the first time they wrote in Zapotec. For example, four new CETis #124 students joined as writers in Cycle 2, and none of them had written in Zapotec before their first Zapotec tweet. Some of these first tweets can be seen in Figure 10–Figure 12, and Figure 12 is not only the writer's first tweet, but the writer's first time writing in Zapotec.
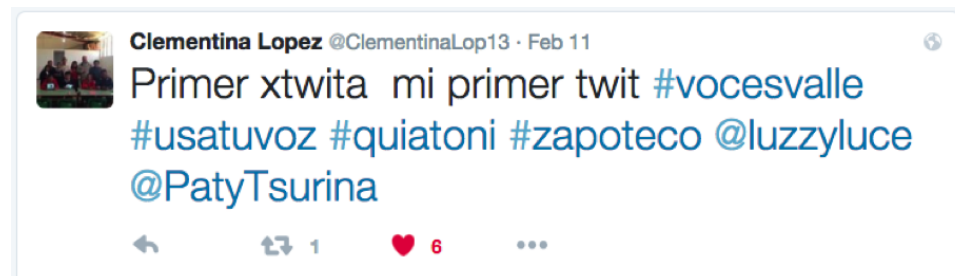

Figure 10.   Cycle 1: @ClementinaLop13's first tweet in Zapotec https://twitter.com/ClementinaLop13/status/697866054450556928

Figure 11.   Cycle 1: @NarenNa_Ni_Gaca's first tweet in Zapotec https://twitter.com/DizhSa/status/689919381590028289

4.3.3 Learning more about the language   The opportunity to write also was an opportunity to learn more about the language being written, even for fluent, native speakers. We observed that the writers would ask each other about how best to express certain ideas and many times students would consult with older speakers in

Figure 12. Cycle 2: @la_na_karina's first tweet—and first writing—in Zapotec https://twitter.com/PiaLopezD/status/722418162533318656

their community regarding particular words or ideas. Metalinguistic conversations are clearly one beneficial outcome of the project. The use of the language creates opportunities to speak about that language, which increases knowledge about that language—both spoken and written.

4.3.4 Expanding the domains of Zapotec conversation   Tweeting in Zapotec in and of itself expands the domains of use of the Zapotec language—the language is being used in a new medium. However, during Cycle 2, we saw something exciting happening: Zapotec conversations were being held through tweets.[5] Two such examples are presented below. In addition to demonstrating a new domain for Zapotec conversation, these examples reinforce the point made in §3.1 that Zapotec speakers were able to communicate in writing despite differences in personal writing choices and potential linguistic differences in the language varieties.

In Figure 13 we see a conversation between two Zapotec writers. @TeotitlanD-Valle tweets, "We are listening to what they are saying in Tsae Xiguiae." Tsae Xiguiae is a community radio station in Teotitlan del Valle that broadcasts in Zapotec and that day I was at the radio station with a group including Alex García (@noelgarcia380) talking about the *Voces del Valle* project. In response to this tweet @noelgarcia380 replies, "Thank you for listening to Tsee Xiguie. Thank you for writing in Zapotec. We need to do this so that our language won't [be lost]."

Another example of a more lighthearted Zapotec conversation taking place on Twitter can be seen in Figure 14. First @la_na_karina tweets in Zapotec, "My mom is making tortillas." @nogarju retweets, replying, "Bring me one so I can eat it!" @la_na_karina then replies, "Yes, tomorrow, so that you can eat it deliciously."

4.3.5 Making connections both global and local   A characteristic of Twitter is that it is a deeply public means of publication—with a potentially global reach. With Zapotec tweets translated into English, Spanish, French, and Swahili, it is possible to reach a large part of the world. As expressed in §1, this is one reason we chose

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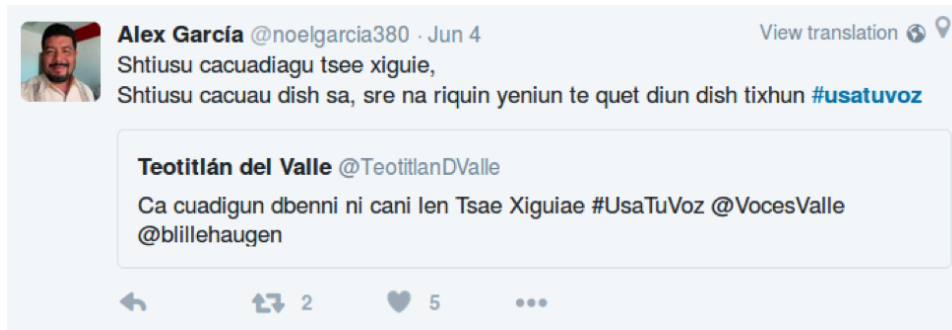[5]Thanks to May Helena Plumb for pointing these tweets out to me.

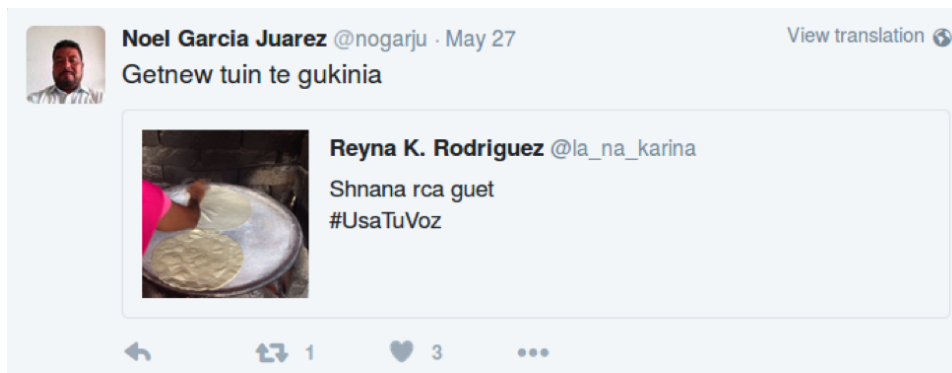**Figure 13.** Zapotec conversation on Twitter between @noelgarcia380 and @TeotitlanDValle https://twitter.com/noelgarcia380/status/739213701354397696

Figure 14. Zapotec conversation on Twitter between @noelgarcia380 and @la_na_karina, Part 1 https://twitter.com/nogarju/status/736210568453992449

Figure 15. Zapotec conversation on Twitter between @noelgarcia380 and @la_na_karina, Part 2 http://bit.ly/2cSlgm9

Twitter for this project. The result has been fruitful and we have seen connections made through Twitter in the course of the project.

In Cycle 1, we made a connection through Twitter with Ron Mader (@ronmader), a journalist from the United States. We talked off Twitter about the project and subsequently he began to spread the word about the use of indigenous language on Twitter and the #UsaTuVoz hashtag within his social networks, as seen in Figure 16.

Figure 16. Global connections with #UsaTuVoz https://twitter.com/ronmader/status/705194453238022145

He even extended the project, translating tweets that were not part of the Voces project. For example, @elChilamBalan tweeted in Spanish and Mayan in Figure 17 and @ronmader translated the Spanish into English in his retweet, making a connection to the English-speaking users of Twitter and using hashtag #UsaTuVoz. Here we see an example of how hashtags can take on their own life on Twitter.

Twitter can also be an opportunity to make local connections. In Cycle 1 we made a connection through Twitter with a Triqui tweeter, @LyC_Triqui, who supports the project, occasionally liking and retweeting project tweets and using the hashtag #UsaTuVoz (Figure 18 and Figure 19).

Cycle 2 brought new connections as well, including with the Chatino tweeter @isaneqtnya and the Triqui tweeter @tiquichicahuax. @isaneqtnya tweeted using the hastag #UsaTuVoz in several different ways, including monolingual tweets (Figure 20), bilingual tweets (Figure 21), and metalinguistic tweets (Figure 22).

@triquichicahuax's tweet with the hashtag #UsaTuVoz is one that appeals for new followers: "Follow us on Twitter!" By including the hashtag #UsaTuVoz, the writer communicates that he believes that there may be Twitter users interested in following
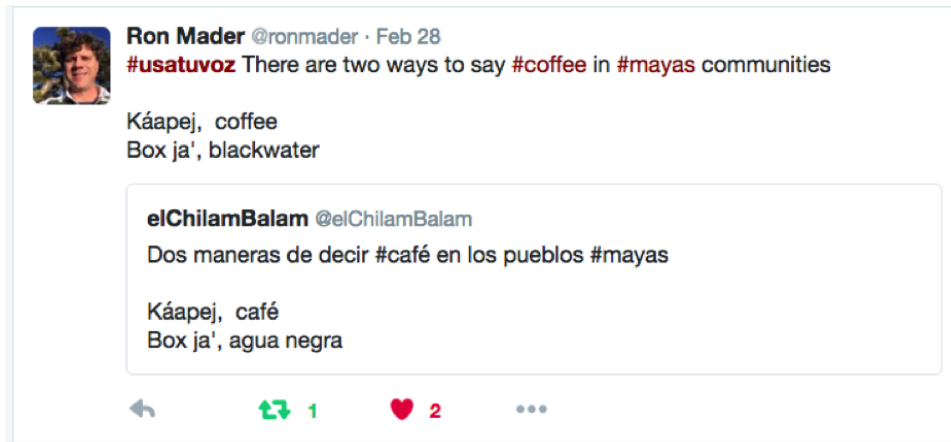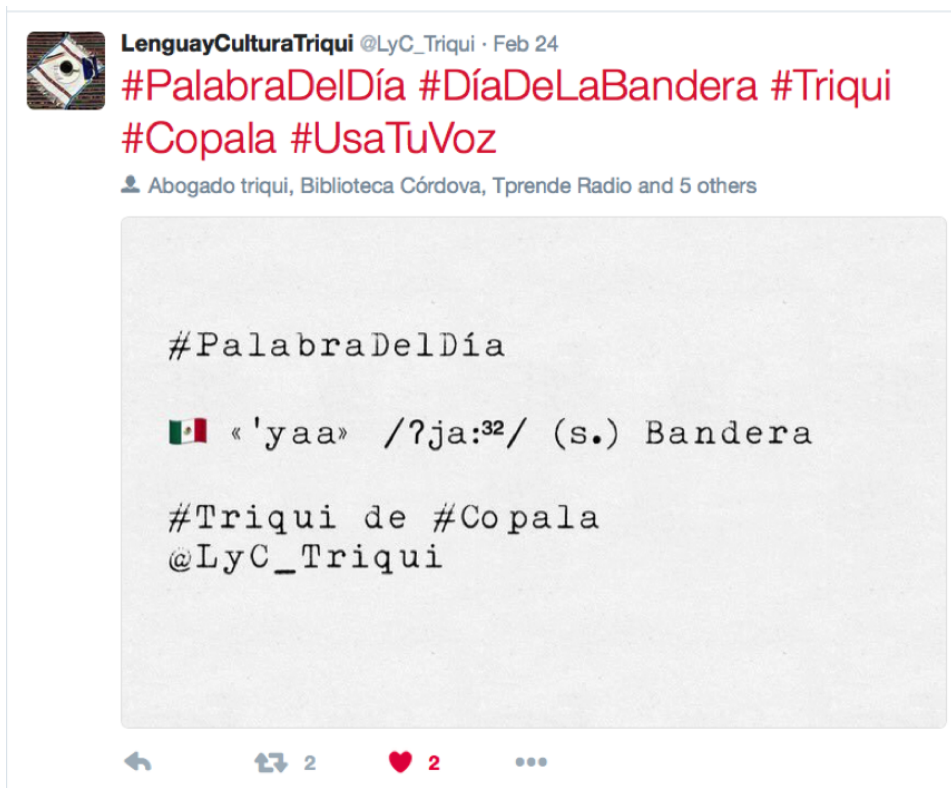
Figure 17. Global connections with #UsaTuVoz https://twitter.com/ronmader/status/703988764452847616

Figure 18. Local connections with #UsaTuVoz, @LyC_Triqui "Word of the Day" http://bit.ly/2cOzF6o

him who read tweets with the hashtag #UsaTuVoz. This is one way in which Twitter can connect those with similar interests, as pointed out in the Scannell quote in §1.

Figure 19. Local connections with #UsaTuVoz, @LyC_Triqui "I love you" http://bit.ly/2cBqjYl
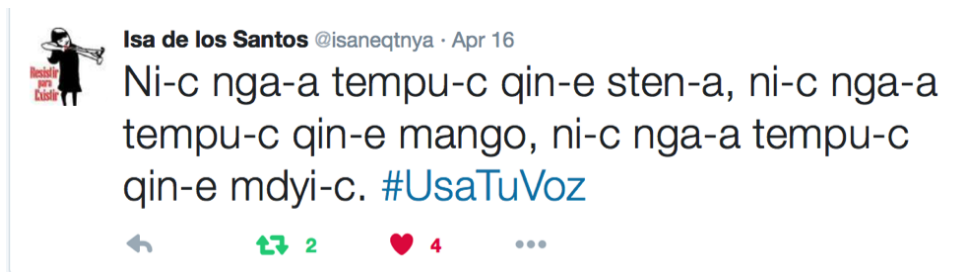
Figure 20. Local connections with #UsaTuVoz, @isaneqtnya: monolingual Tweet https://twitter.com/isaneqtnya/status/721467137932468224
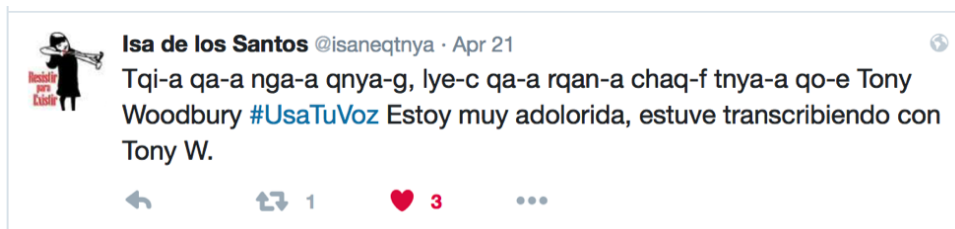
Figure 21. Local connections with #UsaTuVoz, @isaneqtnya: bilingual tweet https://twitter.com/isaneqtnya/status/723345918104244224

Figure 22. Local connections with #UsaTuVoz, @isaneqtnya: metalinguistic Tweet
https://twitter.com/isaneqtnya/status/736937189884362752

Figure 23. Local connections with #UsaTuVoz, @triquichicahuax https://twitter.com/triquichicahuax/status/736435065152905221
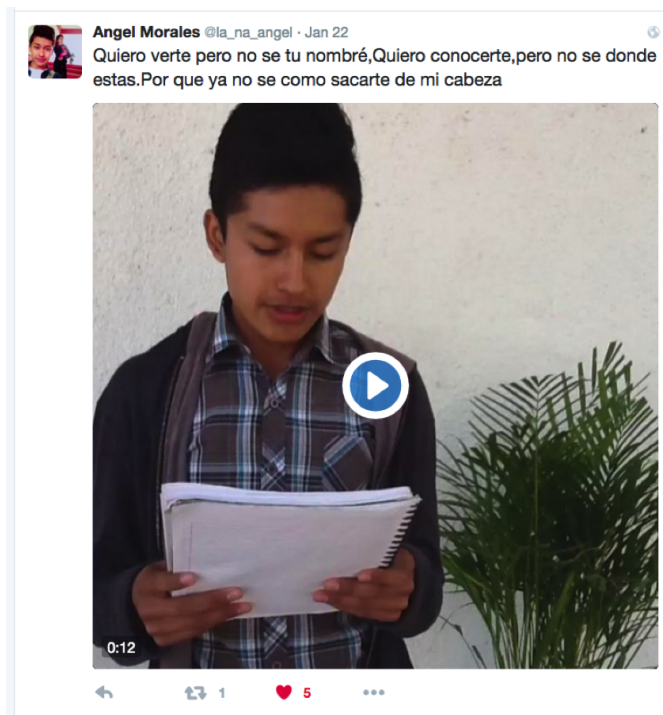
Figure 24. Writing poetry in Zapotec (with video), @la_na_angel
http://bit.ly/2cHOgmr

4.3.6 Creating something to read One of our objectives was to help break the vicious cycle of writers waiting for readers and readers waiting for material by supporting the creation of something to read. Already there is much more material available to read in Valley Zapotec languages, and in diverse genres. Currently this content is available on Twitter, which is accessible to many in Oaxaca, but certainly not to all, especially to the elderly and those in the most rural areas. In the future, this newly written material can be made available off of Twitter in various forms, including hard copy compilations of the Tweets. Such a publication is planned for the near future.

Twitter allows short videos and images, as well as text, and we saw writers utilizing all of these features. Some used video to share performances of poetry (Figure 24); images were used to share handwritten poetry with art (Figure 25) and poems longer than 140 characters, via screenshots (Figure 26).

Figure 25. Writing poetry in Zapotec, @oliveraEOM https://twitter.com/blillehaugen/status/708307966995267585

Other poems were shared in text with a complementary picture, like the one in Figure 27, which reads, "The morning, the singing of the birds, the rain. Yesterday, the day before yesterday, when was it that I was running barefooted? Now it is only the echo that I remember."

Figure 26. Writing poetry in Zapotec, @DizhSa https://twitter.com/VocesValle/status/714532056106139648

Figure 27. Writing poetry in Zapotec, @DizhSa https://twitter.com/DizhSa/status/722416155298635776

Additional genres of writing included traditional knowledge and beliefs (Figure 28), especially relating to agriculture (Figure 29–Figure 30), cultural description (Figure 31–Figure 32), and announcements (Figure 33).
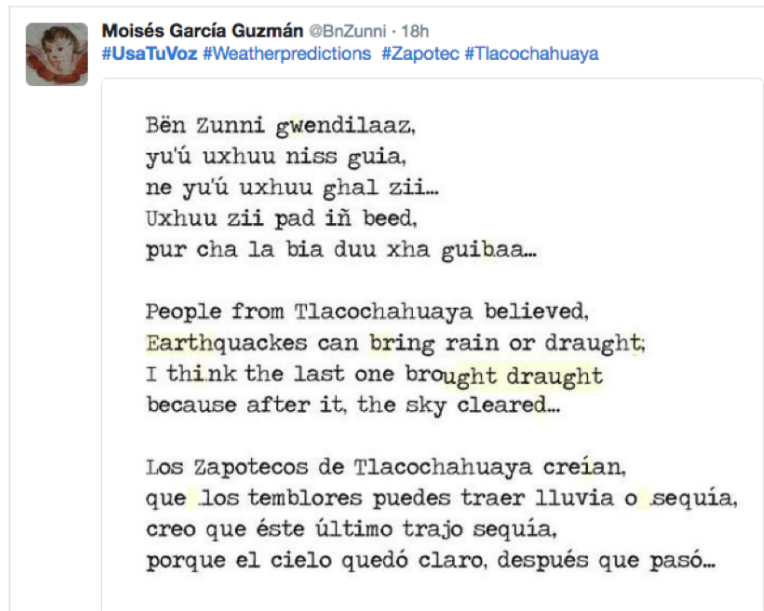
Figure 28. Documenting and writing about traditional knowledge and beliefs, @BnZunni https://twitter.com/BnZunni/status/729478141517910016
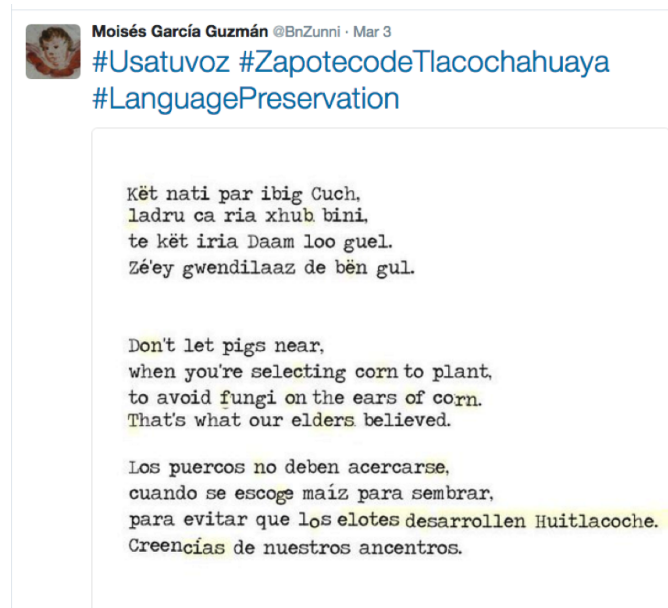
Figure 29. Documenting and writing about agriculture, @BnZunni https://twitter.com/BnZunni/status/705589335358222336
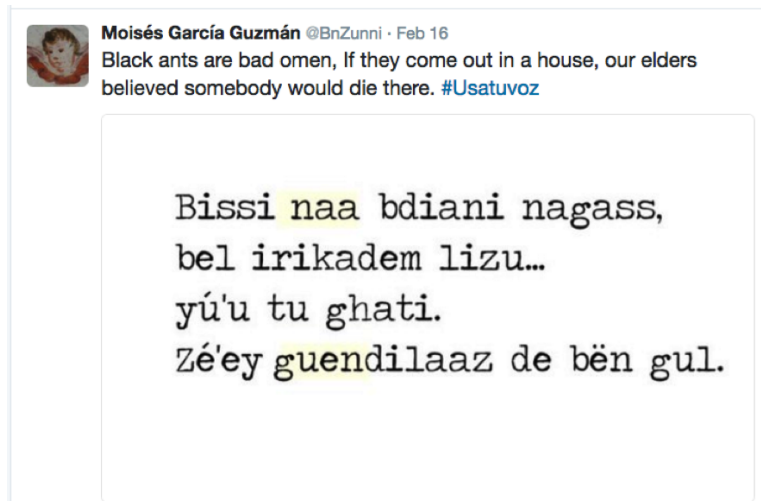
Figure 30. Documenting and writing about belief systems, @BnZunni https://twitter.com/BnZunni/status/699858656288972800

Figure 31. Documenting and writing about culture, @la_na_angel http://bit.ly/2cBrGXh

Figure 32. Documenting and writing about culture, @noelgarcia380 https://twitter.com/noelgarcia380/status/715194829639028737

While the project created more to read in Valley Zapotec on Twitter, we also note that it created more to read in Valley Zapotec outside of Twitter. The co-directors and I observed an increase in the use of written Zapotec on the Facebook accounts of many participants. We also know of at least one participant who was writing poetry by hand in Zapotec during the course of the project. Though we note this as anecdotal only, it would seem that the commitment to write in Zapotec on Twitter increased the use of written Zapotec in other areas.

5. Future directions and conclusions   The first area of potential future growth is directly related to the observation that participants were writing more in Zapotec in general during their participation in the project. We can imagine some of the participants submitting their writing to the annual CaSa Zapotec writing competition run by Maestro Toledo or other prizes made to writers of literature in indigenous languages, such as the *Premio Nezahualcóyotl de Literatura en Lenguas Mexicanas*.[6] In the longer term, some of these new writers may decide to dedicate themselves to the craft and publish their writing in book or other appropriate form.

While originally intended as a way to support native speakers who want to write their language, the model might also have applications for people who want to learn the language as a second language. Language learners could interact with native speakers via Twitter, to the benefit of both the writer and the learner.[7]

The corpus of textual material now being created on Twitter by speakers and writers of Valley Zapotec languages may eventually be used for other purposes. Curated selections of tweets, organized by language variety or topic, could be compiled and published in hard copy, for example. I intend to edit one such compilation and I hope others involved in the project may organize other such publications.

It may be useful to examine the spelling choices made by individual writers, as well. Karan suggests that in developing orthographies "[w]riters' actual, uninhibited writing before being "trained" [on some standardized orthography] needs to be analyzed" (2014:113). This Twitter corpus could be used to that end.

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[6]Thanks to Ron Mader for bringing this prize to my attention.
[7]Thanks to Jamie A. Thomas for discussion on this point.

Figure 33. Writing announcements, @noelgarcia380 https://twitter.com/noelgarcia380/status/714607155261739008

The corpus of tweets could also serve as data for linguistic analysis. While I know of no such instances of any of the *Voces* tweets being used in this way yet, Fidel Hernández Mendoza drew on data from native speaker tweets in making an argument about Triqui phonology in a recent conference paper (Hernández Mendoza

2016). He argued that in Triqui de Chicahuaxtla there is a floating high tone at the end of noun phrases and the tweets in Figure 34 to suggest that native speakers are aware of this. Here *@LyC_Triqui* seems to write the floating tones as separate from the noun, indicated with a hyphen; compare *gwìì-i* in the first tweet, which occurs at the end of a noun phrase and is followed by a floating tone, to *gwìì* in the first line of the second tweet, which occurs noun phrase internally and is thus not followed by a floating tone. (The circles were added to the tweets by Hernández.)

Representación del TF por los hablantes nativos

LenguayCulturaTriqui @LyC_Tri... 08 Mar
Nej *snahánj xìyànj ahmiin do gwìì-i ruwáa Makaá. / Las lenguas indígenas que más se hablan en México. #Triqui

LenguayCulturaTriqui @LyC_Tri... 08 Mar
Yyàaj nasíj gwi daranh gwìì xànà-a ruwáa xugwì-i. / Hoy se celebra el Día Internacional de la Mujer. #Triqui [trs]

Figure 34. Native speaker tweets referenced in linguistic analysis (Hernández Mendoza 2016) http://bit.ly/2cSoeHf (top) and http://bit.ly/2cXIWcr (bottom)

There have been many benefits of the Twitter medium in supporting writers. The non-face-to-face medium might work to lower the 'affective filter,' freeing new writers to try things they might be hesitant to do if their audience was physically present.[8] This might be an interesting area for a follow-up study that includes reflections from writers about their experience.

The limited size of tweets can be comforting to new writers: they can succeed in writing in their language without committing to writing a lot every day. Nevertheless, the quantity of the writing is cumulative, and at the end of the seven week period, a writer will have created a substantial amount of text.

The global and public reach of Twitter has been another plus for languages that are sometimes devalued and seen to serve little purpose outside of their local area. Aguilar Gil (2014) pointed out that one should not underestimate the real and sym-

[8]Thanks to Jamie A. Thomas for discussion on this point.

bolic impact that books published in indigenous languages can have for the speakers of those languages.[9] The same impact can be felt in other publication media, such as Twitter. UNESCO frames some of these real impacts as being able to participate in the exchange of information and the creation of knowledge that takes place on the internet:

> Increasingly, information and knowledge are key determinants of wealth creation, social transformation and human development. Language is a primary vector for communicating information and knowledge, thus the opportunity to use one's language on the Internet will determine the extent to which one can participate in emerging knowledge societies...
>
> In principle, the Internet is open to all languages of the world...
>
> However, many languages are not present on the Internet. There is a vast linguistic divide, which exists in cyberspace today and this will only exacerbate the digital divide. Everyone therefore should have access to the multilingual Internet...Speakers of non-dominant languages need to be able to express themselves in culturally meaningful ways, create their own cultural content in local languages and share through cyberspace. (UNESCO n.d., n.p.)

Other impacts are best appreciated by hearing from those choosing to write in their language on Twitter. In response to my tweeting a question asking why they tweet in their language, I received a variety of responses, some overlapping. @ChaqHilaria expressed clearly that she has a desire to write on Twitter in her own native language (Figure 35).

Figure 35. Why to you tweet in Chatino? Response from @ChaqHilaria https://twitter.com/ChaqHilaria/status/747923864504565760

This relates to @NarenNa_Ni_Gaca's tweet where he explains his motivation to express what he feels by writing it proudly in his own language (Figure 36). He also communicates a sense that doing so might help the language not be forgotten—a sentiment we see echoed in @BnZunni's first response (Figure 37) where he states that tweeting in his language is way of returning dignity and status to a language that was thought to be lost.

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[9]My paraphrase of the original Spanish: *"No hay que menospreciar tampoco el impacto simbólico y real que un libro impreso en lenguas indígenas puede tener en sus hablantes"* (Aguilar Gil 2014).
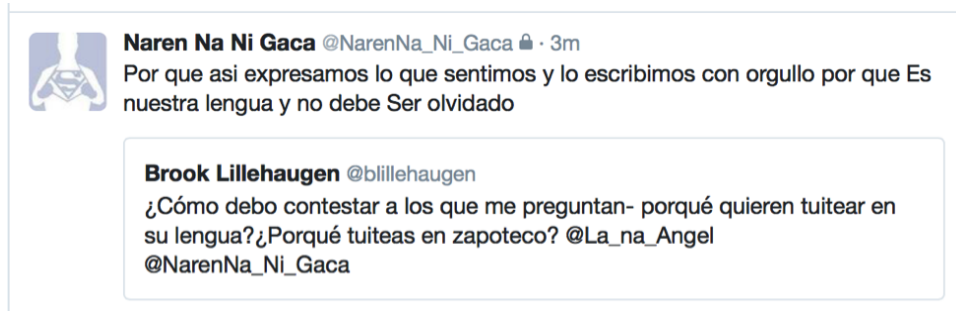
Figure 36. Why do you tweet in Zapotec? Response from @NarenNa_Ni_Gaca http://bit.ly/2cv4U5t

Figure 37. Why do you tweet in Zapotec? Response 1 from @BnZunni https://twitter.com/BnZunni/status/747979738573070336

@BnZunni also communicated that by tweeting in Zapotec he could describe aspects of the daily life of his community in the proper linguistic context, namely in Zapotec (Figure 38). He could educate people about ways things work in his town—the official functions, food, beliefs, and traditions—using his language. @nogarju also mentions educating others as one of his motivations for tweeting in Zapotec (Figure 39). He says it is important to let people know about his language and to demonstrate it for everyone, as there is no reason for speakers of the language to feel lesser than anyone else. The last part of his tweet harkens back to @NarenNa_Ni_Gaca's tweet in Figure 37, where he mentioned feeling proud as a reason to tweet in Zapotec.
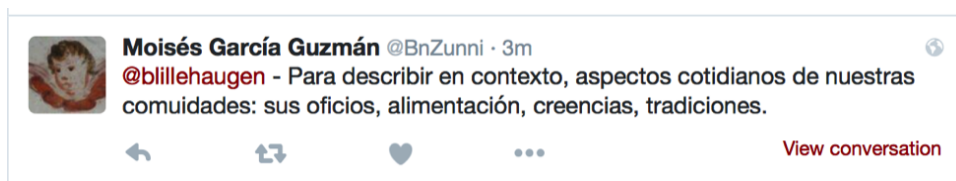
Figure 38. Why do you tweet in Zapotec? Response 2 from @BnZunni https://twitter.com/BnZunni/status/747981014979477504

Feelings of pride come up again in a second tweet from @norgarju (Figure 40). Here he states that he tweets in Zapotec because he is proud to be of Zapotec heritage and that he wants to learn more. Thus we see both educating others and learning for oneself as motivations given for tweeting in one's language.

In addition to pride in one's language, language valorization and language rights are also appealed to as reasons to tweet in Zapotec. @DizhSa expresses the sentiment

Figure 39. Why do you tweet in Zapotec? Response 1 from @nogarju https://twitter.com/nogarju/status/748197755315585024

Figure 40. Why do you tweet in Zapotec? Response 2 from @nogarju https://twitter.com/nogarju/status/748198132450615297

that he tweets in his language because one's own (indigenous) language has a right to be recognized and viewed just like any other language in the world (Figure 41). The very act of writing in one's language on Twitter contributes to that goal expressed in this tweet: that the language be recognized as a language just like any other in a public context.
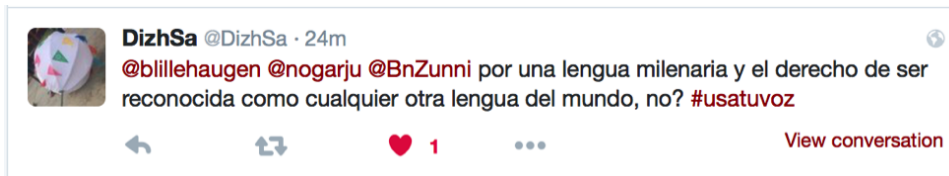

Figure 41. Why do you tweet in Zapotec? Response from @DizhSa https://twitter.com/DizhSa/status/747925856274653184

Thus we see that there is real and symbolic impact in reading and writing in an indigenous language on the internet, and heard some of this impact in the words of those choosing to tweet in their language. The project described in this paper is offered as just one way we can use the internet, including Twitter, as a tool to offer structured support for those who wish to write their language.

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Appendix 1. Participants in *Voces del Valle*, Cycle 1

Proyect: @VocesValle   **Hashtag:** #UsaTuVoz
Facebook: https://www.facebook.com/VocesDelValleDeTlacolula/

Writers

Twitter account	Variety of Zapotec	
@OliveraEom	Santa María Albarradas	CETis student
@La_na_Angel	San Bartolomé Quialana	CETis student
@NarenNa_Ni_Gaca	San Bartolomé Quialana	CETis student
@Nare_na_Juany	San Bartolomé Quialana	CETis student
@Nare_la_alfredo	San Bartolomé Quialana	CETis student
@PatyTsurina	San Lucas Quiaviní	CETis student
@ClementinaLop13	San Pedro Quiatoni	CETis student
@noelgarcia380	Teotitlán del Valle	CETis faculty
@BnZunni	San Jerónimo Tlachochuahuaya	native speaker, no CETis affiliation
@DizhSa	San Lucas Quiaviní	native speaker, no CETis affiliation

Readers

Twitter account	Notes
@_kelliforniaa	Zapotec heritage
@abbyjmiller16	
@blillehaugen	
@DanielWaranch	
@itzelantique	
@kelley_riff	
@luzzyluce	
@Mariavee	
@mayhplumb	
@PiaLopezD	

Assistants: Itzél Delgado, Lucia Herrmann, Marcus Levy

Appendix 2. Participants in Voces del Valle, Cycle 2

Writers

Twitter account	Variety of Zapotec	
@OliveraEom	Santa María Albarradas Zapotec	CETis student
@La_na_Angel	San Bartolomé Quialana Zapotec	CETis student
@NarenNa_Ni_Gaca	San Bartolomé Quialana Zapotec	CETis student
@Nare_na_Juany	San Bartolomé Quialana Zapotec	CETis student
@la_na_karina	Díaz Ordaz Zapotec	CETis student
@vane_g2118	Díaz Ordaz Zapotec	CETis student
@AndyAEO13_12	San Bartolomé Quialana Zapotec	CETis student
@zandra_cruz36	San Marcos Tlapazola Zapotec	CETis student
@izactorres	San Mateo Macuilxóchitl Zapotec	semi-fluent speaker, no CETis affiliation
@veronic24062527	San Bartolomé Quialana Zapotec	native speaker, no CETis affiliation, living in the US
@noelgarcia380 and @nogarju	Teotitlán del Valle Zapotec	CETis faculty, two accounts for the same writer
@BnZunni	San Jerónimo Tlachochuahuaya Zapotec	native speaker, no CETis affiliation, also a reader in Cycle 2
@DizhSa	San Lucas Quiaviní Zapotec	native speaker, no CETis affiliation
@ChaqHilaria	Chaq=f tnya-j (Chatino)	native speaker, no CETis affiliation, living in the US

Readers

Twitter account	Notes
@abbyjmiller16	Also a reader in Cycle 1
@AbisaiAparicio	CETis administrator
@adrishsalazar	CETis student
@blillehaugen	Also a reader in Cycle 1
@BnZunni	Also writer in Cycle 1 and 2 ; native Zapotec speaker
@Brendageecuriel	Zapotec heritage
@chuchoMarx	
@FS28Fatima	CETis student
@jryansullivant	
@kelley_riff	Also a reader in Cycle 1
@mayhplumb	Also a reader in Cycle 1
@mvalevyy	Also an assistant in Cycle 1
@OliveraEom	Also a writer in Cycle 1 and 2; native Zapotec speaker
@PiaLopezD	Also a reader in Cycle 1
@veronic24062427	Also a writer in Cycle 2; native Zapotec speaker
@xochizin	Zapotec heritage

Appendix 3. Resources

These resources below are available freely for reuse or adaptation for educational and non-profit uses under a Creative Commons license: Attribution-ShareAlike 4.0 International. They are currently available in Spanish.

1. Escribiendo el zapoteco del Valle de Tlacolula, http://bit.ly/Voces2

2. Cuentas y claves, http://bit.ly/Voces3

3. Forma para datos de escritores, http://bit.ly/Voces4

4. Forma para datos de lectores, http://bit.ly/Voces5

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