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An Expanded View of Translanguaging: Leveraging the Dynamic Interactions Between a Young Multilingual Writer and Machine Translation Software

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In the 21st century, two of the central forces shaping K-12 literacy pedagogy in the United States are the increasingly diverse and rich multilingual practices of students, as well as our growing use of digital technologies to communicate and make meaning (Deumert, 2014; García, Bartlett & Kleifgen, 2007; Jewitt, 2008; New London Group, 1996). Even if much scholarship has focused on the trends of multilingualism and multimodalities as separate entities, there are many intersections. Digital tools like machine translation software are being used in schools by multilingual students, and their often-monolingual teachers. Frameworks for multilingual teaching and learning involving intentional use of machine translation tools, however, are not yet fully incorporated into curriculum, school policies and practice.

In this chapter, we analyse a case study of how an emergent bilingual who had arrived recently in the United States from China used machine translation software (Google Translate) in a sixth-grade general education classroom during writing activities. Two of the authors of this article who are university-based researchers, were working with his teacher on the implementation of translanguaging pedagogy. Translanguaging pedagogy is an approach that calls on teachers to draw upon students’ diverse language practices and to mobilise them intentionally as a critical resource in students’ overall development (Creese & Blackledge, 2014; García, Johnson, & Seltzer, 2017; García & Kley, 2016; Gort, 2015; Gort, forthcoming; Paulsrud, Rosén, Strasser, & Wedin, 2017).

We focus on the use of machine translation software because in texts about translanguaging pedagogy written for teachers, Google Translate is recognised as
a valid and valuable resource (Celic & Seltzer, 2012; García, Johnson & Seltzer, 2017). Even though we have much anecdotal evidence of machine translation’s ubiquity in multilingual K-12 classrooms in the U.S., there is a lack of scholarship written from a translanguaging pedagogy perspective that focuses on its use.

We analyse field notes, observations, student work, and interviews with the teacher and our focal student to take stock of how the student used machine translation to write. We read his practices through the lens of Dant’s (2004) theory of “human-machine assemblages” and the embodied social actions they enable. Additionally, we rely on Thibault’s (2011) distributed language view, positing that meaning-making involves the integration of different time and spatial scales which includes both human-bodies in interaction with each other and with artifacts. In this article, we extend the linguistic concept of translanguaging (Otheguy, García & Reid, 2015) to encompass a semiotic reading, viewing translanguaging through the expressivity of a student body as he interacts with Google Translate. Additionally, our data analysis also traces the role his teacher played in the student’s engagement with the tool, as the teacher shifted his view of translanguaging to encompass machine translation as part of the students’ available semiotic repertoire.

Our work attempts to demonstrate how conversations about pedagogy in multilingual classrooms cannot be conducted apart from student engagement with digital tools. We hope this study also provokes reflection on how both machine translation and multilingualism prompts teachers to rethink what counts as translanguaging. Teachers should view bilingual students who use machine translation as active learners who are drawing on their available semiotic repertoire to make meaning and learn. If used intentionally, students’ interactions with machine translation might become embodied as resources in students’ semiotic repertoires. Thus, teachers should consider how they might, as we call it, “teach into” machine translation practices, to better support their bilingual students.

Theoretical Framework

To understand how the student at the center of our case study used machine translation software to engage in classroom-based work, and how the teacher came to view it as part of translanguaging, we found it necessary to bring several theories into conversation with each other. Firstly, we had to consider theories of translanguaging pedagogy, which were guiding our own approach to the professional development we provided the teachers at the school. The student’s use of machine translation prompts us to additionally think about theories of multimodal communication and multiliteracies, and theories regarding human-technology interaction.

In the following section, we introduce the lenses guiding this work.
Translanguaging as Pedagogy

Until recently, bilingual language development was theorised as additive or subtractive (Lambert, 1974) conceptions that both imply linear acquisition of static language features. As part of a “multilingual turn” (May, 2013) in the field of sociolinguistics, static, structuralist conceptions of language and the hierarchical ideologies accompanying them have been challenged (Makoni & Pennycook, 2007). Language learning is seen as dynamic, meaning individuals learn to use different language features in social interaction and in order to negotiate meaning-making contexts (García, 2009; García & Li Wei, 2014; García & Kleyn, 2016). Translanguaging has emerged as a term to focus on the diverse language practices of people. Such practices defy categorisation into socially constructed, named language categories (Otheguy, García & Reid, 2015).

Translanguaging has had a number of important applications in the teaching of emergent bilingual students. In multilingual classrooms, despite official language allocation policies that dictate specific languages to be used at particular moments or locations, translanguaging is often the norm (Palmer, Martínez, Mateus, & Henderson, 2014; Pontier & Gort, 2016). Bilingual learners arrive in classrooms with rich language practices and backgrounds, and engage in social “acts of knowing and doing” in order to integrate and appropriate new language features into their bilingual repertoires (García & Li Wei, 2014).

Translanguaging has also framed a transformative pedagogical stance (García, Johnson & Seltzer, 2017; García & Kleyn, 2016; García & Li Wei, 2014; Gort & Sembiante, 2015; Mazak & Carroll, 2017). In order for students to bring the entirety of their academic and social selves to the learning process, teachers working within this paradigm center dynamic bilingualism at the heart of teaching and learning, and intentionally draw upon students’ diverse language practices. For example, in a classroom in which translanguaging pedagogy has taken root, teachers make space for students to dive into content (take notes, read, write, perform, etc.) using their full repertoire, which includes features that are said to be from their home languages and from new languages.

Highlighting the Semiotic Repertoire in Translanguaging Pedagogy

In some conceptualisations, translanguaging is defined as what a bilingual person does when she deploys her full “linguistic repertoire” to make meaning. Such a definition focuses on bilinguals’ lexical, morphological, syntactical, and other features that are “linguistic” in nature (Otheguy, García & Reid, 2015). Most research conducted on translanguaging pedagogy has underscored how students draw on their full linguistic repertoire for meaning-making in multilingual classrooms, and how teachers support and build on those practices through translanguaging pedagogy (Blackledge & Creese, 2014; Creese & Blackledge, 2010;
García, Johnson & Seltzer, 2017; García & Kley, 2016; Gort & Sembianete, 2015; Sayer, 2013).

In other conceptualisations of translanguaging, the bilingual’s repertoire is construed more broadly, going beyond the linguistic, to encompass how she “call[s] upon different social features in a seamless and complex network of multiple semiotic signs, as they adapt their language to suit the immediate task” (García & Li Wei, 2014, our emphasis). Such a conception recognises that people draw not just on resources “within them (e.g., the linguistic features of their repertoire), but also those that they embody (e.g., their gestures, their posture), as well as those outside of themselves which through use become part of their bodily memory (e.g., computer technology)” (García, 2016).

This more ample perspective of translanguaging, resting on semiotic theories of meaning-making, takes up Thibault’s distributed language view. Thibault’s view of language emphasises the material dynamics of language, that is, the bodily interactions between persons, artifacts, and technologies responsible for meaning-making. Thibault conceptualises first-order language behavior, which includes human-bodies in interaction with each other, as well as with artifacts and technologies. The first-order language that Thibault contemplates “is not limited to vocalizing but includes a whole range of bodily resources that are assembled and coordinated in languaging events together with external (extra-bodily) aspects of situations, environmental affordances, artifacts, technologies” (p. 7). He privileges such languaging over what he calls “second-order languaging dynamics”—what society traditionally thinks of as language. Second-order languaging is comprised of intrinsically normative patterns which constrain first order languaging dynamics, and which emerge from the cultural dynamics of entire populations. Because Thibault’s distributed language view makes space for co-acting agents (artifacts, technologies), we find this theory appropriate to apply in our case study given the way machine translation figures into our focal students’ meaning-making.

Other scholars have similarly highlighted the need to include semiotic resources in theories about how individuals make meaning (Androutsopoulos, 2010; Bezemer & Kress, 2016; Blommaert, 2014), especially given the ways that rapid technological change brought on by globalisation has transformed the media through which we communicate and learn. In what they call the “continua of biliteracy”, Hornberger (2003, p. xii) and Hornberger and Link (2012) highlight multimodal meaning-making as they conceive of the many dimensions which must be taken into account in order to understand biliteracy. They define biliteracy as “any and all instances in which communication occurs in two (or more) languages in or around writing”, (Hornberger, 2003, our emphasis). The continua of biliteracy framework acknowledges that the media through which one develops biliteracy includes a range of practices beyond reading and writing traditional text. Hornberger and Link call on their readers to pay attention to “different communicative modes including technological ones, as they are

acquired and used not in a dichotomised sequence but more often in criss-crossed, hybrid mixes, and languaging practices” (2012, p. 267).

Drawing on the continua of biliteracy, the “pluriliteracies” approach evolved to unite research in multiliteracies and multimodalities with growing understandings of bilingual language and literacy development (García, Bartlett & Kleifgen, 2007). The architects of pluriliteracies predicted that new pedagogies for literacy practices would emerge out of “the linguistically integrated space of the classroom, coupled with the possibilities afforded to all new languages by new technologies” in order to “increase the potential for communication, knowledge and understandings among all participants” (p. 218). Years after the emergence of pluriliteracies theories, there are just a few studies addressing how translanguaging pedagogies that privilege the entire “linguistic” repertoire address the realities of multilingual classrooms (Martín-Beltrán, 2014; Martínez-Roldán, 2015; García & Kley, 2016). Very little research, however, has explicitly focused on those biliteracy instances during which bilingual learners translanguage by drawing on their whole semiotic repertoire—including their interactions with digital technologies—and how teachers might leverage such broader semiotic practices for learning. In this case study, we focus on just one of those human-technology interactions, use of machine translation software.

The Bilingual Learner’s Language—Machine Translation Assemblage

Machine translation has become a ubiquitous tool. The online Google Translate software alone boasts 500 million users and translates over 100 billion words per day (Tyrotsky, 2016). At present, most studies of machine translation in the context of teaching and learning are written from the perspective of researchers and practitioners of higher education foreign language programs and courses. These studies reveal the anxieties that professors and instructors have regarding machine translation, such as the fear that students will plagiarise, that machine translation will replace human acts of interpreting, that texts will be produced with errors, or that students will become dependent on the technology (Clifford, Menschel, & Munne, 2013). Many of the studies call for an acceptance of these technologies, and encourage educators to view them as an opportunity for learning, rather than as a threat (Case, 2015; García, 2010; Mundt & Groves, 2015).

Our research is guided by theories that go beyond the premise that machine translation is a disruptive tool. We reframe machine translation software as one of many meaning-making modes, or “socially shaped, culturally available material resources” (Bezemer & Kress, 2016, p. 7) that bilingual students draw upon. Bezemer and Kress argue that all modes offer different potentials, called affordances, for meaning-making, which depend on the object’s material qualities and the conventions by which the object has been historically used. To explain the concept
of affordance, they offer the example that a book can be read, but also used as a doorknob due to its heavy, solid properties.

But the term “affordances” has some limitations, as it considers only what the properties of an object “offer” the human user, rather than what sociologist Tim Dant refers to as the “forms of social actions” that get embodied in the human when he or she comes together with a machine in a temporary “assemblage”—the coming together of human and technology elements “within which the human remains complete in his or her self” (2004, p. 62). Dant writes about the driver-car, the assemblage created when a driver uses a car, which “is neither a thing nor a person; it is an assembled social being that takes on properties of both and cannot exist without both.” This assemblage—rather than the human or the machine alone—produces social actions such as driving, speeding, polluting, transporting, etc. (Dant, 2004). At the same time, the technology does not have independent agency, but the assemblage itself enables “a range of humanly embodied actions” only possible when the human and technology interact (Dant, 2004, p. 22).

In the past, Dant’s theory has been applied by Deumert (2014) in the context of communication with mobile devices. We use the concept of assemblage to analyse the emergent bilingual student in our study’s use of machine translation. The theory of human-machine assemblages recognises that machine translation doesn’t just afford students with a resource to support traditional interactions with text, but that in the interaction between student and tool, specific kinds of embodied social actions emerge. As Dant writes:

The assemblage of the driver-car produces the possibility of action that once it becomes routine, habitual and ubiquitous, becomes an ordinary form of embodied social action. People who have become familiar with the driver-car through participating in the assemblage become oriented to their social world, partly at least, through the forms of action of which it is capable. (2004, p. 23)

In the case study that follows, we consider the specific embodied social and bodily actions that emerged from the student’s use of machine translation, and consider how participating in the bilingual learner-machine translation assemblage, and privileging Thibault’s first-order languaging (and not just the second-order languaging that we usually mean by language), might orient both learners and their teachers to their social world in ways that open up new literacies and possibilities for teaching and learning.

**Context and Methods**

Our case study focuses on a middle school student and recent emergent bilingual arrival from China, we examine how he used machine translation during one of his classes, and the possibilities for teaching and learning that opened up once his teacher’s practice shifted to more intentionally incorporate the student’s machine translation engagements. We draw on multiple sources of data to examine the student’s interactions, including field notes of meetings with teachers, observations of instruction, analyses of student work (including the revision history feature of the online documents software he was using), and interviews with the teacher and the focal student.

Downtown East (all proper nouns describing the school site and participants are pseudonyms) is a vibrant school located in the heart of Chinatown in New York City. Whereas the majority of students are Asian (around 56 per cent), the school houses sizable populations of Latino, White and Black students. Most of the students are multilingual; many count what are considered Chinese dialects or Spanish as among the languages they speak at home. Although the school does not have a bilingual program in either Chinese or Spanish, the English as a New Language (ENL) teachers have begun to recognize their emergent bilingual students’ translanguating, and readily use their language practices to support the development of English, which is the goal of the classroom. Furthermore, the arts-infused literacy curriculum engages students to actively use language across content areas.

The school in which the study took place was involved in the City University of New York, New York State Initiative on Emergent Bilinguals (CUNY-NYSIEB) (for more on CUNY-NYSIEB, see also García & Menken, 2015; García & Sánchez, 2015; García & Kleyn, 2016). Schools that participated in the CUNY-NYSIEB project had a very large population of emergent bilingual students. The CUNY-NYSIEB team offered support to educators in order to transform their pedagogical practices by focusing on the translanguating of their bilingual students and its pedagogical potential.

Two of the authors made up the CUNY-NYSIEB team assigned to work in this particular school, whereas García served as the project’s co-principal investigator. This study took place over the course of a school year, prompted by a school-based need; the school leader wanted middle school teachers to address the needs of emergent bilingual students in their classes through translanguating pedagogy. Ascenzi-Moreno and Vogel gathered middle school teachers and asked them to describe the needs of emergent bilingual students in their shared sixth grade class. Through this conversation, one student stood out in particular. Fu-han had recently arrived from China at the end of the previous academic year. The teachers had serious concerns about how to integrate him into the increasingly challenging work of middle school literacy and social studies content in English, and asked for our assistance in modifying lessons to incorporate translanguating pedagogy. There were two focal teachers who worked with us closely on this project, Ross and Chandler, and in this case study, we focus on Fu-han’s work in Ross’ English Language Arts (ELA) class.
As a result of our conversation with teachers about Fu-han, we conducted a preliminary observation of the student. We then came back together as a working group (CUNY-NYSIEB faculty along with the two focal teachers and an additional ENL teacher at the school) to assist Ross in adapting one of his upcoming English Language Arts persuasive writing units for Fu-han. As we suggested ways Ross could insert opportunities for translanguaging within this unit, it became clear that since Ross did not speak Chinese, he would have to promote Fu-han’s use of machine translation and specifically of Google Translate to facilitate his own teaching and communication with Fu-han. After Ross implemented initial translanguaging strategies, we observed the student at work again in the ELA classroom.

In debriefing our field notes, we noted that the English product resulting from Fu-han’s engagement with Google Translate seemed to be treated by both student and teacher as an end point. We wondered how instead it could be a starting point for developing the language Fu-han needed to deeply engage with content-based assignments. We suggested to Ross that he could ask Fu-han to more explicitly and critically grapple with the Google Translation itself. Subsequent to the shift in pedagogical strategy by Ross, we interviewed the focal student through an interpreter, since none of us are Mandarin speakers. The goal of this interview was to more deeply understand Fu-han’s engagement with Google Translate and its role in his learning. We also interviewed Ross about the role that machine translation played in his teaching. Both interviews were conducted individually and lasted approximately 45 minutes.

In what follows, we present a narrative of our findings—first those findings related to shifts in Ross’ pedagogy, and then those findings which demonstrate the embodied social actions that Fu-han’s use of Google Translate enabled—read through the lenses of the theories we presented above.

Ross’ Shift Towards Treating Machine Translation Engagements as “Bilateracy Instances” to “Teach Into”

Fu-han was a sixth-grade boy from Fuzhou, China, who completed the first half of sixth grade in his home country before coming to the U.S. six months prior to our study. According to his ENL teacher, Fu-han speaks mostly Mandarin, but also some Fujianese. Our work began with an observation of Ross’ English Language Arts course, as they were working on a persuasive writing unit. On the day we arrived, we noted that while other students in the class were engaged in content-based skills, Fu-han was reading an unrelated book in Chinese, or speaking in Mandarin to partners at his table. Armed with our notes from the observation, we began to assist Ross in finding spaces within the curriculum for translanguaging. We helped him brainstorm alternative products for the persuasive writing unit that Fu-han might create in lieu of a full formal persuasive essay in English, and suggested Fu-han might produce a book which would include an extended response about a topic in Chinese accompanied by images captioned in English.

Ross incorporated several translanguaging strategies (Cellic & Seltzer, 2013) into his teaching, such as strategically partnering the student with others in the class who could speak Chinese and English. He also used Google Translate to produce bilingual graphic organisers and provided English sentence stems to assist Fu-han in his writing. Crucially, in order to facilitate Fu-han’s research and writing in Chinese, Ross gave Fu-han a laptop to use.

His teacher asked him to summarise the information he researched about endangered elephants, a topic he chose from his teacher’s short list. Ross also asked him to describe his emotional responses to the information he researched. As Fu-han navigated his work on the persuasive unit study, he used Google Translate to conduct research and engage in writing about endangered elephants. During one visit, we observed Fu-han’s process. Fu-han drew on many linguistic resources to support his work in the class, including his oral language skills, as he conversed mostly in Mandarin with bilingual partners at his table to help him get a sense of the teacher’s prompts which were specifically directed at the focal student. On the laptop, he toggled back and forth between Google Translate and the tabs on the browser that displayed websites about elephants. From what we could tell as observers of this session, Fu-han used his Chinese reading and writing skills to help him search for information on the website Baidu (a Chinese search engine), and to write and take notes responding to the teacher’s prompts. He would type in Chinese directly into Google Translate (sometimes sentence by sentence, other times word by word) and would then write the English machine translation into his notebook, as in Figure 6.1.

Following this process with Google Translate, Fu-han produced an essay in English. However, we also noticed he was deleting his Chinese writing (in an

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**FIGURE 6.1** Student work sample #1. The student writes his ideas in Chinese in the left box on the screen, then copies the resulting English from the right side. After this process, he erases the Chinese.
interview months later, reflecting on that moment, Fu-han told us he deleted the Chinese because it was not part of the assignment. Ross, the teacher, also told us that he (not the student) did a great deal of the editing of the Google Translated writing piece, and that he hoped to see Fu-han leverage Google Translate to practice using own words in English more often.

He was obviously using Google Translate for a lot of it. I think ideally he could hand in both pieces [Google Translated English and Chinese] . . . or he could hand in a piece that he wrote in Chinese but also a piece that he tried . . . to rely too heavily on the Google Translate. I mean it’s easy to do that because it’s easy, but I’d love to be able to see maybe him trying to put some of it into his own words in English . . . so he has opportunities to practice that English and to try to get better at it as well.

(8 April 2016)

We identified the need to bring Fu-han’s interactions with Google Translate closer to the core of Ross’ practices so that as the teacher he might recognise the student’s engagement with Google Translate as a legitimate biliteracy instance (Hornberger, 2003) that needed support.

We told Ross about our initial observations of Fu-han’s use of Google Translate, and discussed with him how he might further engage with Fu-han’s processes. We hoped that Ross might help to place value on Fu-han’s Chinese responses as well as help him further refine his language abilities in English with assistance from Google Translate. Based on our conversations, and with our help, Ross created a shared, collaborative online document that explicitly asked Fu-han for a few versions of a response to a story—a Chinese version, a version which would tap into the English that he knew off the top of his head, and then a Google Translated version of his work.

What follows is an artifact of Fu-han’s responses to comprehension questions about The Empty Pot, a story about a Chinese boy by the American author Demi. Fu-han now not only included a Google Translated version of the story in English (the last column), but his own response in Chinese, as well as his own response using the English he knows. This serves as an example of the type of language work in which Fu-han engaged as the teacher’s role shifted towards leveraging Fu-han’s engagements with Google Translate as legitimate “biliteracy instances”, and as Ross recognised machine translation as a semiotic resource that was part of Fu-han’s repertoire of meaning-making.

We looked at the revision history of the Google Document where Fu-han wrote his responses. Revision history indicates a chronological sequence of edits made to a document. We can infer from this data that his first step was to write his responses in Chinese. He then proceeded to the column where he was asked to “respond in English in your own words”. The revision history demonstrates

<table>
<thead>
<tr>
<th>Reading strategy (阅读策略)</th>
<th>中文</th>
<th>在回应自己的话 (Respond in English in your own words)</th>
<th>English (Google Translate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did someone realize something? How might this change things?</td>
<td>男孩注意到了他的种子长不出来。这样他可能会失去成为皇帝的继承人的机会。</td>
<td>The boy found the seed is not growing, he think he may not be the emperor’s heir.</td>
<td>The boy found his species does not grow, he felt could not be the emperor’s heir.</td>
</tr>
<tr>
<td>What have you learned about a character? How do you know this?</td>
<td>男孩是一个诚实的孩子，因为他的种子是长不出来的。所以他推着一个空的花盘去见皇上。</td>
<td>the boy is a honest kid, because the seed is can’t growing, so he just take a empty pots go to see the emperor.</td>
<td>The boy is a very honest boy, because his seed is not out long, so he took an empty pot to see the emperor.</td>
</tr>
<tr>
<td>What themes do you notice? Why?</td>
<td>这个故事围绕小男孩和种子。因为他想大部分在讲小男孩了怎么办让种子长大。</td>
<td>The story is about the boy and his seed, because the story talking about what the boy wanted to let the seeds grow method.</td>
<td>The story revolves around children and seeds, because the kids want to tell the story mostly in what way to let the seeds grow.</td>
</tr>
</tbody>
</table>

FIGURE 6.2 Student work sample #2

he was working on his responses in that column phrase by phrase, and also doing some revision and editing which would lead us to conclude that he was writing, rather than copy-pasting pieces of text into that column. Lastly, Fu-han worked on the final column—the Google Translated version—where the revision history of the document demonstrates that blocks of text were placed in all at once, suggesting that the responses under this column were probably Google-translated versions of his Chinese responses.

What we are able to surmise is that when Fu-han is asked to respond in his own words, he often opts for words that are available to him through language that he hears in oral interactions with his teachers and peers. For example, in the first response, he chooses the word, “seed”, whereas Google Translate gave him the word “species”. The same is true for his choice of, “kid”, over the word, “boy”, the word that we surmise was offered by Google Translate.

Ross found the Google Doc graphic organiser a helpful strategy because, as he said, it gave Fu-han “more opportunities to work in English in his own words to try on his own . . . Maybe I would do that sort of moving forward. Not have Google Translate be the end product necessarily” (8 April 2016). Ross’ recognition of machine translation engagements as legitimate biliteracy instances, and as translanguageing, opens up space for what we are calling “teaching into” language. By “teaching into” we refer to the opportunity for teachers to engage the students’ full semiotic repertoire and, together with the student, to examine and discuss both student-generated and machine translation-enabled language outputs. While machine translation is often viewed as a means to an end, if we focus on the translanguageing that is enabled by the technology, we recognise it
as a process laden with learning potential. When an educator “teaches into” machine translation interactions, he or she places attention on the student’s developing bilerarcy practices simultaneously with content objectives.

We were excited about Ross’ pedagogical shifts because they helped him to recognise the student’s machine translation as a legitimate bilerarcy instance. In the following quote, he refers to the students’ interactions with Google Translate as posing an entry point for his providing continued support to the student in reading and writing.

Until the end of the year, I would definitely like to see him produce work like this. We’re going to be working on a short story, we’re going to be working on a memoir. I would like to have him try, after the Google Translate, to try to put the work in his own words in English so he has more practice to do that. So I can get a little more of his voice, so I can maybe even assess him a little more. What are some things he does really well? What are some things I might be able to support him with?

(8 April 2016)

We knew Ross’ pedagogy could go even further towards supporting the student’s fluid use of Google Translate. We hoped to learn more about the student’s engagements with machine translation during an interview with him to gain more insights about how the strategies Ross used to “teach into” language could truly leverage the student’s full semiotic repertoire.

Embodied Social Actions Emerging from the Bilingual Learner—Machine Translation Assemblage

About a month after Ross introduced the new format for supporting Fu-han’s work with Google Translate, we conducted an interview with Fu-han through a Mandarin-speaking interpreter, Chia Hao Lin, to learn more about the student’s use of Google Translate. Our interview revealed how the student was enacting particular social actions which we are calling “tinkering” and “evaluating”—actions that get embodied as part of Fu-han’s semiotic repertoire, that is, of his translanguaging. We describe both of these actions in the sections that follow.

Tinkering

During our interview, we learned that Fu-han had studied English in China throughout elementary school, and had learned to use technology and computers through his own exploration, and also with the support of his father. Fu-han’s interview reveals that he draws on his knowledge of what school and society name English, Chinese, and technology to “tinker” with machine translation to obtain more accurate results. Based on how “correct” Fu-han deems the Google Translate to be, he uses another machine translation program to assist him. As the interview goes on, we see that Fu-han chooses when to translate words, phrases, or whole sentences.

In the following quotation, taken from the interview, we see that Fu-han is an active user of machine translation and combines it with his knowledge of what he views as Chinese, English, and machine translation:

I: For the essay about the elephant, did you have the version you wrote in Chinese? Is that the same in Chinese and in English?
F: A little bit different, because sometimes it’s not correct from Google Translate. I could tell it’s not correct when I used Google Translate at home.
I: So some parts are not correct, and the Chinese writing should be closer to what you want to say, right. When you notice the incorrect [parts] from the Google Translate, what did you do?
F: I will try to use other translation software.
I: OK
F: If it’s still not good, I will write it by myself.
I: How did you write it by yourself?
F: Translate the words I need because it’s easier to translate one word.
I: How about the whole sentence?
F: It will have more nonsense when connecting more sentences, but it’s better to translate the word only.

(04/07/16)

Fu-han is already independently exploring Google Translate as part of his semiotic repertoire. In doing so he is constructing his own understandings of its capabilities to translate Chinese into English and vice versa. This action, tinkering, is now a social action that is “embodied” for Fu-han, possible when he comes together into an assemblage with the Google Translate software. Through Fu-han’s tinkering with Google Translate, he comes to new understandings of how he can use the software to extend his languaging.

Evaluating

Fu-han’s work with Google Translate went beyond his using it as a tool for the simple translation of words from Chinese to English. His interaction with Google Translate was also an opportunity for him to evaluate the capabilities of the software to produce intelligible translations, to analyse the accuracy of Google-translated pieces in English, to embed the translations with his own language, and to use these interactions to refine his own language practices. We refer to these particular translanguaging processes that emerged as “evaluation”. Evaluation represents another bilerarcy instance and embodied social action resulting from the formation of an assemblage between the emergent bilingual student and the software.
Through our interview with Fu-han, his “evaluation” interactions with Google Translate were evident. He used his knowledge of features from the school language—English—to read the English translated text and to rewrite aspects he did not deem adequate. He also acknowledged that he needed to copy some of the Google Translated text without alteration. In the following quote from the interview Fu-han describes his process of writing using Google Translate.

F: I write by myself first, then using Google Translate.
I: Which way do you do it more?
F: Half and half.
I: Because you understand, you don’t need the Google Translate all the time?
F: And it will be more concise for the writing I do by myself.

This quote reveals that at the center of the writing process for Fu-han is his evaluation of the machine translation-produced text. He fluidly and flexibly incorporates from both his own linguistic repertoire and the output from Google Translate to produce the best outcome. In the interview he also notes that, for him, efficiency is important: the more that he can write without the assistance of Google Translate, the faster he will be able to get his thoughts down. Fu-han actively evaluated Google-translated texts drawing on his bilingual repertoire, thus embedding his languaging within the translations produced by the machine translation software.

**Implications**

In our study, we consider the specific social actions that emerge when the focal student, Fu-han, comes together with machine translation software in an assemblage. Those social actions become embodied semiotic resources for Fu-han in a way similar to the way in which the experience of the driver-car is incorporated into a person’s body and then carried “into all their other perceptions and engagements with the material world in a way that they take for granted and treat as unremarkable” (Dant, 2004, p. 22). In tinkering and evaluating with machine translation, Fu-han developed a method for employing Google Translate to write text that furthered his own languaging, as well as met his expectations for accuracy of language in the context of his English class.

Teachers’ translanguaging pedagogy must explicitly support emergent bilingual students’ social actions with machine translation and the biliteracy instances that grow from them. But in order for this student-machine assemblage to develop so that it is part of the student’s semiotic repertoire, time and space are needed to enable students to tinker and seriously evaluate all their languaging. Teachers should provide resources for emergent bilingual students to develop ways of working with technologies, assuming that students’ linguistic and semiotic repertoire will shape the way they use the tool, and that the tools in turn, will shape their linguistic and semiotic repertoire.

Fu-han’s abilities with machine translation evolved with his use of it, and were shaped by factors such as his literacy in Chinese, his familiarity with English, and his comfort with technology. With a greater understanding of the specific embodied social actions that emerged from the student’s machine translation use, Ross can now further modify his templates and activities to build on and leverage those actions.

The following are some of the ways we imagine Ross could “teach into” Fu-han’s biliteracy by recognising his first-order languaging behavior, which includes human-bodies in interaction with each other, as well as with artifacts and technologies:

a) Building on Fu-han’s “tinkering” with machine translation, Ross could direct the student to write as much as he can in English and to use Chinese or Google Translate fluidly for specific words (rather than whole passages) whenever he did not know the word or concept in English, producing a linguistically translanguaged text.

b) Leveraging Fu-han’s budding “evaluating” action with machine translation, Ross could prompt him to write a version of a piece in English (with or without machine translation) and then to compare its content against his Chinese or translanguaged response to make sure that all the ideas he intended to capture are captured in the English version. If not, Fu-han could then translate these concepts from Chinese to English.

c) Also building on his “evaluating”, Ross could ask Fu-han to combine a response written in his own words through his own translanguaging with a Google-translated text. In this exercise, the student would be asked to explicitly merge his own words (without regard to the categories of named languages) with a text translated through machine translation.

These activities leverage the student’s entire semiotic repertoire, including his interactions with machine translation. They recognise that the product and processes of the bilingual learner-machine translation assemblage are valid and valuable classroom biliteracy instances, and that used appropriately, they can be seen as part of translanguaging.

As we detail, Fu-han’s assemblage with machine translation opened up space for “teaching into” multiple biliteracy instances. For this “teaching into” to occur, we believe that teachers must be observant of students’ work with technology and deepen their roles in supporting that work. One shift that we envision is that teachers focus on the processes students use to craft language, not only when self-directed, but also when used in combination with machine translation. This means the actions that the bilingual student engages in with machine translation become just as important, and perhaps more important than the product itself. It is in these actions that students’ translanguaging and its potential become apparent.
Conclusion

The original aim of our work with the focal teacher in this case study was to infuse translinguaging strategies into his teaching of English Language Arts to support a newcomer focal student. As we observed the student at work, we noticed his translinguaging practices went beyond his simply drawing on his linguistic repertoire.

We viewed his use of Google Translate through the lens of theories on human-machine assemblages and the distributed language view, which allowed us to focus on the unique embodied social actions enabled by technology use. These actions become part of the student’s semiotic repertoire, and therefore, of their translinguaging potential. As a result of the assemblage, complex bileriteracy instances (Hornberger, 2003) also emerged and became sites for teacher intervention, support, and “teaching into”.

Given this evidence, we advocate for definitions of translinguaging that integrate all parts of the semiotic repertoire of bilingual learners, including artifacts and technology. The role of teachers within this broadened vision for translinguaging is to support, to be inquisitive about, and communicate with students about the various embodied social actions and forms of languaging that occur when bilingual learners and machine translation come together.

Note

1 Chiahao Lin, was recruited to conduct the interview in Mandarin with the focal student based on an interview protocol designed by the research team in English. After conducting the interview, he translated the interview into English for analysis. We use “I” for interviewer within excerpts of the translated transcript.

References


