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Facilitating Listening Comprehension via Rich Media

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Design & Development Project Report
Instructional Psychology & Technology, Brigham Young University

Purpose

This project is sponsored by the Missionary Training Center of the Church of Jesus Christ of Latter-day Saints in support of its language training goals to help full-time missionaries learning a new language (a) reach intermediate language proficiency by the time they complete MTC training and (b) maximize time spent at the advanced proficiency level in their field of service. Within the broader purpose of helping missionaries develop the communication capabilities necessary to invite and help others come unto Christ, this project has two key objectives:

1. Help missionaries gain self-efficacy and metacognitive strategies for listening comprehension in their mission language.

2. Explore the technical, logistical, and design requirements involved in helping missionaries learning Spanish engage with mission-appropriate authentic texts to benefit their language learning, preparatory to scaling such resources to additional languages and activities.

Project Needs and Constraints

Client Needs

This project addresses four key needs felt by the Missionary Training Center: (1) to emphasize listening as a necessary communication skill, (2) to foster greater listening awareness among
language learners who are largely independent, (3) to increase missionaries' access to authentic and appropriate comprehensible input, and (4) to assist in transitioning from creating instructional content to curating it in an effort to make language training more scalable and affordable. All of these needs have emerged from the broader context of an ongoing transition from a traditionally performance-oriented instructional paradigm (content mastery) to a proficiency-oriented one (Cox, Ma, Hernandez, & Martin, 2019).

**Client Constraints**

Most MTC resources designated for language training and related technology were already committed to ongoing projects with shorter-term objectives. Cost needed to be limited to a small fraction of my own working time, plus a very modest amount of collaboration time with training and technology partners across the organization. While more resources could be devoted to this type of effort later, observing these constraints afforded an opportunity to explore future possibilities significantly earlier, while the transition to proficiency is more formative and fluid. Additionally, the intervention needed to impose near-zero overhead in terms of teacher training or in-person guidance in order to scale effectively and minimize interruptions to ongoing training. Even if the intervention proved valuable, it needed to work using extant media rather than requiring the creation of custom content, which has proven prohibitive to scale across so many languages.

**Learner Needs**

Foundationally, missionaries need to be able to understand what people are saying in order to serve them more effectively. While listening carefully is considered an explicit component of effective missionary work, almost no formal instruction is dedicated specifically to improving listening skills in the new language. Developmental feedback from the missionaries suggests that they recognize the importance of listening comprehension and are often pleasantly surprised at how much they are able to understand when exposed to authentic native speech. Many of them also recognize a stark increase in difficulty comprehending a native speaker’s natural speech versus working with teachers who are (a) sympathetic interlocutors and (b) often not native speakers themselves.

In addition to the need for listening comprehension skills, missionaries are also subject to intensive expectations and stressors from self, community, and environment, including a rigorous daily schedule, regimented lifestyle expectations, and a rapid training timeline (see Learner Analysis for more details). These imply a need for extra sensitivity to the affective dimensions of their learning. To that end, metacognitive strategies that help them cope with the complexity and affective challenges of language learning are expected to be helpful. Matching the level of difficulty or challenge to their own level of proficiency also proved to be an important mediating factor in whether missionaries had a positive experience with this resource.

**Learner Constraints**

The principal challenge from the learner perspective was that the resource had to work with missionaries left entirely to their own devices, both literally and figuratively. From a technological standpoint, this means that the product needed to work online on a smartphone or computer and provide a reasonably responsive media experience even with a mediocre internet connection.
And although initial pilots of the product were proctored in person, the intent was ultimately for missionaries to be able to complete the experience without any immediate support from a teacher. Lockdown adjustments due to COVID-19 forced us to live up to this intention to the fullest, with all second phase learners completing the online experience entirely independently.

One constraint I regret being unable to address within the scope of this project was learners' reliance on English proficiency to understand the lesson instructions and scaffolding. Unfortunately a small number of potential learners were excluded from participation for this reason. The need to translate the instruction and scaffolding further highlights the complexity of scaling such a resource, and reinforces the potential value of reusable template components for instruction (i.e. translated once, used many times).

Product Description

The final product is a mobile-friendly web application that presents a scaffolded listening comprehension lesson centered on a Spanish language video from the Church's "I'm a Mormon" ad campaign ("Soy Mormón" in Spanish). After choosing a video to focus on, missionaries work on their listening comprehension skills independently by listening to passages repeatedly, reading tips about metacognitive strategies for listening, answering questions about the authentic speech in the video, and reflecting on their own performance.

Expected Benefits

Four key components undergird the expectation that this intervention could improve listening comprehension outcomes for missionaries. First, I was fully committed to the widely accepted principle that authentic text (or speech) is the ideal form of input for developing proficiency in receptive skills. Thus, the project only uses media created "for natives, by natives", i.e. that feature native speakers of Spanish and are intended for a Spanish-speaking audience. This principle ensures a highly quality of input. Second, learner guides such as interactive transcripts help increase the comprehensibility of the input for non-native learners (comprehensible input is another common paradigm in proficiency pedagogy). Third, metacognitive tips sprinkled throughout the intervention focus on five key areas identified in the literature as impacting listening comprehension. Fourth, the scope and structure were modeled after best practices for receptive skills lesson development distilled by Chantal Thompson, a well-recognized expert in the field of language proficiency assessment and pedagogy.

It should be noted that on its own, one session with this tool is unlikely to make a noticeable difference in a missionary's listening ability—its real value is in (a) its function as a self-evaluation tool and (b) its demonstrated scalability. As a template, it could realistically be scaled to apply to many different languages at low cost. As a point-in-time self-assessment and reflection tool, it can catalyze attention and noticing in the domain of listening in ways that could amplify listening skill development within the existing curriculum. If desired, this template could also be extended to form listening experiences that occur weekly or more often throughout missionaries' training and beyond. To the extent that it teaches missionaries how to learn from authentic media, it also enables them to continue their own learning with whatever media they encounter in their field of
service. This is crucial given the MTC’s need to simultaneously control costs and improve language proficiency outcomes in 60 languages.

**Addressing Constraints**

**Learner Constraints: Independent Learning and Broad Access**

Multiple design iterations with missionary feedback help make the product substantially clearer. Key refinements included simplifying activities, eliminating jargon, and clearly indicating expectations about when to respond in Spanish or in English. Using a mobile-first web application as the delivery platform maximized compatibility for missionaries in a variety of geographic locations and technological environments. Building on open Web standards and widely supported media APIs ensured that missionaries could access the experience from nearly any smartphone or computer with internet access. Aggressively compressing the media files facilitated better load times and playback for users with slower connections. Deploying the resource as a self-contained web application also enabled us to publish the final version on an approved domain, thus allowing infiel missionaries displaced by COVID-19 to participate in the pilot despite strict content filters on their devices. Ultimately, highly flexible access and very simple design allowed many missionaries to complete the experience without the direct support of a teacher.

The product is usable on web-enabled devices of all shapes and sizes.

**Client Constraints: Low Cost and Low Implementation Overhead**

This project was completed with very low cost to the MTC, with most expenses being absorbed by my own direct execution of the concept as a side project. Importantly, much of the hard-learned lessons that inevitably arise early in a new concept can now be capitalized on with greater confidence and lower cost. From a technical standpoint, using open-source frameworks like Angular and Angular Material components allowed me to implement usable product designs expeditiously and freed up time for more iteration. Hosting the resource and its accompanying analytics on cloud infrastructure (Amazon Web Services) allowed me to move much faster than
traditional approaches, requiring only minimal guidance and execution from Technology
department partners. Ultimately, in considering the scalability of this resource, the fact that it
decouples instructional design from media content offers the most dramatic reduction in
cost—given appropriate media, a couple of student employees could replicate this in dozens of
languages in a matter of weeks.

This resource also requires very little overhead to implement. As a short (30-45 minute)
experience, it can reasonably be assigned and completed during a missionary’s allotted
language study hour. No proctoring or teacher guidance is required—the instructions are fully
self-contained and battle-tested with real missionaries to clearly guide them through the
experience. To further extend the resource, a simple guide for teachers or tutors could help them
amplify the independent experience by using it as the starting point for a coaching session.

Design Process and Evolution

Team Composition and Acknowledgments
This intervention was created as a "moonlight" project, meaning that it was largely decoupled
from the day-to-day operations of the client, the Missionary Training Center. This arrangement
was favorable because it afforded the institution an opportunity to take risks in exploring a
dramatically new way to address listening comprehension head-on without diverting significant
resources from existing operations. Consequently, while I alone designed and built the product
deliverables, the contributions of MTC stakeholders and colleagues were invaluable in analyzing
learner needs, implementing iterative testing with missionaries, collecting and evaluating user
feedback, and representing the interests of the institution.

In particular, I’d like to acknowledge the help of Catelyn Sanders, Shaun Nelson, Ashley
Southard, Bailey Fillmore, Bret Elzinga, Jennifer Dobberfuhl-Quinlan, David Macfarlane, Ken
Packer, Tim Zeidner, Sarah Wald, Garrett Beeston, Jorge Alvarado Antonio, Nicolas Castañeda,
Maria Fernanda Vite Salgado, Elle Compton, Varinia Nelson, Kamryn Mansfield, Dalton Merrill,
Emily Hart, Sam Robinson, and the dozens of missionaries who were willing to try the product
and share candid feedback.

Phase One – Defining the Problem Space
The work of Phase One consisted primarily of setting expectations with stakeholders as I pivoted
from a previous project concept to an opportunity that was better aligned with my professional
work at the Missionary Training Center. In response to my proposal to conduct a formal
development project on behalf of the MTC, stakeholders Jennifer Dobberfuhl-Quinlan and David
Macfarlane made it clear that listening comprehension was fertile ground for a project of this
nature because (a) they felt a strong need for listening-oriented resources and (b) no other MTC
initiatives were directly targeting that skill. Together, these factors indicated that a project of
modest scope was likely to contribute real value to the MTC’s objectives without major disruption
to current priorities.

Stakeholders also recommended several key constraints to help the project meet the institution’s
needs. First, it should focus on addressing the needs of missionaries who are at least working on
Intermediate or Advanced proficiency in their L2; it should not concern itself with addressing
early Novice level learners. Second, it should leverage authentic media (media created "by natives for natives") to help missionaries enhance their listening skills. Third, they recommended using English as a second language (ESL) to capitalize on the wealth of authentic media items that are considered appropriate for missionary consumption in English. Fourth, it should align explicitly with can-do statements, a form of competency criterion common in language pedagogy that is in development at the MTC. In addition to these constraints, they also advanced several ideas that the MTC had considered but not executed on, and pointed to an analogous resource created by Carnegie Mellon University as an example.

**Phase Two – Exploring Possibilities**

After establishing high-level objectives and some helpful constraints, my work focused on exploring the affordances of web technology to enhance the comprehensibility of authentic media. My broad search led me to resources with a variety of functions, including clipping and annotating existing web videos, rendering visual waveforms, providing interactive transcripts, and executing realtime granular synthesis (a technique that replays a very short clip repeatedly such that when applied to speech it simulates a person holding out the same phoneme indefinitely). While exploring these possibilities was informative, without a tightly focused definition of the problem(s) to be solved, significant progress toward a solution for the client was slow. Developments in the MTC's overall language resource strategy, as well as a windfall professional development opportunity, catalyzed a convergence of ideas that facilitated much greater focus in the next phase of development.

**Phase Three – Converging on an Addressable Problem**

The first key inflection point in constraining the myriad possibilities I had explored was that TALL (the MTC's proprietary digital language learning support system) needed to evolve past a reliance on custom in-house content. My notes from the time reflect the realization that the unique value of the project was not in creating content, but in adding instructional value to existing content:

> Given the present direction on TALL, it makes a lot more sense to make this project a tool that can leverage audio/video content and scaffold it in a way that develops listening proficiency.

The importance of the *sustainability* of the approach (i.e. efficiency through potential reuse) also became evident at this point:

> Ideally I'll discover/design/curate patterns that can be reused over and over (and maybe even dynamically generated).

Around this same time, I was fortunate to receive professional development training from L2 proficiency expert Chantal Thompson on the role of grammar in a proficiency-oriented curriculum. Her training included a template documenting a proven approach for L2 classroom activities that use authentic text or media as their content. It became clear that adapting these guidelines to a digital environment was a promising way to begin lifting listening comprehension at scale.

> It took time to come to terms with the practical implications of these constraining realizations. A tension persisted between the urge to learn about the problem by building things (one interpretation of the "bias toward action" espoused by design thinking advocates at the Stanford d.school) and the need to organize what I was learning from expert knowledge in the field.
Consequently, for a short time I continued developing ideas that seemed promising in their own right but failed to fully account for the principles and problem definition I had hitherto gathered. One such example was an exploration of making different words in a transcript more or less prominent according to their relative frequency in an English corpus:

Two additional inflection points helped to further constrain and focus my work at this time. The first was a realization that I could scale back the role of assessment in the project substantially, since making generalizable claims about its efficacy was not one of its stated goals. Rather, measures that offered a qualitative view of the learner's experience were sufficient for its scope. The second came as a result of fasting, prayer, and reframing my effort as an expression of faith—this yielded a set of insights that helped to marry metacognition as operationalized by the MALQ with the practicalities of building instruction around authentic texts. It became clear that the experience would consist of "pre-listening", "listening", and "post-listening" components focused on helping learners prepare, listen effectively, and reflect on their performance. This was summed up in the following sketch (recreated and clarified here for legibility):
Having synthesized these constraints into clear deliverables, I proposed them to my client stakeholders. At this point the artifacts of my work transitioned from a wide-ranging journal format to a project proposal and a set of deliverable artifacts with changelogs.

**Phase Four – Testing and Refinement**

The focus of this phase was to test the concept iteratively with missionaries. The necessity of rapidly producing learner-facing artifacts created strong but helpful constraints—I found myself dramatically simplifying the concept in an effort to get it in front of learners quickly.

To facilitate rapid adjustments, I conducted the first with a hybrid prototype that combined a simple website to play back various media clips combined with a pen-and-paper response worksheet. This allowed me to invite them to write comments on the experience in the margin, which proved to be a valuable source of input in the early iterations of the product.
A mixed fidelity prototype (website and paper) facilitated rapid iteration

The first iteration was observed by key stakeholders Jennifer Dobberfuhl-Quinlan and Shaun Nelson, as well as my team member Bret Elzinga, who helped debrief a missionary who had a particularly strong reaction to the experience; all three helped with observation notes and helpful feedback. Jennifer explained that it could function as a listening self-assessment and that she perceived a strong appetite for this in the organization. She also explained that this could be implemented with greater certainty as a required assessment rather than an optional learning resource. Bret encouraged me to give learners more control over the media playback to avoid potential anxiety or frustration.

As might be expected, many challenges surfaced immediately upon testing the experience live. We discovered in the first test that missionaries' filtered devices could not reach the domain of my web-hosted prototype; fortunately I was able to serve a live version to them over the local WiFi network from a laptop to mitigate that problem. Elements of both the online and write components were unclear for missionaries, as well as the mapping between them. It was not obvious that missionaries could manipulate the playback of the video by changing the speed or seeking to a particular point, especially because the latter option was programmatically disabled in the first media activity. Learners did not know whether to respond in English or in Spanish and also struggled to parse jargon asking them to identify a "timeframe" in a passage. The presence of music in the clip was perceived as a major distraction to missionaries focused on comprehending the speech. It was also clear that the video I chose (an "I'm a Mormon" profile of sisters who run a school for children with autism in Guatemala) was not appealing to all missionaries. While some found it interesting, one learner disliked "listening to a weird video
multiple times," adding that the difficulty of the clip was far too challenging and that slowing down the audio (which included background music) was eerie and discomfiting.

Another moving realization was evidence that for missionaries, the experience of comprehending L2 speech is embedded in their purpose to serve others and help them come to Christ:

- How to understand & listen to a person who wants to share. How to empathize and relate to that person.
- I want to be able to understand specific details, not just rely on overarching themes. I need to ask follow up questions when people talk to me.

**Evolutions by theme**

For clarity, developments in the product's design are organized here by several themes that emerged over the course of seven iterations. Please see the appendix for detailed notes about each version of the product.

**Media Selection**

While ideally this intervention could use any video that contains substantial authentic dialogue, I settled on using Mormon Messages to resolve several logistical challenges. Although there's obvious value in helping missionaries engage with authentic examples from the everyday lives of the people they serve (e.g. news reports, cultural presentations, creative works), considerable sensitivity is felt about the kind of content that is appropriate for full-time missionaries; I knew that a Mormon Message would be considered both relevant and appropriate by all parties. In a similar fashion, I knew that because these works belong to the Church, I could develop a way to embed them in a language learning tool without violating the intellectual property rights of a third party. This was an important enabling factor from a technical standpoint, because early attempts to embed direct playback mechanisms proved to be extremely complicated and would have diminished my focus on the design of the core learning experience.

**Metacognition**

Importantly, from the first iteration, it became apparent that many missionaries were able to apply reflective metacognitive processes to the experience vis-a-vis their listening comprehension ability. These were evidenced in responses to reflection questions at the end of the experience such as "How did I do at listening in Spanish today?", "What would I like to change about how I listen going forward?", and "What's the most important thing I learned today?" Promising responses included:

- I have a lot of progress to make in regards to understand little details, but I also learned that I can comprehend more than I thought :)
- Patience and being a good listener really can help me. I do not have to be perfect but I need to do my best
- I think better than I would've done in a high school class. It takes a while to fully understand the language and phrases, but it was good practice.

Not all responses indicated a willingness or capability to engage in this way, with responses such as:
Very bad I felt lost + it gave anxiety haha. Maybe if they were talking specifically to me I could’ve done better

I still don’t understand what this question means. I can’t change how I listen to Spanish.*

I don’t feel I’ve learned anything from this test.*

*Indicates comments translated from Spanish.

Additionally, in Version 5 I decided to add a tip about "Avoiding Mental Translation". Prior to this version, I did not perceive an obvious opportunity to align this particular metacognitive strategy with Chantal Thompson’s phases of receptive skill development—it really applies to all of them. However, consistent with the literature, missionary MALQ respondents tended to score themselves lower on this strategy area than others, which seemed to warrant adding it to a section that was not already encumbered with a metacognitive tip.

**Responding in English versus Spanish**

In the language learning and teaching culture of the Missionary Training Center, there is a deliberate emphasis on using L2 as much as possible in daily communication, a practice referred to as "Speak Your Language" (SYL). From the firsts version, it became clear that this background created questions regarding which language missionaries should use when responding to activity prompts. In the absence of clear expectations some missionaries experienced friction, and some demonstrated less effective engagement with the activities. In some instances the responses also yielded less insight for the project’s development due to language choice.

Consequently, in Version 2, I added the instructions *using Spanish sentences or phrases* in bold to two activities that warranted an attempt in L2, but omitted this for the application activities. I also experimented with translating some very simple prompt elements into Spanish, e.g. *Detalles* ("details") and *Mis preguntas* ("my questions"). In Version 3 I determined that L1 was preferable for reflective metacognition responses, in part to ensure that I understood each learner’s intent irrespective of their proficiency; consequently I added *English is ok here* to several prompts in that category. I also clarified that application questions should be answered in Spanish—the fact that this expectation was not obvious to some learners was a valuable insight, suggesting that missionaries took a broader view of the experience (application to being a missionary) than I did as a designer (application to language communication). In Version 4, I noted that L2 responses may obscure qualitative indicators of comprehension for learners who understand but lack the productive capacity to prove it; addressing this challenge was beyond the scope of this project. While the switch to a fully digital experience in Version 6, input field placeholders became a helpful means to communicate response language expectations in key places:

Which topics came up?

en español
**Working Alone versus with a Companion**

One of the goals of the project was to explore the feasibility of sourcing useful questions and activities from the learner community itself. For an intervention of modest scope, companions sitting in the next desk seemed like a logical place to start in leveraging peer interactions to enrich the experience. Unfortunately, early explorations seemed fraught with friction, and later adjustments due to the COVID-19 pandemic rendered real-time peer interactions impractical for logistical reasons.

In Version 1, I tested having missionaries create comprehension questions for each other, to see if a generic prompt could lead them to create a useful question. Disappointingly, this prompt did not yield high-quality questions, and the missionaries could tell. I inferred that adequately scaffolding the process of creating an effective prompt for a peer would incur too much cost to warrant further investment and elected to abandon that element from Version 2 in favor of other developments. From that point, it became clear that the mixture of solo and companionship activities created some frustration for missionaries who proceeded at different paces. In Version 2, when I asked missionaries to mark the approximate time they began each section for developmental purposes, one missionary explicitly commented "waiting for companion." Evidently he felt to emphasize that his companion was the cause for delay! Therefore, from Version 3 I made all activities solo except for one set (focus on tense). While I mused in some notes that this intervention might be adapted as a group activity, after the onset of the COVID-19 pandemic, the all-digital experience was designed to be completely solo.

**Clarity of Instructions and Expectations**

Perhaps unsurprisingly, it became apparent that the clarity of instructions and expectations about the experience had a significant impact on the quality of responses. In Version 1, learners got hung when they encountered linguistic jargon taken from expert materials, such as "Expected patterns or forms." Some responses to create application questions were totally unrelated to the content of the experience. In response, in Version 2 I added specific criteria to the prompt: "Your questions should show that you listened carefully to them and help you get to know them better." In Version 3 I replaced the term "tense" with "timeframe" and included a list of options ("past, present, future") to steer missionaries away from distracting emphasis on nuances of aspect. I adjusted the format of the predictions activity to more closely mirror a typical pre-speaking activity, adding examples of appropriate responses. I also removed a prompt about the "main idea" that missionaries tended to treat as redundant with another prompt asking them to "summarize in 2 sentences". In Version 4 a learner whose native language was not English completed the activity successfully but indicated that certain instructions were a bit confusing; this challenge would need to be addressed more fully if the intervention is brought to scale.

In Version 5, I experimented with having learners record responses in their own notebook instead of providing space on the printed worksheet. This created some confusion with parallel activities intended to be repeated with two different media clips. Ultimately the move to an all-digital format in Version 6 forced me to remedy this ambiguity. More importantly, fitting all instructions and prompts on a very small screen required me to trim down metacognitive tips even further and replace lengthy instructions with one-line input labels and placeholder text. It was interesting to note that missionaries absorbed and followed expectations implied in placeholder text—as a humorous example, in the consent form at the beginning of the experience, I used "Parley P. Pratt" as the placeholder text for the name field, and many missionaries included their middle initial as a result! Another important insight was that learners
appeared to leave questions blank more often when they came later on the page. This may have been due in part to variability in the visibility of the fields based on different screen heights, browser zoom and font size levels, and other factors.

**Challenge Level or Difficulty of the Experience**
Throughout the various iterations, one of the most consistent insights was that the relative difficulty of the experience (i.e., how well the missionaries could comprehend the passage) appeared to have a large impact on the learners' perception of the product. A few missionaries with deeper backgrounds found the experience boring, while several who struggled most to comprehend found it frustrating and undesirable. Based on observed evidence of missionaries' comprehension and metacognition, the product appeared to be leveled as to benefit a majority of the missionaries who experienced it, so I did not fundamentally modify the difficulty of any of the activities or prompts. However, this finding did lead me to add a question to the post-experience survey about the difficulty of the clip.

In Version 5 I observed a benefit to the variability of challenge afforded by repeating the same activity with multiple short clips, thus allowing missionaries multiple chances to succeed at different difficulty levels. One missionary in particular enthusiastically indicated "I got all of this one!" despite struggling with much of the rest of the experience. However, in the first digital iteration (Version 6) poor completion rates and highly variable engagement times suggested that perhaps the experience was too long to be effective as a solo activity for this audience. Consequently, I chose to sacrifice the variety afforded by multi-clip repetitions in favor of shortening the intervention as a whole in Version 7. Doing so may have also reduced the challenge level as a whole, in terms of the stamina and focus required to complete the experience. Additionally, in response to an unexpectedly high rate of learners abandoning the experience within the first few minutes, I modified the predictions component to invite learners to watch a short clip of the video before making prediction to pique their interest and ease them into the challenge of the experience, rather than requiring a difficult metacognitive task as their first learning interaction.

**Learner Input and Data Gathering**
Gathering the correct data proved to be another key consideration in the evolution of the product. From the beginning, I invited participants to add comments about the prototype in the margins. At the recommendation of team member Bret, in Version 2 I also prompted them to indicate the approximate time they began each section, to give better insight into the pacing of each component. As noted previously, In Version 5 I experimented with allowing learners to respond in their own notebook instead of providing an explicit space for response in a physical worksheet, with no perceptible loss in the quality of responses.

In response to an interim report, senior curriculum manager Jennifer asked me to add an evaluation component using can-do statements specific to listening skills. Alignment with a can-do framework had been contemplated from the start of the project, with the expectation that the MTC’s framework would coalesce in parallel to the evolution of this intervention such that the final product could align specifically with its intent. However, these developments progressed slower than expected. Although I met with colleagues in the MTC to understand what can-do statements for listening might entail, ultimately I failed to implement them directly in this product, due to the complexity of inventing and refining them with little more than ACTFL functional
descriptors as a guide. The adjustments incident to the COVID-19 pandemic also contributed to this shortcoming of the project.

The transition to a fully digital format in Version 6 complicated data gathering considerably. Absent the ability to observe learners in person, webpage interactions became the sole source of information. Frankly, I underestimated the complexity I would face in determining how to organize this considerable quantity of data. In the first iteration of Version 6, I implemented a single "experience object" composed of the learner's choice of media, responses to each prompt, and an event log of buttons interacted with, including media playback and navigation choices. This was sent to an API for logging upon completion of the activity. Unfortunately this approach precluded me from gathering important data from learners who abandoned the experience before completing it. Therefore in the next iteration I implemented a system that would send a snapshot of the learner's data state each time they submitted an activity or navigated to a new tab. In a follow-up iteration, I also logged basic information as soon as users had submitted a consent form in case some participants may have abandoned the site without responding to the learning experience. Analyzing this considerable volume of lightly structured data proved to be a challenging task that ultimately prompted me to make some custom tools to help me better understand an individual learner's journey through the product.

Learner choices and preferences
From the first live test, it became clear that the video I chose was not appealing to all learners. In Version 4, I added a second video option for learners to choose from. This was also a valuable way to test the premise that the activity prompts I had designed were generic to function equally well with either video. Giving learners this choice added complexity that led to mistakes and bugs in the first all-digital version (Version 6), but in this case the benefits clearly outweighed the costs.

Throughout the development process I was interested in giving more flexibility to design a comprehension experience using provided building blocks rather than following a rigid scope and sequence. However, I chose not to pursue this idea mainly to constrain the complexity of the project. An additional consideration was whether to give missionaries flexible control over media playback; they experienced enough frustration with some activities allowing free control and others preventing it that I ultimately elected to always let them engage with HTML video controls. It's also worth noting that the indicator "English is OK here" seems particularly well-suited to this audience, because it aligns with the SYL concept of asking permission to use L1, without precluding the implicit option to attempt a response in Spanish if the learners want to.

Product Implementation
Given the context and purpose of a full-time missionary and proficiency in English, all this product requires to implement is an internet connection and motivation to get better at listening in Spanish. Because instructions, prompts, and media are integrated in a mobile-friendly web application, the experience can be leveraged inside and outside a classroom setting, in any phase of training, in many places around the world, with nearly any device. This was in keeping with the project's goal to minimize the overhead to implement as much as possible in order to facilitate scalability. Initial tests of the prototype used mixed fidelity methods that required considerable in-person facilitation, so participant groups were small for the first five versions
In the first environment, I was present in a classroom with participants and available to answer questions and troubleshoot technical difficulties. While such participation was technically voluntary, the social milieu made the experience more or less obligatory, and although a few missionaries expressed dislike for the product, they all completed the entire activity set. In contrast, in testing the online version, analytics data showed that many missionaries browsed the activity and abandoned the product, sometimes within minutes. I'm left to conclude that a sense of social obligation is an important motivational component in the conventional classroom setting; experience demonstrated that this product can be used in such an environment. However, I was also encouraged to see that some missionaries elected to invest significant time and effort into the experience even when no one was watching them, in some cases with little more than an email invitation. For those who elected not to complete the activity, I suspect that they simply concluded that the optional prototype was not interesting or relevant to warrant further investment. If the intervention were to be scaled as a completely optional resource, it would be important to further investigate how to help missionaries accurately evaluate the purpose, value, and relevance of this tool in relation to their own goals and needs.

Anecdotally, both the length and timing of an emailed invitation appeared to have an outsized influence on missionary participation when use of the product is purely voluntary. Initially, a moderate-length email with fairly detailed explanation yielded relatively little participation. To garner more participation, initially I set up a time to encourage missionaries to engage at the end of a synchronous class session. This approach would prove impractical at scale, so in future rounds of testing I also tried to contact missionaries toward the end of their final full week of training, hoping that they would simultaneously feel a bit more freedom in their schedule and an increased interest in novel Spanish learning experiences. Importantly, I shortened the invitation email substantially and focused on getting them into the experience instead of explaining about it. This revision removed language about the expected length of the activity and the option to be observed synchronously, which I feared might have discouraged missionaries from participating (please see the invitation email templates included in the Appendix for more detail). Consequently, to the extent that this product is implemented in unstructured, learner-driven contexts going forward, both the timing and content of invitations to engage need to be thoughtfully developed, with engagement monitored even if individual sessions are not evaluated qualitatively.

As a final bonus, when emergent COVID adjustments prompted the MTC to create a set of resources for temporarily reassigned infield missionaries to continue to work on their language, I was permitted to share a link to the product with that audience. This was not in the scope of my initial proposal but illustrates the intended flexibility of the product—it can be delivered and consumed in a variety of environments and channels.

**Assessment and Evaluation**

Given the limited scope of the intervention and long-term, complex development pattern of listening comprehension skills in a new language, assessment was qualitative in nature. Rather
than measuring generalizable evidence of mastery, this project sought evidence of metacognition and self-efficacy in the quality of individuals’ answers. Ultimately, the key determination was whether this point-in-time experience elicited the kind of thought and reflection believed to enhance effective L2 listening in an immersive environment. A developmental approach to evaluation complemented these assessment goals, with evaluation processes aimed primarily at informing improvements with each successive iteration of the experience.

**Criteria**

Stakeholders consisted primarily of MTC administration and training personnel whose primary interest was whether such an intervention could serve as an effective point-in-time self-assessment or reflection that could be scaled to apply to many languages in a cost-effective way. Measurement took the form of (a) direct observation of the missionaries piloting the experience face-to-face, (b) analysis of learner’s responses and comments, (c) learner responses to the Metacognitive Awareness Listening Questionnaire (MALQ), (d) learner responses to Likert-scale items about confidence and willingness to repeat a similar activity and (e) click behavior of remote users. (More details can be found in the Evaluation Instruments section of the Appendix).

**Procedures**

During the face-to-face phase, I evaluated each iteration of the product by observing missionaries completing the experience, then requesting that they complete an online survey containing the MALQ items as well as my custom evaluation questions. I then analyzed each learner’s pen-and-paper responses, looking for evidence of engagement with the objective, reflective awareness about listening strategies, and opportunities to improve the clarity and usability of the product. In the full-remote phase of development, I relied on survey responses and recorded responses and click behavior to perform similar analysis. I also requested that MTC stakeholders evaluate the product and the processes I had followed as part of my final summary report.

**Evidence and Outcomes**

In short, the product serves as a viable intervention to support improved metacognitive awareness in the context of L2 listening comprehension. It is usable enough that a majority of missionaries could complete the experience with no support or minimal support from a teacher or other learning guide. A majority of learners had a neutral or positive response to the experience overall. Stakeholders were convinced that while modest, the outcomes are meaningful and that the concept warrants additional investment and exploration. Following are a few key findings and quotations to illustrate.
After completing this listening activity, I feel more confident in my ability to listen in Spanish.

I would like to do more activities like this.

The following key quotations illustrate reception by stakeholder in the final stakeholder report meeting:
- "It's a listening LSA [Language Self-Assessment], but with a specific component of metacognition"
- "Have you tried with other languages?"
- "It matters; we won't draw any conclusions [about their proficiency level], but it leads to attention and noticing. It's not reliable [as an assessment], but what's the impact of it on affect, motivation, agentive learning."

**Applicability to the Missionary Purpose**
One inspiring theme from early analysis was the persistence of dedication to the missionary purpose in some missionaries' responses. Although this intervention was largely designed with generalizable principles of L2 receptive skills in mind, many missionaries nevertheless situated their reflections and need to comprehend in the terms and context of spiritual ministry to God's children. This served as a humbling reminder that learning is not an abstract or colorless objective for the learner, but often a deeply felt need embedded in a profoundly meaningful purpose.

**Design Knowledge and Critique**
Following is a discussion of strengths and weaknesses of the project throughout its trajectory that may transfer to other contexts and projects.

**Summary**

<table>
<thead>
<tr>
<th>Insight</th>
<th>Explanation</th>
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<tbody>
<tr>
<td>Prototyping quickly and cheaply was successful</td>
<td>Invest just enough effort to explore pertinent questions, then move on to the next iteration.</td>
</tr>
<tr>
<td>Building data collection quickly and cheaply was not effective</td>
<td>I was able to move quickly, but my analysis process was slowed down considerably by not designing a better way to structure digital behavior data.</td>
</tr>
<tr>
<td>Review notes frequently to avoid losing sync with stakeholders</td>
<td>In retrospect, I sometimes let my own preconceived notions eclipse expressed stakeholder perspectives simply because I forgot them. Coming back to key meeting notes can help mitigate this drift.</td>
</tr>
<tr>
<td>Learners are central, but they're not the only stakeholders</td>
<td>The product has to serve learners, but also be positioned to address the needs of other stakeholders in a way that makes sense to them.</td>
</tr>
<tr>
<td>Avoid the tinkering trap</td>
<td>&quot;Prototyping to learn&quot; can be very gratifying, but it's easy to waste energy in that mode if</td>
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Reflection on the Skunkworks Approach

As noted elsewhere, this project was approved and sponsored by my client but was not backed by substantial resource commitments. This was appealing in my case because I was keenly interested in exploring a "bleeding edge" problem space that was considered valuable but not yet urgent. It's important to acknowledge that this approach carries significant risk that the project may not be perceived as valuable or invested in further upon completion. Of course it also means you have to invest extra bandwidth to make things happen yourself. These risks shouldn't be taken lightly, but I would also note that they exist to some degree for all projects everywhere—stakeholders change their minds, priorities shift, and some projects are inevitably shelved or canned.

In this specific case, although it remains to be determined whether the project will be brought forward to a greater scope of impact and implementation, I believe that the insight to be gained by proving the concept was worth the investment on my part regardless of its future fate. Because I am passionate about the mission of the organization and the importance of communication competency in achieving that mission, I was happy to provide my client with a concrete set of artifacts and insights to further inform work in the problem space of listening comprehension in the future, and grateful that they were willing to work with me on it.

Strengths

To quote a personal mentor, "after X years in the software industry, I've learned that it's just people. It's all about people." Many of the strengths of this project can be attributed to emphasizing people as the critical unit of analysis and source of insight in the design process. In particular, I tried to take maximum advantage of the opportunity to engage real learners from my

<table>
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<th>it's not very focused on a specific problem.</th>
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<tbody>
<tr>
<td>Engage your community</td>
<td>In retrospect, I wish I'd done the legwork to clear more of a path to share my work and learnings with the broader community (e.g. seek IRB clearance, request permission to publish a design case).</td>
</tr>
<tr>
<td>Skunkworks can be worth it, sometimes</td>
<td>See my reflection.</td>
</tr>
<tr>
<td>Keep objectives very realistic; save aspirations for a vision or mission statement.</td>
<td>Cultivating measurable impact is very challenging, so ensure that stated objectives are achievable in the scope of the project.</td>
</tr>
<tr>
<td>Design measures with expert input</td>
<td>I received feedback in my defense that a 7-point Likert scale would have been more appropriate for my application. I should have consulted a psychometrician or psychometrics literature as I designed my feedback measures.</td>
</tr>
</tbody>
</table>
target audience from the first test, a fundamental tenet of the Lean approach to designing experiences (Gothelf, 2015). I personally oversaw and observed every in-person test because I wanted to observe their experiences and hear their accounts firsthand as much as possible. Evaluating and adjusting successive iterations in light of this direct observation confirmed my belief that although we must be mindful of our biases, we also enjoy great capacity for empathy—to perceive and integrate important details, nuances, and context that can be hard to predict or quantify. Likewise, inviting stakeholders to observe and comment on early tests helped to foster buy-in, refine my understanding of their expectations, and elicit ideas and feedback that I would not have enjoyed in a conversation limited to emails and formal presentations. It’s also worth noting that I struggled to execute and eventually abandoned two other projects prior to this one; I attribute my success with this one primarily to the fact that it serves a clear and present job-to-be-done (Christensen et al, 2016) for a group of people with whom I am already deeply connected.

This project also made effective use of existing components in both its pedagogy and its execution. As a relatively inexperienced designer itching to innovate, sometimes I have felt the need to create from scratch in an attempt to be original or perhaps self-reliant. Fortunately, a few years of slogging in the face of corporate inertia and painfully candid user feedback have taught me that combining and adapting existing components to address a unique context is plenty challenging, and usually more effective. It also yields the advantage observed by Doorley et al (2018) in keeping "prototypes inexpensive and low resolution to learn quickly and explore possibilities" (p. iv). Using open-source web frameworks and libraries like Angular and Material Design allowed me to single-handedly build a usable, mobile-friendly interface in relatively little time. With a little guidance from an engineering colleague, I was able to use Amazon Web Services to very quickly create an API to gather user responses. Leveraging existing Spanish-language videos published by the Church eliminated the need for costly media production. Developing paper versions of instructions and activities in Google Docs left learners free to add comments in the margins as they tested the prototype. Throughout the testing process I tried to prototype with a level of fidelity that would yield maximum insight with minimal investment.

Ultimately I credit two mentors and divine providence for this insight. First, Sam Robinson, an engineering lead and team partner, has taught me repeatedly to consider "build or buy" decisions and routinely demonstrated that various services, platforms, and components can be successfully integrated to meet unique needs much more quickly and cheaply than a fully custom-crafted solution. Applying the same principle to curriculum design, I have observed Jennifer Dobberfuhl-Quinlan manage an immense amount of complexity and detail by continuously finding synergy between existing initiatives, artifacts, and plans in the face of new questions and surprises. The providence came when, in the midst of writing my project proposal and after praying for guidance I reached into my computer bag and unearthed a tattered handout from a training I had attended weeks before on developing a lesson plan for receptive skills using authentic text. This was literally a pedagogy cheat-sheet from a leading expert in the field on the exact topic I was aiming to address, yet until that moment I had never considered composing with it to create my design! If problem synthesis is the critical process of accommodating disparate insights into a coherent problem statement, I’d argue that composition is the same process applied to solutions. In effect, a designer—or composer—examines what is already there and orchestrates a novel configuration of components that is tailored to suit the problem at hand. This approach is second nature for the most effective people I know.
Weaknesses

One specific lesson this project yielded was to give greater weight to the influence and importance of data collection in a technical system. After my first all-digital iteration, I found myself frustrated not to have collected more granular data, given how hard it was to recruit test users remotely. Accordingly, I implemented very granular measures of almost every conceivable click event and sent the entire mass of interactions back to the API on every click. This was the "simplest possible" (i.e. fastest) implementation I could conceive of to improve my data collection, but in this case a less than thoughtful design created significant problems for me down the road by creating a great deal of noise in my database. Ultimately, I had to make a custom tool to help me sort through and find the most relevant information. While fast, low-fidelity options are great for validating a design idea (Doorley et al, 2018), they are more problematic when the component is an integral part of the evaluation process itself rather than a component of the learner-facing experience.

Another weakness was that my stated objectives likely conveyed aspirations beyond what the project could reasonably be expected to deliver. Specifically, my first stated objective to "Help missionaries gain self-efficacy and metacognitive strategies for listening comprehension in their mission language" is a noble aspiration but is something I knew from that outset that I could not reasonably measure a delta on within the scope of my intervention. The intent is true, but positioned as an objective it creates an expectation that I will generate specific measurable evidence that the goal was achieved. In retrospect, considering the complexity of cultivating metacognition longitudinally, I should have framed this statement as a vision or mission statement, and chosen a more modest objective statement such as, "explore interventions that may be conducive to reflection and enhance self-efficacy and metacognitive development."

Yet another weakness was my failure to consult psychometric expertise as I designed my learner feedback measures. I learned after the fact that a 7-point Likert scale would likely have been more effective at eliciting useful responses than the 5-point scale I chose to use. It seemed like a small detail at the time but ultimately carried significant weight in making a case about the outcomes of the project!

This project also taught me how easy it is to drift beyond the parameters of a defined goal when executing on the details. This lesson is amplified in retrospect—in reviewing my notes, I can clearly see that some of my stakeholders' expectations were clearly communicated, but that as I moved forward with details, I reverted to some of my preconceived notions about what I expected the project to look like, rather than the consensus we had reached together. In the parlance of jobs-to-be-done (Christensen et al, 2016), I focused on a job I believed learners needed to do, but failed to fully incorporate insight about the jobs the institution (my client!) hoped to accomplish. In particular, it became clearer in retrospect that this product is most interesting and applicable for the MTC in the immediate as a self-assessment tool, which is different from the trajectory I had envisioned for it as a practice tool. Fortunately, the difference in this case was subtle enough and the scope of this project modest enough that the desired benefits aren't diminished. Still, this realization serves as a helpful reminder of the importance of proactive checks to ensure alignment with my own commitments and with my stakeholders' evolving expectations.
Two final lessons center on judgments about which problems to allocate attention to and when in the product development lifecycle. Early on, I devoted more effort than was beneficial to tackling anticipated technical constraints incident to using proprietary video content embedded in a custom learning environment. This significant hurdle would be important to bring my proposed solution to scale, but was not strictly necessary to prove the concept and complete the initial project scope. Consequently, the learning I gleaned from this process was only ancillary and delayed my meaningful progress early on. Conversely, I purposely elected not to pursue internal review board approval for my testing process during my proposal development specifically because I felt it would introduce undue delays that would outweigh the benefit. At the time I felt distant enough from the scholarly language pedagogy community and the practices of academia in general that it didn't seem particularly useful to anyone. In hindsight, as I've been exposed to more scholars and scholarship in this area, I realize that the problems that I've been wrestling with in this project are germane to many educators and researchers and easily could have been presented in a conference if not published in a journal. Given the significant effort and resources involved, I regret not unlocking the secondary benefit of being able to share my learning with the broader community.

**Conclusion**

In many ways, effective listening is central to the highest aspirations of missionary service: ministering to the needs of others in normal and natural ways in a spirit of selfless love. Although the scope of this project was modest in addressing those aspirations, I'm deeply grateful for the opportunity to begin blazing a new trail focused explicitly on developing listening competency. It seems clear that real progress is possible in this area, even given the constraints incident to the vast scale of missionary language training happening today. It is my sincere hope that this effort and those that follow will bless missionaries and the people they serve as their ability to understand one another grows.
Appendix

Actual Product

[Proprietary product components are not available in the public version of this document. Please contact the author for more information.]

Product Walkthrough

This walkthrough video is available to orient you to the product.

Learner Analysis

Following is a summary of key insights and their implications for design:

<table>
<thead>
<tr>
<th>Key Insight</th>
<th>Design Implications</th>
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<tbody>
<tr>
<td>Missionary service is a high-stakes endeavor from a spiritual, affective, and cultural standpoint.</td>
<td>Exercise special sensitivity to affective concerns; help learners gain confidence that they are capable of succeeding; afford sufficient learner controls.</td>
</tr>
<tr>
<td>Language learning can induce anxiety for some missionary learners.</td>
<td>Exercise special sensitivity to affective concerns; help learners gain confidence that they are capable of succeeding; afford sufficient learner controls.</td>
</tr>
<tr>
<td>A majority of missionary language learners have prior educational experience with a foreign language.</td>
<td>Offer a range of difficulty or challenge; help learners at a variety of levels progress from where they are presently.</td>
</tr>
<tr>
<td>Language learning can become a distraction for some missionary learners.</td>
<td>Support the development of increasingly appropriate motivations for learning.</td>
</tr>
<tr>
<td>Missionaries frame their language learning as an endeavor of spiritual faith.</td>
<td>Invite them to consider whether they feel God is helping them achieve their learning goals. Invite connection and application to their missionary purpose.</td>
</tr>
<tr>
<td>Missionaries are motivated to serve others.</td>
<td>Invite them to help companions navigate L2 material.</td>
</tr>
</tbody>
</table>

General description: Full-time missionaries of the Church of Jesus Christ of Latter-day Saints.

Background

Missionaries are highly motivated, mostly young (age 18-26) members of the global Church of Jesus Christ of Latter-day Saints who decide to dedicate 18-24 months of full-time effort to living in an assigned field of labor, preaching the gospel of Jesus Christ, and serving the local community. Full-time missionary service is viewed as an obligatory priesthood duty for all young
men (given physical, emotional, and mental capability) in connection with their participation in the
universal male lay clergy of the Church. It is not considered mandatory for young women, but
recent changes allowing young women to volunteer for service at the age of 19 years (previously
21) has increased the proportion of women who serve in this capacity. Missionaries are asked to
leave behind "all other worldly affairs" during the duration of their missions, including formal
education, work, romantic relationships, and other pursuits. Their contact with friends and family
is limited to email, letters, and weekly video calls with family where feasible.

Culturally, missionary service is often viewed as a rite of passage into adulthood in the Church
and as a distinction indicative of serious devotion to the gospel and to God. As a total institution,
missionary service is not unlike military service in terms of its cultural trappings—former
missionaries will often trade "war stories" of interesting, unusual, or challenging experiences they
encountered during their service. It is also common for missionaries from the same field of
service to organize periodic reunions, and some missionaries maintain friendships they forged on
their missions throughout their lives. In this sense, missionary service is at once a striving of
deply personal devotion and a widely shared cultural institution.

Preparation for and the enactment of missionary service is often a high-stakes issue for young
adults, their parents, and the Church leaders who minister to them. Rigorous standards of moral
conduct are required both before and during service; failure to meet these standards and qualify
for service can be a source of frustration, shame, heartache, and alienation. Alternatively, some
missionaries are the sole member of their family to affiliate with the Church—their decision to
make such a substantial sacrifice for an unfamiliar religion can engender confusion, anger, and
even estrangement for their family members. Furthermore, full-time missionary service as a
young adult is a once-in-a-lifetime opportunity, accompanied by a strong cultural (and even
doctrinal) narrative that God uses full-time missionary service to prepare young people for a
lifetime trajectory of discipleship, including a marriage in the temple (one of the most venerated
religious institutions), further education, career, and service in the Church. The mission
experience is also framed as a personal offering of time given to the Lord. One weighty
implication then is that such a significant opportunity should represent one's true best effort and
ought not to be wasted. Given the deep meaning and value that Church members attach to
missionary service, many missionaries feel substantial motivation to work hard, to give their best
effort, and to succeed in various aspects of service that they perceive to be important, such as
teaching and baptizing new converts, following mission rules, growing in their personal
conviction of the gospel of Jesus Christ, and learning to love other people more deeply.

It should also be noted that many older adults—typically retirement-aged and dubbed "senior
missionaries"—serve full-time missions as well, and many are assigned to learn a new language
(or brush up on a language learned many years previous). Their assignments vary in scope more
than their younger counterparts, ranging from similar proselyting objectives to public relations,
financial auditing, humanitarian aid, and medical practice. While missionaries in this demographic
likely do not see their service as a rite of passage, it's clear that the same deep attachments and
expectations of devotion, service, and sacrifice are at play in their decision to serve. While they
are not the target audience of this specific intervention, if it were scaled up these senior
missionary language learners would form part of the broader audience.
Missionaries as language learners

Missionaries come from all over the world, and about half of all missionaries serve in a country different from their home nation. About 14,000 missionaries annually are assigned to learn a new language in order to serve in their assigned field. Using the prior year as a statistical sample, missionaries originating from North America and Western Europe are more likely to be assigned to learn a new language, with missionaries from Latin America and Africa more likely to use their native language for proselyting. As a whole, female missionaries are moderately less likely (40.5%) than male missionaries (46.3%) to be assigned to learn a new language, though this might speculatively be explained by other factors such as the differential risk of violence against women in certain regions of the world. In a rough descriptive analysis, missionaries who report studying languages prior to their service for a greater average number of years are generally more likely to be assigned to learn a language—for example, only about 20% of missionaries who did not report studying a language or for whom duration data was unavailable were assigned to learn a language, while nearly 70% learned languages who reported an average of four years (rounded up). This analysis is limited by the subjectivity of self-reporting, incomplete data, compound effects from multiple languages studied (including reports of decade-plus formal study of native language), and the variety of backgrounds learners bring to a study experience. It should also be noted that all missionaries who do not speak English natively are encouraged to study it as part of their missionary experience; however, such assignments did not factor into this learner analysis.

In the context of a missionary's spiritual calling, language learning is not viewed as an academic endeavor—rather, gaining communication capability is framed as a means to the end of inviting and helping others to come unto Christ. Missionaries are taught and typically believe that God will help them learn a new language in tandem with their dedication and faith. Thus, learning a language for missionary service is as much an affective and spiritual process as a cognitive one. Interestingly, while many missionaries bring substantial motivation to their service, experience suggests that they vary widely in terms of how they accommodate notions of language learning into their broader goal to serve God well. Some missionaries view language learning as an anxiety-inducing obstacle, a hurdle to be cleared and then forgotten in the process of learning to be a missionary. Many factors might contribute to this sense of anxiety, including a lack of self-efficacy with respect to language learning or to formal learning more generally, beliefs about the learning process or the language they are studying, environmental stressors such as unfamiliar food and a fast-paced regimented lifestyle, peer relationships, and perhaps even individual differences in aptitude. For others, language learning might be viewed as a welcome challenge, but can become a distraction from their core purpose to the degree that it becomes an end in itself. Two key criteria for the success of the design, then, are (a) whether it helps to alleviate anxiety (e.g. via learner control and peer collaboration) and (b) whether it supports the development of increasingly appropriate motivations for learning (i.e. motivation to serve others and God).

Educational background

Most missionaries have completed a high school education, and a substantial proportion have some college experience. Many have previous experience learning a second language, though anecdotally, many suggest that they've forgotten most or all of what they've learned. ESL missionaries specifically are evaluated via a phone interview with a trained rater modeled after the ACFTL Oral Proficiency Interview (though shorter and therefore less rigorous). Missionaries believed to speak at an Intermediate High level or above do not experience direct ESL
instruction, and instead proceed with three weeks of *Preach My Gospel* missionary training in a
language-sensitive advanced ESL classroom. By contrast, learners below that level receive nine
weeks of ESL instruction mixed with *Preach My Gospel* missionary training. It's worth noting that
this system can result in ESL classrooms with individual proficiency levels ranging from zero to
substantial spontaneous communication in everyday tasks.

**In-field resources and conditions**
Most language-learning missionaries encounter a great deal of authentic input merely by living in
their field of service. However, the rules of missionary life prohibit them from reading everyday
material and from consuming mainstream media beyond a basic weather report. One chapter
(Chapter 7) of their missionary manual *Preach My Gospel* is devoted to principles of language
study, which includes the spiritual aspects of learning as a process of faith in God as well as basic
strategies for study (e.g. writing down and looking up unfamiliar words, periodic review, setting
goals and making plans, identifying resources, not being afraid to make mistakes). In some cases,
learners in-field also benefit from the guidance of a more senior missionary companion, who may
be a native speaker or a more advanced language learner. In some settings, missionaries are
permitted to engage volunteer or paid tutors to help with their language learning. Also, it is not
uncommon for missionaries in some regions to report reallocating their allotted 30-60 minutes of
daily language study to other purposes (e.g. proselyting) that are ostensibly viewed as a more
valuable use of their time. The value and emphasis mission leaders place on language study and
acquisition vary substantially from place to place, with some leaders implementing formal
curricula that all missionaries are expected to complete (e.g. the Taiwan Taipei Mission) and
others rarely mentioning language concerns at all (which anecdotally seems to be prevalent in
Latin American missions). Expectations and emphasis also vary year-to-year as mission leaders
cycle in and out of service.

We have reason to believe that missionaries' language proficiency growth slows once they reach
the field, in part because they transition from an intensive classroom-style training experience to
an hour or less of largely self-directed study typically coupled with intensive immersion. A recent
language needs analysis (Cox et al, 2019) examined the criticality and frequency of various
linguistics tasks used in missionary service, with native-speaking missionaries reporting that over
half of the identified Advanced-level tasks typically occur weekly or more often. This finding
validated the current goal that missionaries reach Advanced proficiency as early as possible in
their infield experience, with the specific benchmark of having at least half of all missionaries in
the field at Advanced at any given time (e.g. to possess the foundational communication skill
necessary to be a senior companion). Interestingly, many missionaries who participated in the
formative phases of this analysis reported that their infield language gains became substantial
only when they no longer had a more knowledgeable partner to rely on.

**Design Takeaways: ESL as First Audience**
ESL missionaries are an ideal first target audience because their background can give rise to
additional challenges that, if overcome, are likely to benefit most missionaries that encounter this
tool in the future. One of the critical constraints implied is limited reliance on English prose for
explanation—I’ll need to rely instead on demonstration where possible, helping missionaries to
learn the expectations and affordances of the tool by direct experience. I was surprised (and
relieved) to learn that a large majority of ESL missionaries are familiar with mobile device
technology, although some are less familiar with the functioning of the internet. Usability testing
will be a critical component of ensuring that the tool comes across as clear and simple for a variety of international users.

Another key takeaway is that affective issues are pervasive for missionary language learners, particularly self-efficacy and motivation. Full-time missionary service tends overall to be a high-stakes, high-stress, high-motivation experience that represents substantial personal sacrifice, discomfort, and joy. As the ESL supervisor explained, learners may simultaneously overestimate their own receptive language skills and underestimate their ability to learn English rapidly. One specific value this intervention can bring will be to offer missionaries a greater degree of control over L2 input than they would experience in a real-life conversation—ideally, this could provide confidence-enhancing relief from an otherwise immersive daily experience, which a Training supervisor suggested is overwhelming for less proficient learners. Furthermore, to the extent that this intervention may help to inform reflection or self-evaluation in these areas, it will need to do so very gently, in a way that encourages a positive, growth-oriented framing of opportunities for improvement, as well as inspiring confidence both in the moment and facing the future. One unique and potent opportunity in inviting reflection is to help missionaries consider their faith and whether they feel God is helping them with the sometimes daunting task of learning English—personal experience suggests that this may result in powerful experiences that have little to do with the content or design I put in front of them!

On the social dimension, a missionaries’ peers likely exert considerable influence, particularly in affective concerns. At the level of a district (a class-like cohort during their MTC experience), peer perceptions of a learning experience may be powerful in either distracting each other or inviting increased dedication and focus. Among the ESL learning community specifically, conversation with Training stakeholders suggests that cultural expectations around study and learner-instructor relationships can differ considerably, which may amplify such effects in either direction. Fears of unfavorable judgment by peers may also be a source of anxiety or reticence. More optimistically, because of missionaries’ noble core motivations for serving, I believe I can also expect a general attitude of helpfulness and courage, which might be leveraged specifically by (a) connecting their learning task to their core motivation to serve God and (b) tasking missionaries with helping each other navigate L2 material, particularly their companions.

A final consideration is that engaging ESL missionaries in topics that are truly meaningful to them may help on several fronts by simultaneously making the learning experience more comfortable, by engaging their attention, and by making it apparent that the task at hand is relevant to their broader goals as missionaries. My interview with Catelyn Sanders suggests the following topics might engage missionaries: traveling to an unfamiliar field of service, sharing the gospel of Jesus Christ with someone who chooses to embrace it, discussing one’s favorite food, and discussing the unique aspects of one’s own culture. Naturally, these topics would be a great starting point in sourcing authentic texts for learners to engage with.

Notes

ESL Learners: Interview with Catelyn Sanders
This prototype will specifically target ESL learners at the Provo MTC, so I spoke with Catelyn Sanders (ESL Training Supervisor) about specific needs and traits she's observed in ESL missionaries.

- Level of education?
○ More often than not, HS education
○ Often with some kind of college
○ We have quite a few, 20% who are over 23, may have already graduated
○ Other 80% are usually HS graduates, maybe a year of college
○ I taught one girl with a Masters in Engineering
● Is being from the developing world a predictor of formal education?
○ Most of the missionaries that I know that already had a college degree `were from Thailand, Taiwan, or Latin America, like Argentina
  ■ Quite a few of those were converts to the Church as young adults
  ■ Almost all Thai missionaries have had a college education
○ About a third are converts
  ■ Generally they’re the only member of their family to join
  ■ There’s a lot of doctrine that they just don’t understand

Differences between “typical” missionaries and ESL?
● Picked up an ADV Spanish district, we took to help with overflow
  ○ Talked to teachers about differences
  ○ Most were cultural
    ■ Going over expectations
      ● Most [traditionalists] had had siblings serve missionaries
      ● ESL are shocked to know they have to wake up at 6:30
    ■ More difficult to train North American missionaries
    ■ ESL tend to be humble,
      ● Teacher are revered
      ● We don’t have a lot of discipline issues

How about self-directing their learning? Are they culturally averse to that idea?
● A lot of Asian cultures already have that mentality
  ○ E.g. South Koreans do really well, tend to be very motivated doing things themselves
● Latin American not as much a part of their culture
● Maybe Polynesian cultures tend not to be self-reliant or driven in that way
● Everyone else falls in between
● //how do you cope with that?
  ○ Make sure they understand the doctrine, the why
  ○ Because a lot of them are converts, may not understand the why
  ○ Help them understand the purpose and doctrine of Christ in a new, personal, powerful way, everything else usually falls into place.

● Self-efficacy?
  ○ On average, most missionaries think learning Eng is going to be harder than it is
    ■ Most haven’t learned a lang before
    ■ You always hear that Eng is the hardest
    ■ If they come in a low level, they’re overwhelmed by immersion
    ■ A lot of that comes in terms of memorizing words and phrases
      ● They always set low goals for themselves
        ○ Teachers have to help push them up
        ○ Their belief is low until they apply themselves
They believe they listen, understand, comprehend better than they do
- Low self-efficacy in their speaking skills
- //the language is a pervasive barrier because they're trained in L2 immersion

//has being able to call their families made a difference?
- honestly, biggest diff is that they misuse their technology more
- did an area-wide tech fast
  - to help missionaries stop messaging their parents on Messenger
- Skype parents not on preparation day, also friends and each other

I don't remember ever having to talk to missionaries about tech misuse.
Part of it could be a big difference generationally

- Familiarity with technology? (Smartphones, internet)
  - Almost all of them are used to smartphones or iPads
  - Navigating on Google, knowing the term "URL", certain groups aren't as familiar
    - E.g. Tonga, Samoa they don't use the internet a lot.
      - Tend not to know where to go in the computer lab as often as others
  - Rare exceptions
    - If they come from Chuuk, may not have seen electricity until now
    - We've had a couple of those
    - They don't know how to wash their hands in the automatic sink
    - < 1% of missionaries, though

- What resources do they currently use to work on English listening proficiency?
  - #1 is general conference talks
  - It's in their resource library
  - Some of them have set goals to listen to one a week, pause it and look up words they don't know
  - Probably just talking to people, being immersed in it.
  - They watch videos, but I don't know if they use it for listening.
  - Usually if they set a goal, it will be a gen conf talk
    - //how do we frame it as a learning experience, not entertainment
  - Gen conf is interesting, high vocab, but they talk slow.
  - Intermediates tends to try to listen to conference of people with accents
    - This pushes them a little.
    - //Do you think that's valid?
      - Makes them pay attention more
      - They're concerned that they understand teachers but won't understand others

- What do they get hung up on?
  - Vocabulary is a struggle in terms of how much they have and how much they need to memorize in order to get that proficiency
  - If they're sharing thoughts about a scripture, there will be long pauses
    - Often what they get stuck on is just not knowing the word they're looking for
  - Tend to do a lot better with gospel vocabulary over the course of their stay.
Harder for them to stretch outside of that.

- //particular activities or expectations that cause them friction?
- Most stressed for "teaching an interested person" activity
  - Just teaching their teacher
  - They don't know it's going to be their teacher
  - Causes stress because they're putting a lot of things together.
  - They feel the burden of their purpose more in those moments.
- They have TRC with members once a week, but it tends to be really good for them, because they know they're members, and they're just a bunch of old people who are nice, so it gives them confidence.

//what could cause them to feel really bad, unconfident, or like they don't want to do this again
- They've been walking away from the E1 [elicited imitation assessment] saying "wow" I didn't learn anything at the MTC"
- I've been telling them that we do this to see how their teachers did
  - This has loosened them up a lot.
  - This is just for research, it's not going to affect them.
  - I tell them it's a special assignment and that I need their help.
- They get frustrated if it's not very simple
  - It can be difficult, but the instructions should be simple to understand.
- With the E1, I make them roleplay before we even go to the computers
  - We practice with hand gestures repeating the phrase that we hear
- They're good at roleplays. They might hate them, but they're good at them.
- They do really well if there's a demonstration and they can see.

- What do they get excited about?
  - They get really excited for their opportunity to go to the field
  - Most haven't left home country or even home island
    - Bit of anxiety about that
    - They glow when they talk about going to their mission field
  - Excited about the idea of teaching people
    - Talking about potentially having a convert in the field is amazing to them
  - For the most part, excited about talking about home, family, culture
    - Favorite thing is to ask their favorite food, we Google it and pull it up
    - Love to talk about unique aspects of their culture.

- What do they like to talk about?

- Is infield immersion a given for ESL?
  - Yes in terms of location, not necessarily in terms of companion
    - Quite a few will proselyte in L1, but in predominantly Eng areas.
      - E.g. Spanish in Provo
  - Maybe 30-40% will end up proselyting in native lang
    - //just Spanish?
    - Korean in Salt Lake
    - Mandarin in CA, Canada
    - Sometimes we'll get a special case

- Consider going through the Patrick Parrish questions
What's the journey

Patrick Parrish Questions

Instructions: [For each of the following questions, try to imagine several responses for different types of learners. Then consider how you might adjust your design to accommodate, mitigate, or enhance what you discover in your responses.]

What will make learners say “Wow! I wish I had known that before”?
- //frame interface as survival phrase? "could you repeat that, please?"

What are your learners most likely to forget, misunderstand, undervalue, resist, and fail to connect to?
- Why am I even doing this?
- How do I know if I'm winning?
- Just tell me what to do.
- This isn't like real life at all, so why do it?
- This is boring
- This is too hard

What will incite their curiosity and make them want to come back to the next class?
- Cliffhanger—what happens next?
- Feeling like I won, like I did a good job
- Feeling like I was challenged, but I overcame the challenge
  - Feeling like God helped me (***)

What will learners most likely skip or skim over, put off until the end, or feel is unnecessary?
- English instructions
- Possibly the whole thing
  - //maybe make it about someone they are going to teach later
- Making predictions
- Anything that doesn't have a grade or isn't *required*
- Catelyn:
  - Anything that seems daunting, maybe like a big paragraph of instructions
    - I can see them skipping it and then asking what they should do
  - They do a pretty good job/thorough readers with PMG, BoM. Haven't seen them do things outside of that much.

Why do your learners think they may fail to learn?
- English is hard
- I'm bad a school
- I'm tired, hungry, homesick, confused

What will learners want to share with their family or friends at dinner?
- I understood a lot of the English
What kind of learner might feel out of place or disenfranchised?
- My companion understands more than I do
- My companion will make fun of me
  - CF Korean elder in ACTFL workshop
- I'm embarrassed that I don't understand how this works

In what learning experience did your learners previously struggle that may intimidate them now?
- Formal English class was rote, strict, rigid, challenging, stressful.

What part of the learning experience will keep your learners awake at night?
- If it's traumatic—
  - I felt overwhelmed
  - I shouldn't be here
  - I don't want to feel that way again

What part of the instructional design will learners see as reflecting your own personality or personal biases as a teacher or ID?
- The fact that it's in English
- The topic is interesting to you but not to me

What part of your design DOES reflect your own biases or past experiences? How and why have you used similar designs in the past?
- I want it to be a web app because I love making web apps.

What related interests might be triggered in learners?
- Favorite food
- Travel
- Missionary purpose
- Conversion/testimony
- Loss/grief/trials
- Achievement/sports/inspirational messages
- Stories
- World Cultures

What might learners want to explore more deeply than can be covered in this learning experience?
- What does this word mean?
- Where can I listen to more of this?
- What happens in the next chapter?

Environmental Analysis

Following is a summary of key insights and their implications for design:

<table>
<thead>
<tr>
<th>Key Insight</th>
<th>Design Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curriculum is transitioning to a proficiency</td>
<td>Support proficiency outcomes; frame success</td>
</tr>
<tr>
<td><strong>Instructional Context</strong></td>
<td></td>
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<tr>
<td>---</td>
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</tr>
<tr>
<td><strong>Missionaries undergo an intensive in-person training experience for 6-9 weeks at the start of their service, then become largely independent learners paired with more seasoned missionaries at the start of their in-field experience. Both during their training and in the field, they typically have 30-60 minutes daily allotted for formal language study, though anecdotal evidence suggests that in some cases they may feel pressure to forego this formal study in favor of other missionary activities (e.g. proselyting). Many live in a place that immerses them in the target language, though not all. The ESL learners in my audience face the unique challenge of being immersed in English merely by living at the Provo MTC campus, where the vast majority of staff speak English as a primary language.</strong></td>
<td></td>
</tr>
<tr>
<td>Missionaries will experience the proposed intervention four to six weeks into an intensive second language course preparatory to entering their field of service. This particular course is a six-week test curriculum designed to prepare ESL learners from different countries and language backgrounds to participate together in a three-week missionary training program in English. In addition to the uniquely intensive focus on the language, this curriculum also implements key differences from the traditional MTC curriculum, including (a) an increased focus on everyday language at the intermediate level (as opposed to highly specialized religious vocabulary), (b) recycling of new structures and patterns across content/context areas, and (c) emphasis on helping missionaries develop self-reliance as independent language learners who can continue to progress in their communication skills in their field of service. In addition to aligning with these broader goals and practices, this intervention will need to be consumable in a period of 60-90 minutes or less with very minimal startup/setup cost implied for both teacher and learner. As this project is developmental in nature, I expect to visit each district personally to facilitate the intervention to mitigate the need to train teachers on a rapidly evolving intervention. Even so, the design must leave stakeholders with confidence that it would be easy to train teachers to implement it once it stabilizes.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Orientation.</th>
<th>in terms of growth toward proficiency.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time is very limited in the existing curricular structure.</td>
<td>Should be completable in 60-90 minutes.</td>
</tr>
<tr>
<td>Teacher resources are limited.</td>
<td>Should require very little overhead to implement; implement developmental iterations in-person for efficiency.</td>
</tr>
<tr>
<td>Web and TALL Embark are current curricular platforms at the MTC.</td>
<td>Needs to use standard web technology and be technologically compatible with TALL Embark.</td>
</tr>
<tr>
<td>Stakeholders see strategic value in leveraging extant L2 content vs. creating new content.</td>
<td>Leverage existing L2 content.</td>
</tr>
</tbody>
</table>
Technical Systems
Missionaries in training use a personal Android smartphone that is subject to corporate mobile device management policies maintained by the Church. During their stay at the MTC, they have continuous internet access in most locations on the campus during daylight hours.

If this intervention proves successful and warrants expansion, it would most likely be added to Embark, a language-learning mobile/web application maintained by the MTC. The technical layer of the intervention must be implemented using the same web stack as Embark for considerations of future interoperability (HTML5/Angular).

Due to the diversity of cultural, geographic, and socioeconomic backgrounds represented by ESL learners, this intervention will need to reach an exceptionally high standard of usability and rely minimally on English text for explanation. To the degree possible, the use and value of the tool will need to be either self-evident or demonstrated explicitly (via e.g. a live demonstration or an onboarding video).

Stakeholders
Key Stakeholders
The key stakeholders for this intervention are Jennifer Dobberfuhl-Quinlan (Language Curriculum Manager) and David Macfarlane (Product Manager, Missionary Language Learning). Interest in helping missionaries develop proficiency by engaging with authentic texts stems from a broader strategy on their part to pursue proficiency as the language outcome for missionaries. Historically, the MTC has tended to target performance outcomes centered on speaking about a narrow range of gospel-related content mixed with some level of achievement-oriented cognitive grasp of grammatical structures. The value proposition for them is in discovering what we can do to move away from creating learning material toward helping missionaries learn from real-world material that already exists.

Buyers
A number of other stakeholders will hold sway over whether continued investment in this line of resources is a priority. Effectiveness and scalability are the principal value propositions for this audience, which include executive leadership, administration, and research/evaluation stakeholders.

Implementers
A successful intervention will require teachers and their supervisors to value this intervention enough to facilitate its use and help learners overcome obstacles as they arise. Usability, a clear purpose, and obvious face value will be important factors in encouraging them to buy in.

Learners (Missionaries)
Learners exercise the ultimate control over the benefit they reap from any learning opportunity. This design needs to be appealing, and make apparent the value they’ll receive from taking it seriously.

Resources
While this project enjoys high-level support from MTC stakeholders, the resources allocated to this project will be very limited. I can expect basic support in terms of coordinating its inclusion in the ESL pilot curriculum and the flexibility to execute successive iterations of development with
the missionaries. I also expect to both observe and interview learners about their experience as a component of the developmental evaluation process. I will also have access to our app architect and database engineer to consult on technical questions (particularly concerning data architecture).

I’ll spend a weekly average of only two to four hours a week during business hours to coordinate, execute, and evaluate these iterations. The remaining majority of time will function as a "moonlight" project, including sourcing content, modeling data, interface design, technical implementation, and writing the report.

Consulting Products/Precedent

Following is a summary of key insights and their implications for design:

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</tr>
</thead>
<tbody>
<tr>
<td>Consulted products tend to be either highly scalable or highly robust, but not both.</td>
<td>Deliberate seek tradeoffs that strike a balance between robustness and scalability.</td>
</tr>
<tr>
<td>Even professionally made products suffer from challenges with clarity and usability.</td>
<td>Prioritize usability as an objective of the design process.</td>
</tr>
<tr>
<td>Many extant resources are not mobile friendly.</td>
<td>Design for mobile compatibility from the start.</td>
</tr>
<tr>
<td>Several consulted products suffer from a lack of maintenance.</td>
<td>Plan for and minimize the maintenance necessary to support the product long-term.</td>
</tr>
<tr>
<td>Hybrid yes/no and open-ended comprehension questions provide objective feedback while inviting higher-order thinking.</td>
<td>Consider implementing this item type in the product.</td>
</tr>
<tr>
<td>Chantal Thompson’s receptive skills guide is a language-agnostic lesson template made by an expert in the field, but lacks explicit attention to metacognitive strategies.</td>
<td>Use this template as the starting point for the instructional scope and sequence, layering in metacognitive strategies identified in the MALQ (Vandergrift et al, 2006).</td>
</tr>
<tr>
<td>The &quot;Listen and See&quot; activity from TALL Embark integrates many of the same data types.</td>
<td>Use it’s mobile design as a starting point for organizing complex data in a mobile-friendly form factor.</td>
</tr>
</tbody>
</table>

Synthesis

A review of these consulting products make it clear that this project is in the somewhat unique position of trying to strike a balance between robustness and scalability. The products reviewed here seem to cluster at either end of this tradeoff continuum. For example, Ayamel is a very flexible, highly scalable platform with linguistic supports that can be generated automatically, but it lacks even rudimentary instructional support regarding what the learner is expected to do or should expect from the system. At the other end of the spectrum are GLOSS, TALL 4.x/Embark and Chantal Thompson’s template for classroom intervention, each of which present handcrafted lessons around a single element of authentic media. These are very robust in terms of guiding
the learner through a sound set of learning experiences, but also prohibitively expensive to make for learners of sixty languages at a variety of proficiency levels. The key challenge for this project then is to pass between the Scylla of scale and the Charybdis of customization to find a balance that is useful but also economical. In the quest to navigate that space, it seems that peer collaboration may be a key element in striking that balance (cf. Vandergrift & Tafaghodtari, 2010).

In addition to this strategic takeaway, these resources also offer rich models for how to structure activities and provide interfaces for controlling and interacting with the data. While I plan to co-opt many of the designs in these products, such as media control elements from Ayamel and Embark, instructional sequencing from Chantal Thompson’s classroom template, and the hybrid question format of GLOSS, a key deficit I notice in many of the offerings is an attention to clarity and usability. In that sense, while it may be relatively simple to patch together components borrowed from these resources, I anticipate that a substantial investment will be required to bring them together into a whole that seems cohesive, clear, and relevant to newcomers, both in terms of digital interface and expectations for learning. My experience reviewing these products suggest that these factors of clarity and usability are not just nice-to-have elements of polish, but critical to sustaining successful learning outcomes.

**Products**

**Ayamel**

Ayamel is a sophisticated platform developed at BYU to facilitate interactive video for language learning. Features include the ability to add translated captions for many different languages using Y-lex (a BYU lookup service that composes results from many dictionary and translation sources including Google Translate). Transcripts can be anchored to points in the video timeline and used to navigate the video. It also adds custom controls to make it easy to adjust the playback speed.
Fig 1.1 Ayamel media library for public German content
The Ayamel platform suffers from some weaknesses that this project should seek to avoid. The most critical is that its sophisticated interface does not work well on a mobile device. While I could conceivably complete this pilot project on desktop only, failing to make the tool mobile-ready would preclude it from reaching much of my intended audience at scale.
Fig 1.3 Ayamel is not mobile responsive.

Additionally, while the constellation of underlying utilities and systems seems very promising, it's clear that they are not currently maintained to a "production-ready" standard of uptime. One example is the translate-on-demand feature, which is meant to tap into Y-Lex; during my trial of Ayamel, this feature consistently failed to connect. Another shortcoming is that Ayamel is challenging for newcomers to navigate. I found myself in several dead ends guessing where to click to access the core powerful features of the application—I would hope to make this project more intuitive and clean. This is exacerbated by the lack of an instructional layer; even after grasping the features and affordances of the platform and finding suitable content, the learner is left to determine how to use that content to further their own learning. I expect that my target audience will need additional guidance in order to engage with such content effectively.

**DLIFLC—GLOSS**
The GLOSS (Global Language Online Support Center) resource of the Defense Language Institute's Foreign Language Center is quite a robust resource and serves as an excellent template for this project. Though dated, its search feature illustrates several useful ways to filter content (e.g. by level, topic, modality, competency, and media type).
Several activity types are directly relevant and might be adapted to the project, including making predictions about words or ideas that will be encountered in the passage, listening for details, and identifying whether or not a particular statement is supported by what was said. One particularly intriguing activity type included a hybrid of checkbox (true/false) questions accompanied by open-ended response inputs, requiring the learner to evaluate both the objective answer to a yes/no question as well as add detail or context to their answer. This seems like a powerful way to promote engagement with the meaning of the language while also providing objective machine-gradable feedback. Learner scaffolding in the form of text and audio hints, on-demand explanations, slower audio, and image prompts provide additional promising models to follow.
Fig 2.3 GLOSS vocabulary brainstorm (activation) activity

Fig 2.4 GLOSS content-specific feedback/hint
There are some drawbacks to the instructional design of GLOSS. Although it offers very specific activity instructions, including occasional opportunities for learner autonomy, one key limitation is the lack of flexibility—the instructions appear to be tailor-made for each activity, which may make
them highly effective, but also makes them expensive to scale to multiple languages and topics. There are also occasional formats that are unclear (e.g. an unstated expectation to “check all that apply”). Perhaps the most disappointing weakness is the re-use of activity questions as quiz questions, which seems to undermine the purpose of an assessment and suggests that a quiz was added later due to an external requirement rather than as a deliberate design choice.

Some additional usability challenges serve as helpful warnings for this project. As with Ayamel, GLOSS is not mobile-friendly. Additionally, the navigation hierarchy is not always clear (as evidenced by occasional explicit instructions for how to navigate appended to activity instructions). As a rule of thumb, if you have to tell people where to click, you’re making them click in the wrong spot! What’s more, in some of the activities the layout jumps and jitters in response to user input in an unsettling way. The audio compression quality is also quite poor, which might create frustration to the extent that it affects a learner’s ability to comprehend. (Admittedly, this shortcoming may be a feature for DLI learners who are training to interpret transmitted audio that may be similarly degraded). Finally, the HTTPS certificate of GLOSS is expired, so unfortunately accessing its free content is not technically secure, and requires the user to choose to ignore a severe browser warning—Chrome refuses to load it at all!

Chantal Thompson’s Guide to Using Authentic Text for Receptive Skill Development
Following is a handout shared by French pedagogy expert Chantal Thompson on developing receptive skill lesson development using authentic text. While it is not a product per se in the sense of a consumable learning object, it is invaluable as a synthesized job aid of practical wisdom and expert heuristics for enabling the kind of learning this project hopes to facilitate. I expect that this project will follow the five-point structure outlined in the document to help missionaries learn from authentic text. Particular strengths include an emphasis on grounding activities in real-life tasks (i.e. finding and interpreting information that is actually useful) and an acknowledgement that authentic texts may stretch students not just cognitively and linguistically, but also affectively. This seems particularly relevant for missionaries, whose responsibilities lead them to continuously encounter unfamiliar worldviews and cultural expectations. One perceptible weakness is that while this method of instruction does aim to train students to adopt fruitful mental habits, it does not address making these apparent or conscious as metacognitive strategies.

### STAGES OF A RECEPTIVE SKILL LESSON DEVELOPMENT

**Chantal P. Thompson**

**A. Selection of reading/listening/viewing materials**

**Consider**

- Authenticity (authentic = “for natives, by natives”)
- Topic/content → correlation with function
- Degree of interest to students
- Degree of cultural knowledge required
- Linguistic level
  - Slightly beyond students’ present ability
  - Presence of “clues” that make the text accessible (visuals, format, cognates, etc.)

**Remember**

- You don’t necessarily simplify the text, you simplify the task(s)
Learners' ability to comprehend is generally higher than their ability to produce. Authentic input provides golden opportunities to "stretch" the students cognitively, affectively, and linguistically. Each task generally requires a separate reading or listening. Authentic input makes a perfect entry into the language → higher order learning.

B. The schema theory

1. Pre-activities
   Why?
   - to provide needed background information
   - to activate student's knowledge of the topic
   - to anticipate content
   How?
   - contextualize the text or segment; focus the learners
   - recall/review what is known about the topic
   - react to visual clues, organization, etc.
   - language preparation/expansion
   - predict
   - brainstorm

2. Global activities
   Why?
   - to train students to consider a text or segment in its entirety
   - to wean students away from the tendency to translate word for word
   - to verify students' predictions
   How?
   - identify type of text or information
   - identify main idea(s)
   - create/match titles or subtitles for the text or segment
   - order or sequence information

3. Specific information activities
   Why?
   - to locate specific information/details (real life task)
   - to train students to look or listen FOR and and find vs. look at or listen to and get lost
   - to fulfill students' expectations
   - to access precision of understanding
   How?
   - complete grids, chards, diagrams, etc.
   - answer questions (who, what, how many, where, when, etc.)
   - recognize cognates
   - select/match/identify specific information

4. Linguistic activities
   Why?
   - to train students to use the known to learn the new
TALL 4.x and Embark

TALL 4.0 and 4.1 represent the most sophisticated iterations of the Technology Assisted Language Learning product developed by the Missionary Training Center and include activities focused specifically on listening comprehension in a small number of high-volume languages. Due to the increasing inconvenience of maintaining desktop-based software, since developing TALL 4.x the MTC has pivoted to web-based online and mobile applications; Embark is the most advanced of these. In much of 2019, the flagship project of the MTC's language software team has been to port valuable content, instructional design, and functionality from TALL 4.0 to the Embark mobile form factor.

Many of the details of Embark's implementation of these resources are germane to this project. In fact, if this project proves sufficiently promising, integration of the system into Embark might well be the natural next step to scaling it out to more users and languages. Consequently, a key requirement is to maintain interoperability as well as a design language that harmonizes with the precedents established in Embark. A helpful exercise in extracting valuable components from TALL 4.0/Embark is to consider the relative cost of developing different content elements with an eye toward evaluating their scalability. For example, the "Listen and See" interface is likely the most relevant element to this project, in that it surfaces both media and control layers for video, audio, text transcript, activity instructions, and navigation. While this interface is quite busy and far from perfect, it serves as a very valuable jumping-off point in considering how to bring a fairly complex array of interactivity to a phone-sized screen. It also requires relatively little data to function—a media file, a transcript, a reusable set of instructions, and a list of timestamps indicating when each sentence begins and ends.

5. Post-activities

**Why?**
- to relate reading/listening/viewing to original purpose
- to use input to anchor or consolidate language
- to use input as a springboard for other activities

**How?**
- make decisions related to the purpose of the text or segment
- discuss/debate issues raised
- express own opinion
- retell the story in own words
- analyze point of view, style, etc.
- link to other skills: speaking, writing, further reading or listening
Embark includes many other activities that are powerful, but require specific content development and are therefore challenging to scale. This challenge engenders an interesting thought—could learners be tasked with developing appropriate questions and activities? Would it be possible to harvest open-ended responses and ultimately turn them into objective multiple-choice activities? Although developing a crowdsourcing system is beyond the scope of this project, it will quite likely include open-ended questions, the responses to which could be evaluated with an eye toward their utility as the raw material for community-generated questions. Examples of activities where such an approach might apply include "Listen for Specifics" and "Listen and Match". It's conceivable that learners could generate prompts such as "Why did Juan and Rosa move to the capital?" as well as respond to them. Responses might then be used as both correct answers and distractors, depending on their accuracy. Similarly, learners might be asked to summarize a section of the passage, which might then become a prompt for multiple choice matching to an audio clip.
Technical Explorations
After completing the proposal phase of the project, I also consulted several products as I explored how to implement the intervention. Following is a brief summary.

ReClipped
ReClipped is a tool for anchoring custom annotations to subclips of Youtube videos. While I didn't ultimately use this as a component in the experience, it has promise as a tool for helping learners work on their comprehension alone or collectively.
YouTube Interactive Transcripts

YouTube's interactive transcripts are very powerful, facilitating searching within the transcript and allowing users to jump to a moment in the video by tapping on a phrase. Additionally, I found several community examples attempting to surface this data by scraping YouTube; I hoped that I might be able to combine this useful data with additional instructional scaffolding, but ultimately, it was simpler and less problematic to replicate the functionality.
Content or Task Analysis

Listening comprehension is a vast, complicated skill, and one that doesn’t necessarily require a lot of tacit knowledge or the conscious application of strategy in one’s native language. Because my audience are L2 learners and metacognitive awareness is understood to help language learners with listening comprehension, my task analysis relies on Vandergrift et al (2006) to characterize metacognitive strategies applied to the problem of listening comprehension to model expert L2 performance. The following conceptualization of auditory comprehension itself is vastly oversimplified, serving as a simple substrate on which to map metacognitive concerns, and importantly, consider the prior knowledge I expect learners (as well as L2 experts) must bring to effective listening comprehension.
Annotated Bibliography

**Domain Knowledge: L2 Listening Proficiency**

The literature suggests three promising points of departure in helping learners develop listening proficiency: (a) spontaneously negotiating for meaning in response to authentic input, (b) developing metacognitive strategies that facilitate comprehension, and (c) growing vocabulary size.

The first point raises an intriguing question: while it seems clear that learners benefit from the linguistic features of negotiated meaning during communication breakdown, can an L2 learner enjoy significant gains from observing another learner's breakdown? Is the vicarious experience of watching someone navigate communication failure adequate to create these beneficial features of speech? If so, this type of interaction might be a unique form of quasi-authentic text that could be particularly potent for scaling comprehension learning. Alternatively, perhaps breakdown could be simulated by labeling controls for increasing comprehensibility as requests for assistance (e.g. instead of "Adjust playback speed", the button might say, "Slower, please").

Another goal of this project is to develop learner's metacognitive strategies to facilitate enhanced listening comprehension. Ideally, this goal can be construed as complementary or even co-constitutive with simulating breakdown: failure in comprehension of the media can be framed...
as a problem to be solved by deploying appropriate metacognitive strategies. These might include making predictions based on world knowledge, focusing on global meaning, focusing on specific meaning, focusing on a specific pattern or structure, avoiding word-for-word translation, or reviewing the hypothesized meaning in light of new information. Another valuable idea I encountered in the literature is that learners can partner to help each other with the metacognitive process of monitoring (Vandergrift, Goh, Mareschal, & Tafaghodtari, 2006), which may have uniquely powerful application for full-time missionaries who are continuously paired with a peer companion. While it is unlikely that this project will come to include all of these strategies in a single intervention, they provide an ample list from which to generate various iterative approaches to the design to determine which are feasibly targeted in a media-based learning experience.

A key tension stems from recent research suggesting that metacognition is not a strong predictor of listening comprehension—does this mean that it's not worth targeting metacognition? Wang and Treffers-Daller (2017) posit that L2 vocab size (a stronger predictor according to Vandergrift & Baker, 2018; Wang and Treffers-Daller, 2017) might have a mediating effect on certain aspects of metacognition—greater lexical control engenders more opportunity for inferring both global and specific meanings. Put simply, a certain vocabulary size may be pre-requisite to deploying these strategies meaningfully in L2 listening comprehension. Therefore, this project is an opportunity to explore whether ESL missionary learners have sufficient lexical command late in their training to take advantage of strategy use. Importantly, one of the characteristics of progress in listening comprehension as defined by ACTFL is making inferences and connections between ideas; therefore, the metacognitive sensemaking aspect of comprehension is critical even if learners already understand the meaning of each individual word. Additionally, in the event a learner's vocabulary size is inadequate to fully benefit from strategy use, authentic text might serve as a compelling and natural context or "problem" in which to ground further vocabulary learning.

References


ACTFL provides industry-standard proficiency guidelines that operationalize language ability in multiple skill areas, including listening comprehension. They note that two basic elements of comprehension are the ability to (a) retrieve information and (b) make inferences and connections. One key criterion that first appears at the Advanced level is the ability to use real-world knowledge and contextual clues to compensate for deficits in lexical and structural control of the language, illustrating how metacognitive strategies become increasingly relevant once learners have established a foundation from which to interpret basic meaning. Additionally, the Advanced criterion of understanding "main ideas and most supporting details in connected discourse" validates the idea of focusing both on global and specific meaning over the course of the learning experience.

Cox et al. (2019) conduct an in-depth analysis of the language use needs of missionaries of the Church of Jesus Christ of Latter-day Saints. Based on input from missionaries, Church leaders, and a Church missionary service handbook, they concluded that Advanced proficiency is required to reach the stated objectives of missionary work in a day-to-day context.


Saito and Akiyama (2018) observe that breakdown and negotiation for meaning between a language learner and a native interlocutor facilitate features of communication that are beneficial to language development, namely: increased comprehensibility, slower speech rate, paraphrased or simplified utterances, and recasting of the learner's erroneous speech. They also suggest that successfully negotiating breakdown leads learners to greater awareness of the importance of using listening strategies to understand authentic speech. Thus, one of the critical goals of this project is to approximate these beneficial features of breakdown without requiring the *in vivo* intervention of a native interlocutor, e.g. by giving control of the playback rate to the learner or providing alternative, simplified paraphrasings of authentic text upon request (simulated breakdown). Ideally these affordances can not only help the learner succeed in comprehending the text in the moment, but also increase their awareness of the strategies that are beneficial to do so.


Wang and Treffers-Daller find that of the learner characteristics studied, vocabulary had the greatest explanatory power for listening comprehension level, followed closely by general L2 proficiency. Metacognition accounted for much less variance in their analysis. They posit that this might be explained in part by the relatively small vocabularies of study participants—a certain threshold of semantic comprehension is necessary in order to fully deploy metacognitive strategies such as inferencing. One particularly relevant takeaway from their literature review is that inferencing is more difficult (cognitively) with content from an unfamiliar culture, suggesting the need to be sensitive to increased difficulty for ESL learners whose culture may differ dramatically from the native speakers they listen to. Additionally, of the metacognitive factors studied, person knowledge (judgements of difficulty and self-efficacy related to L2 listening) was the strongest covariate, reaffirming the criticality of helping learners mitigate anxiety and believe that they can achieve comprehension successfully.


The authors analyze L1 and L2 vocabulary knowledge, auditory ability, working memory, and metacognition as correlates of L2 listening comprehension among fourth-grade French
immersion students; their analysis reveals that each factor except for metacognition had statistically significant correlation with L2 listening comprehension. L2 vocabulary exhibited a particularly robust relationship with listening in regression analysis with most other factors being insignificant predictors when all variables were considered. Critically, the authors argue that young, less skilled learners, while capable of learning metacognitive skills, appear less likely to deploy such skills in the context of L2 listening comprehension as compared to older, more advanced learners.


The authors describe the process of developing the Metacognitive Awareness Listening Questionnaire (MALQ), a validated instrument that clusters metacognitive awareness as it pertains to listening comprehension into five distinct constructs: (a) directed attention, (b) avoiding mental translation, (c) person knowledge, (d) planning/evaluation, (e) problem solving. They also posit that "listening tasks that guide students through the process of listening—by engaging them in the use of prediction, monitoring, evaluating, and problem-solving—can help learners develop the metacognitive knowledge critical to the development of self-regulated listening" (p. 437). This suggests that the five areas measured by the MALQ can serve as a helpful typology for the developmental evaluation of this project, both as a way of characterizing learners’ needs and for focusing ideation and refinement in areas that seem theoretically promising.

**Theories of Learning & Instructional Strategies**

Two key questions raised by this literature concern the synchronicity and modality of language comprehension interactions. Auditory interactions are inherently ephemeral, and subject to the constraints of working memory limitations and "online" real-time sensemaking capability. In contrast, written language affords asynchronous, deliberate processing, and non-linear transversal of content, reducing the demands on working memory. As a tool that can potentially afford both modalities of content to improve comprehension, it’s imperative to keep the relative advantages and disadvantages of each in mind.

One particular question centers on when declarative versus procedural memory is used to facilitate comprehension. Some scholars, such as Vandergrift and Tafaghodtari (2010), characterize L2 listening comprehension as a procedural skill, and emphasize the development of metacognitive listening strategies via holistic practice. In contrast, Clahsen and Felser's (2006) psycholinguistic report suggests that for L2 learners, declarative knowledge of the meaning of individual words may play a stronger part in sensemaking, while procedural engagement with syntax may remain shallow, even in advanced listeners. These two viewpoints are not necessarily contradictory—Vandergrift and Tafaghodtari might respond that while limitations of online sensemaking may indeed affect the procedural processing of meaning, that metacognitive procedures such as monitoring, re-evaluating, directing attention, and avoiding word-for-word mental translation are very fruitfully developed among L2 learners.
These ideas raise an interesting question around the relative load that these components of comprehension may exert on the learner’s mental resources, and how these loads change as the learner’s knowledge and ability evolve. This in turn carries implications for which resources will be most beneficial to learners at different stages of comprehension development. For example, Jiang, Kalyuga, & Sweller (2017) found that while text that accompanies L2 audio is helpful for novices, is less helpful for learners with adequate phonological decoding capability, suggesting that for these learners the text is redundant and therefore engenders extraneous load. This has implications for designing with rich authentic internet multimedia, which Erbaggio, Gopalakrishnan, Hobbs, & Liu (2012) suggest can improve engagement, reduce anxiety, enhance learner autonomy and afford flexibility—for some learners, less may actually be more when it comes to relevant information for sensemaking. Reflecting on this idea yields an interesting observation: video of the speakers may be advantages because (a) the non-verbal information it presents cannot be redundant with auditory or textual information and (b) the additional strain of processing meaningful non-verbal video might actually help learners who would benefit from shifting their attention from individual words to the overall gist of what is being said.

References


The authors compare how mature native speakers, child native speakers, and adult L2 learners process morphological inflections and ambiguous sentences, concluding that advanced L2 learners exhibit evidence of qualitatively different strategies for sentence-level comprehension. In particular, they appear to rely on lexical, semantic, pragmatic, and non-linguistic information like native speakers, but do not appear to tap deeply into syntactic information. The authors posit a "shallow structure hypothesis": perhaps L2 learners are constrained to using simplistic syntactic representations of L2 to guide on-line (i.e. real-time) comprehension vs. the rich hierarchical syntactic representations most native speakers exhibit. The implication for this project is to give learners the option to experience audio comprehension in both real-time and asynchronous modes, and perhaps to assume that the application of rich syntactic (i.e. grammar) knowledge may require L2 learners more time to tap explicit declarative knowledge.


The authors argue that using technology (particularly the internet) to make authentic media available to learners can reduce anxiety and frustration, improve engagement, encourage collaboration with peers and give learners flexibility in how they approach learning. Critically, they suggest that such an instructional approach facilitates learners taking responsibility for their own learning. They also note that rich multimedia such as videos can afford additional non-linguistic information to aid comprehension and make the experience more meaningful and engaging.

The authors report on several laboratory experiments exploring the interaction between proficiency level and the effectiveness of listening instruction that includes reading, listening, or both. They conclude that for early learners, reading and listening together seem to be advantageous, while for more advanced learners, the combination may be a disadvantage. They argue that a redundancy effect may cause additional extraneous cognitive load for more advanced learners who already understand relationships between sound and text. They find evidence that reading may be more beneficial for these learners than listening, and suggest that this may be so because auditory input is inherently transient while text is not. Critically, they suggest that listening-focused instruction ought to target both (a) improved listening comprehension and (b) increased linguistic knowledge (e.g. vocabulary, grammar).


The authors argue that metacognitive strategies for listening comprehension need to be deployed in an integrated, orchestrated fashion, and therefore are best developed via a holistic approach similar to procedural skill development. They report on an experiment wherein students that were guided through a series of activities designed to help them develop metacognitive awareness were shown to improve more than a control group (statistically significant between the lower-skill half of each group). Two particularly salient features of their specific intervention are (a) the use of a listening journal as a template to scaffold comprehension and reflection and (b) peer collaboration to assist in the process of comprehension and metacognition development.

**Design Approaches**

The following frameworks will guide the design of this intervention: (a) design thinking (as articulated by the Stanford d.school), the (b) application of Lean process/product development to user experience design, and (c) the jobs-to-be-done framework. Each of these helps to answer a different layer of questions around how to successfully design and execute this intervention. Situated at the confluence of design thinking, lean startup methodology, and agile software development, *Lean UX* serves as a focal point for my design approach. It answers the question of how to determine whether the intervention is successful by emphasizing getting real feedback from the target audience as rapidly and cheaply as possible. In contrast, the jobs-to-be-done framework answers the question of how to anticipate what the target audience may desire, and what existing elements of their lives may compete for the space and time I hope this intervention will occupy in learner's lives. In this sense, they engender a creative tension between forethought and learning by experimentation in driving strategic direction for the project. Design thinking answers how to empathize with users, understand their jobs to be done, generate a wide range of ideas, and then prototype and test them. In that sense, it is more of a toolkit for the day-to-day execution of the strategic direction implied by Lean and jobs-to-be-done. Finally, the moral
dimensions of instruction design articulated by Osguthorpe et al (2003) serve as a guide for the value system underlying my design process—a reminder of the ways in which instructional designers seek to help people transform their lives for the better, not just ship a product.

References


Christensen et al. argue that many innovations fail in the market because they are driven by data-rich correlational descriptions of the market, which lead innovators to segment their market demographically or psychographically rather than in terms of the problems they hope to solve. To address this shortcoming, they prescribe an analytic lens wherein the key unit of analysis is the "job-to-be-done". An innovator’s task is to understand the functional, social, and emotional layers of a job their customer hopes to accomplish, then align their product and business process to complete that job better than current alternatives and reduce or eliminate any obstacles to doing so. For this project, the implication is that the competition for the proposed annotation tool is not primarily other listening annotation tools, but whatever helps missionaries feel that their listening comprehension is improving. Notably, one large competitor is non-consumption. It will be important to determine whether learners feel the need to improve their listening proficiency, as well as what resources or "tools" they may use or ignore in doing so.


The design community at the Stanford d.school synthesizes design best practices into five key modes: Empathize, Define, Ideate, Prototype, and Test. They also articulate a wide variety of strategies for accomplishing the work of each mode, such as prototyping for empathy, preparing for and executing user interviews, and assuming a beginner’s mindset.


Gothelf argues for a new approach to user experience design arising from the confluence of design thinking, agile software development, and lean startup methodologies. This approach emphasizes reducing procedural formalism in favor of putting products-in-progress in front of users to more quickly understand their strengths and shortcomings in an authentic context. It frames product development as a rapid, iterative inquiry process driven by hypotheses about how to effect a desired change in a given market. Consequently, outcomes, rather than outputs, are the key unit of analysis in steering future iterations.


The authors argue that, as an endeavor to interact with other human beings, instructional design inevitably entails moral elements. They further posit that transformative outcomes for learners are central to the highest moral aims of any instruction. They prescribe reflexive judgment as the key
for instructional designers to develop and practice Green's (1999) five proposed consciences, which ostensibly help practitioners address the transformational layer of design. These include conscience of craft (desire to produce quality work), membership (valuing what one does as a good practitioner), sacrifice (willingness to act altruistically for the benefit of others), memory (rootedness in the history of one's profession and people), and imagination (willingness to lead in the exploration of new and better possibilities).

Design Specifications

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data structure</td>
<td>Database structure for modeling metadata attached to an authentic text, including:</td>
</tr>
<tr>
<td></td>
<td>● Media type</td>
</tr>
<tr>
<td></td>
<td>● Topic(s)</td>
</tr>
<tr>
<td></td>
<td>● Structural features</td>
</tr>
<tr>
<td></td>
<td>● Level</td>
</tr>
<tr>
<td></td>
<td>● Can-do statement (<em>If MTC can-dos have coalesced sufficiently in time)</em></td>
</tr>
<tr>
<td>Development Tool</td>
<td>Documentation of criteria used to select authentic texts according to Chantal Thompson's (n.d.) guidelines, including:</td>
</tr>
<tr>
<td></td>
<td>● Linguistic functions</td>
</tr>
<tr>
<td></td>
<td>● Degree of interest to learners</td>
</tr>
<tr>
<td></td>
<td>● Authenticity</td>
</tr>
<tr>
<td></td>
<td>● Linguistic level</td>
</tr>
<tr>
<td></td>
<td>● Degree of cultural knowledge required</td>
</tr>
<tr>
<td></td>
<td>● Appropriateness for missionary audience</td>
</tr>
<tr>
<td></td>
<td>● Reliability of access</td>
</tr>
<tr>
<td></td>
<td>● Length</td>
</tr>
<tr>
<td>Development Tool</td>
<td>Documentation of which components of the design might reasonably be crowdsourced via other learning activities in the future.</td>
</tr>
<tr>
<td></td>
<td>● For the scope of this project, these may be explicitly designed to thoroughly prove the main concept.</td>
</tr>
<tr>
<td>Instructional Sequence/Map</td>
<td>A self-guided 5-stage receptive skills lesson flow (Chantal Thompson, n.d.):</td>
</tr>
<tr>
<td></td>
<td>● Activation</td>
</tr>
<tr>
<td></td>
<td>● Global meaning</td>
</tr>
<tr>
<td></td>
<td>● Specific meanings</td>
</tr>
<tr>
<td></td>
<td>● Linguistic (structural) focus</td>
</tr>
<tr>
<td></td>
<td>● Application/integration</td>
</tr>
<tr>
<td>Instructional Sequence/Map</td>
<td>A determination of where in the above sequence is most effective to introduce various metacognitive strategies (Vandergrift et al, 2006):</td>
</tr>
<tr>
<td></td>
<td>● Prediction</td>
</tr>
<tr>
<td></td>
<td>● Monitoring</td>
</tr>
</tbody>
</table>
### Design Chronology

This section details takeaways and changes from my design iterations in chronological order. Each version begins with links to the paper prototype component if applicable, and screenshots are included where relevant.

<table>
<thead>
<tr>
<th>Instructional Content</th>
<th>One or more authentic English media item(s) with accompanying metadata that satisfy the criteria for effective authentic media</th>
</tr>
</thead>
</table>
| Instructional Content | Questions, prompts, and hints that...  
  ● help learners engage in the various phases of receptive skill development  
  ● encourage metacognitive strategy use |
| Learning Controls & Activities | These features will be explored iteratively, with the goal to discover activities that are effective but scalable with minimal custom design. Ideas include:  
  ● Open-ended comprehension questions  
  ● Peer evaluation/feedback  
  ● Comparing responses to anonymized peer responses  
  ● A comprehension journal (Vandergrift & Tafaghodtari, 2010)  
  ● Controls to vary the comprehensibility of the text, e.g.  
    ○ hide some words  
    ○ alter playback speed  
    ○ show transcript  
    ○ focus on an excerpt |
| Platform | Website that lets missionaries access all of the above content, built to be interoperable with the existing Embark application (e.g. mobile-ready).  
  ● The earliest prototypes might include mixed-fidelity implementations, such as onscreen video mixed with paper instructions to facilitate rapid iteration. |
Pre-test iterations of the digital component (Version 0)

**Version 1**
- Paper component, Version 1
- Testing notes, Version 1
• Could use some explanation & background on the video
• Giving them a choice between two different videos might really help them feel more comfortable/bought in
• Some missionaries really liked the video and others really didn’t—don’t assume one-size fits all for interest
• It's possible that even those who felt good about it overestimated their level of comprehension. So far application questions seem not very specific to the person.
  ○ Take it back, E2 had some really specific ones. I'll see if he's an outlier. He had other indications of overconfidence elsewhere.
• Their levels are all over the place, and not necessarily obvious from observing their outward behavior or apparent confidence. E2 was super slouched and quiet the whole time but absolutely rocked it in his answers.
• It seems like those who least wanted to do activities like this again (from survey) were ones for whom it was too hard or too easy.
In reporting what topics came up, more than one missionary brought up topics and words that they use frequently but that didn't occur in the video at all (though they are arguably related). This is really indicative of the need for a linguistic bridge for them to minister to people! Instead of engaging with specific details, they tend to go for sweeping generalizations.

When something is beyond their level, they can tell, and their strategic function tends to flounder. They may say things like "focus more" or "try harder" instead of having a specific handle on ways to improve.

- Male learners in particular seem to lend less credence to an activity if the comprehension is too challenging; I worry that they might give less effort on self-evaluation in these situations. But overall I think there's a good level of effort from most.

- Could ask them to specifically identify non-verbal information or clues (like one learner volunteered)
- Having some background context might help, but a dearth of it is also an interesting instructional affordance to me.
- They don't get what "expected patterns or forms" means
- Asking them to mark the time may have created undue pressure. [one learner indicated when he was "waiting for companion"; evidently he didn't want me to think that he needed all that time himself or something!]
○ It's also a very interesting insight that waiting for your companion can be a challenge
● It's possible that they extend the effort a bit more knowing that I'm the audience for their writings, vs. if it was just a personal activity. Maybe some implications for avoiding "disposable" self-assessment?
● It's helpful to be really specific about whether to respond in English or Spanish
● Again, their levels are a wide range. Several more advanced missionaries felt bothered having to wait for companions at an earlier level.
● They realized that listening matters in a way that may indicate how neglected it is in the current approach

Version 3
Paper component, Version 3
Testing notes, Version 3

Video: Soy mormona, madre de dos hijos autistas y maestra

Transcript:
Vamos a ir a la clase de cocina
Los niños están aprendiendo a hacer galletas.
Ellos, pues, están mis dos hijos que tienen autismo.

Digital component, Version 3

● Transcript is a powerful lever for altering the level.
  ○ Maybe teach them how to self-level the challenge?
● Could make the question about strategies more explicitly about their actions: "What strategies or techniques that I used helped me understand the details?"
Changelog

- Clarified that self-eval is ok in English
- Made all activities Solo except focus on tense & check
- Substituted "timeframe" for "tense"
- Clarified that application questions should be in Spanish
- Adjusted format of predictions to be more like pre-speaking (what/how) & gave example
- Removed redundant "main idea" in favor of "summarize in 2 sentences"
- Enabled controls for first activity (now enabled for all except initial state)

Version 4

Paper component, Version 4
Testing notes, Version 4

Digital Component, Version 4

In the next version, I added a second video option for learners to choose from. This idea originated in the very first test, in response to learners' mixed reactions to the subject matter of the video on. It was also a valuable way to test the premise that the activity prompts I had designed were generic to function equally well with either video. Giving learners this choice added complexity that led to mistakes and bugs in the first all-digital version (Version 6), but in this case the benefits outweighed the costs.
I wonder if I could scale up testing of this prototype—what would that entail?
I could try one where the companion activities do not draw on shared prior experience (might be interesting for different levels).
Could make the whole thing soloable and then let them choose whether to do it separately or together.
Working with & for missionaries is just the best. I'm so spoiled.
It'd be interesting to let them design the experience for themselves, but require them to do it ahead of time, rather than deciding in the moment, e.g. whether to let themselves see the transcript.
It would be interesting to pilot this as a group activity. Maybe followed by a solo activity?
Wonder if there's bias because they can see big gains the first time they focus on listening...?
Spanish production obfuscates measures of their comprehension
Strong theme of learning more vocab in this group (which is probably accurate for their level)
We ought to elicit reflections on metacognition regularly and then sample them often as a way to better understand our audience.
They can understand a lot more with a written transcript (Spanish & English are close enough that reading comprehension is likely much higher).
"However the instructions in the activity is just a little bit confusing for me." (E32, whose native language is Tagalog, but whose English is quite good).
The packet/phone combo is working pretty well—what if the prompts just tell them to write in a notebook?
   ○ Disadvantage is that then we don’t harvest their answers

Ideas
- Use application questions from previous users (handpicked) as an application activity for the new district
- Fix mislabeled number 4-A, 4-B
- Explore how to have them input text on the device.
   ○ Consider Sister’s suggestion about having them record answers.
- Add Can-Do Statement Eval

Changes
- Fix mislabeled number 4-A, 4-B
- Added second video option

Version 5
Paper component, Version 5
Testing notes, Version 5
For this version, I asked learners to respond in their own notebook rather than providing a printed worksheet, in part to explore how they’d use a more open-ended response format. No major changes were made to the digital component.

- Having a variety of difficulty within the activity block seems positive; missionaries at different levels need an opportunity to secure a win.
  ○ "I got all of this one!" from E41, even though much of it was a struggle.
Ideas
● Use application questions from previous users (handpicked) as an application activity for the new district
● Eliminate paper packet and have them use their own journal
● Add Can-Do Statement Eval
● Add a tip about avoiding mental translation

Changes
● Removed blanks for responses—asked them to answer on a separate sheet of paper instead
● Removed advanced repetition of "consider" questions in Activity 2
● Added "Avoid Mental Translation" tip to Activity 5 (timeframes)

Version 6
Testing notes, Version 6
This was the first all-digital version. Considerable effort was required to adapt the functions of the paper component into an all-digital format that could be experienced on a phone-sized screen. Details are most easily understood by experiencing the actual product; representative images are below.

Digital Component, Version 6

Changelog
● All-digital
• Much shorter instructions
• Tips as instructions (kind of)
• Use form labels and placeholders as instructions
• Refactored data structure in content.ts to decouple activity instructions, questions & tips from the content metadata itself—this is part of my DB deliverable!

Version 7
Changes made to this version were focused primarily on enhancing how user interactions and responses were recorded to capture more useful data for evaluation purposes. I also changed the accent color to light blue in response to feedback that the magenta was hard to read.

Assessment Reports and Instruments
Due to the long-term nature of listening comprehension development and the developmental nature of this project’s objectives, it is unlikely that any single iteration of the intervention will produce measurable changes in listening comprehension proficiency. Consequently, assessment focused on developmental, descriptive measures of metacognitive awareness and descriptive evaluation of the accuracy and coherence of open-ended responses. Metacognitive awareness/strategy use for listening comprehension was measured using the MALQ, a validated instrument (Vandergrift et al, 2006). However, it should be noted that in this instance the instrument served a descriptive purpose in characterizing learners’ self-appraisals immediately after experiencing this proof-of-concept intervention, not in measuring a longitudinal delta; to generate a measurable change would likely take many repetitions of similar interventions over
Consequently, each participant completed the MALQ once immediately after experiencing the listening comprehension intervention. In the full-digital version, participation in the MALQ was optional.

**Metacognitive Awareness Listening Questionnaire (MALQ)**

*Vandergrift et al, 2006*

<table>
<thead>
<tr>
<th>Item</th>
<th>Type scale</th>
<th>Polarity</th>
</tr>
</thead>
<tbody>
<tr>
<td>12. I try to get back on track when I lose concentration.</td>
<td>Directed attention</td>
<td>1</td>
</tr>
<tr>
<td>16. When I have difficulty understanding what I hear, I give up and stop listening.</td>
<td>Directed attention</td>
<td>-1</td>
</tr>
<tr>
<td>2. I focus harder on the text when I have trouble understanding.</td>
<td>Directed attention</td>
<td>1</td>
</tr>
<tr>
<td>6. When my mind wanders, I recover my concentration right away.</td>
<td>Directed attention</td>
<td>1</td>
</tr>
<tr>
<td>11. I translate key words as I listen.</td>
<td>Mental translation</td>
<td>-1</td>
</tr>
<tr>
<td>18. I translate word by word, as I listen.</td>
<td>Mental translation</td>
<td>-1</td>
</tr>
<tr>
<td>4. I translate in my head as I listen.</td>
<td>Mental translation</td>
<td>-1</td>
</tr>
<tr>
<td>15. I don’t feel nervous when I listen to French.</td>
<td>Person knowledge</td>
<td>1</td>
</tr>
<tr>
<td>3. I find that listening in French is more difficult than reading, speaking, or writing in French.</td>
<td>Person knowledge</td>
<td>-1</td>
</tr>
<tr>
<td>8. I feel that listening comprehension in French is a challenge for me.</td>
<td>Person knowledge</td>
<td>-1</td>
</tr>
<tr>
<td>1. Before I start to listen, I have a plan in my head for how I am going to listen.</td>
<td>Planning/evaluation</td>
<td>1</td>
</tr>
<tr>
<td>10. Before listening, I think of similar texts that I may have listened to.</td>
<td>Planning/evaluation</td>
<td>1</td>
</tr>
<tr>
<td>14. After listening, I think back to how I listened, and about what I might do differently next time.</td>
<td>Planning/evaluation</td>
<td>1</td>
</tr>
<tr>
<td>17. I use the general idea of the text to help me guess the meaning of the words that I don’t understand.</td>
<td>Planning/evaluation</td>
<td>1</td>
</tr>
<tr>
<td>20. As I listen, I periodically ask myself if I am satisfied with my level of comprehension.</td>
<td>Planning/evaluation</td>
<td>1</td>
</tr>
<tr>
<td>21. I have a goal in mind as I listen.</td>
<td>Planning/evaluation</td>
<td>1</td>
</tr>
<tr>
<td>13. As I listen, I quickly adjust my interpretation if I realize that it is not correct.</td>
<td>Problem solving</td>
<td>1</td>
</tr>
<tr>
<td>19. When I guess the meaning of a word, I think back to everything else that I have heard, to see if my guess makes sense.</td>
<td>Problem solving</td>
<td>1</td>
</tr>
<tr>
<td>5. I use the words I understand to guess the meaning of the words I don’t understand.</td>
<td>Problem solving</td>
<td>1</td>
</tr>
<tr>
<td>7. As I listen, I compare what I understand with what I know about the topic.</td>
<td>Problem solving</td>
<td>1</td>
</tr>
<tr>
<td>9. I use my experience and knowledge to help me understand.</td>
<td>Problem solving</td>
<td>1</td>
</tr>
</tbody>
</table>
I clustered MALQ responses by version and plotted the distribution of responses to search for associated changes. (Note that because the experience is live online, many more participants have responded to the final version since my analysis). Although MALQ responses did not appear to change significantly over the course of the design iterations, they did yield interesting insights about the learners who participated. Of particular note is that the "person knowledge" category was considerably more diffuse than other categories of metacognition on the instrument; in other words, this is an area in which learners are more likely to rate themselves differently from their peers. Consistent with the literature on the MALQ, participants scored themselves lower on average on the "mental translation" subscale, presumably because they perceive it as a valuable ability rather than an suboptimal mental process to be overcome (see Vandergrift, Goh, Mareschal & Tafaghodtari, 2006).

In many respects, a qualitative evaluation of learners' responses proved to be the most helpful assessment mechanism, allowing me to search for evidence of both comprehension and effective metacognition. A brief treatment of this topic can be found in the Design Evolution section of the main report; more details are available in my notes from testing each version.

**Implementation Instruments**

**Invitation Emails for Fully-Online Experience**

**First Round (April 17, 2020)**

Subject: You’re invited to test-drive a Spanish listening resource

Body:
Queridos misioneros,

We’re developing a new resource to help missionaries develop listening comprehension skills in Spanish. As some of the first Spanish missionaries ever to experience online MTC training, you are invited to help us test the first all-digital prototype!

If you’d like to help, simply plan 45-60 minutes in the next few days to complete the activities at the website below during your language study hour. Participation is appreciated but totally optional.

https://tall.global/welcome/listening-comprehension/

If you’re feeling extra gregarious, I’d also love to observe how it goes for you! If you email me your planned language study time, I will do my best to join you via Zoom.

¡Gracias, pioneros!

Brother Zane Harker
Language Apps Team
Missionary Training Center
Final Template (Starting May 8, 2020)
Subject: You're invited to test-drive a Spanish listening resource
Body:
Élderes y hermanas,

Congratulations on reaching the final week of your MTC training! 🎉

You’re invited to help us improve a new resource that focuses on **listening comprehension in Spanish**.

Simply complete the activities at the link below during your language study time, then complete the survey. You can also email me with questions or comments.

This is an optional activity but your help is very appreciated!

**Try the Spanish Listening Beta:**
[https://tall.global/welcome/listening-comprehension/](https://tall.global/welcome/listening-comprehension/)

¡Gracias!

Brother Zane Harker  
Language Apps Team  
Missionary Training Center

---

**Evaluation Instruments**

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Role</th>
<th>Key values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jennifer Dobberfuhl-Quinlan</td>
<td>Language Curriculum Manager</td>
<td>Is this type of intervention promising for developing listening comprehension skill? Metacognitive listening strategies? Self-efficacy?</td>
</tr>
<tr>
<td>David Macfarlane</td>
<td>Product Manager, Missionary Language Learning</td>
<td>Is this type of intervention promising as a scalable, proficiency-oriented approach?</td>
</tr>
<tr>
<td>Kelly Mills</td>
<td>Administrative Director, Missionary Training Centers</td>
<td></td>
</tr>
<tr>
<td>Guinivere Deaver</td>
<td>Curriculum Manager, MTC Language Training</td>
<td>Do missionaries find the intervention useful? Usable? How about teachers?</td>
</tr>
<tr>
<td>Shaun Nelson</td>
<td>Training Manager, ESL</td>
<td>How did this intervention affect ESL missionaries?</td>
</tr>
<tr>
<td>Catelyn Sanders*</td>
<td>Training Supervisor, ESL</td>
<td></td>
</tr>
</tbody>
</table>
On the recommendation of my graduate committee, I pivoted to focus the product on Spanish learners, so Catelyn was replaced with Ashley Southard, a counterpart who supervises Spanish training.

**Evaluation Mechanisms (Listed in Project Proposal)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metacognitive Awareness Listening Questionnaire (MALQ)</td>
<td>21-item validated instrument described in Vandergrift et al, 2006.</td>
</tr>
</tbody>
</table>
| Feedback survey for missionaries    | 1. Likert: "After this activity, I feel more confident in my English listening ability."  
2. Likert: "I would like to do more activities like this."  
3. Open-ended: "Any comments about the activity?" |
| Feedback survey for pilot teachers* | 1. Likert: "I feel this helped my missionaries."  
2. Open-ended: "Anything you'd change about the activity?" |
| Observation data                   | 1. Assistant notes focused on usability pain points, questions/concerns raised, and salient moments in the learning experience.  
2. (Potentially) Recorded video of screens or the lab environment.** |

Feedback surveys from pilot teachers were not implemented, because teachers were not available to be present during testing and therefore had insufficient context to provide meaningful responses.

**Video recordings were not implemented as part of testing. Direct observations, user comments and responses, and recorded click behavior proved to be adequate data sources for evaluation purposes.

**Analysis and Reporting**

As the objective of this project was to develop a persuasive proof-of-concept, evaluation was primarily developmental in nature. I synthesized findings from each test into takeaways and design adjustments to be implemented in the next iteration of the intervention. Interim reports summarizing these findings were made available to Spanish training supervisors and other interested stakeholders. This final report details the trajectory of the iterations (see Design Evolution), along with a summarized rationale for their developmental evolution, concluding with a recommendation that the proof-of-concept seems promising enough to warrant further
development. Of particular interest were responses to two evaluation questions posed to learners, "I would like to do more activities like this" and "After completing this listening activity, I feel more confident in my ability to listen in Spanish." Although the learner audience was slightly different in the full-remote (recently departed missionaries vs. in-training missionaries), modest improvements seemed evident. By clustering response distributions by design version, I concluded that the experience may have improved over the course of its development in terms of its perceived usefulness and perceived impact on learners' confidence. However, it's important to note that these data lack sufficient controls (large sample size, randomized trials) to make a definitive conclusion.

After completing this listening activity, I feel more confident in my ability to listen in Spanish.
Delivered Reports
This section details reports that were sent to stakeholders at various points in the development process.

Interim Report 1

Interim Report 2

Notes from stakeholder report meeting July 21, 2020

Presentation

Tim Zeidner: Where would you find room for listening in the current curriculum?

Shaun Nelson: Displace some grammar instruction?

Ashley Southard: I agree; we could interleave skills with grammar.

Jennifer Dobberfuhl-Quinlan: Using Toolbox for listening in Canvas 2.0; could be a good way to normalize that. This is a point-in-time assessment; it doesn't need to align with objectives, it's just a check-in for the learner.

Ken Packer: Opportunities in field, to reflect like Shaun was saying.

Jennifer: It's a listening LSA [Language Self-Assessment], but with a specific component of metacognition

Tim: Do we have any metacognition currently?
Jennifer: Maybe pre-speaking – how well will I do? how well did I do?

Shaun: LSA is kind of like that, too.

Tim: Idea of adding more metacognition to existing activities could help.

Jennifer: A lot more pre- and post- [something]; easy to feel accomplishment

Ken: Have you tried with other languages?

Shaun: Exercise pre-mtc tutoring appointment?

Jennifer: It matters; we won't draw any conclusions, but leads to attention & noticing. Not reliable, but what's the impact of it on affect, motivation, agentive learning.

Ken: Crack the code on crowdsourcing!

// TODO Invite Shaun & Ashley to discuss how to keep using this Listening Test

**Final stakeholder evaluation**

I requested that final report attendees optionally evaluate my efforts using [this form](#). Responses can be found [here](#).

**Budget and Timeline**

**Budget**

Following is a projected budget for the project. Please note most expenses attributable to Zane did not represent actual expenses incurred by the MTC.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Expense</th>
<th>Actual</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designer/developer (Zane)</td>
<td>270 hours</td>
<td>$16,000</td>
<td>$16,000</td>
<td>I did not record elapsed time working on this, but the vast majority of work occurred after hours, in addition to normal work assignments. The impact on ongoing projects and operations was minimal.</td>
</tr>
<tr>
<td>Assistant for implementation/</td>
<td>2 hrs x 20 weeks = 40</td>
<td>$600</td>
<td>$0</td>
<td>I didn't end up needing an assistant, as I was able to conduct test observations sufficiently on my own.</td>
</tr>
<tr>
<td>data gathering</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coordination with stakeholders</td>
<td>Meetings, email, etc.</td>
<td>$1000</td>
<td>$1600</td>
<td>One of my stakeholders and one of my employees joined the first test in person to learn more about the project and</td>
</tr>
</tbody>
</table>
An engineering colleague helped me with implementation of a data collection mechanism for the full digital version. Although these expenses were unexpected, communication with other stakeholders still required relatively little time.

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Proposed timeline</th>
<th>Actual timeline</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Define problem statement</td>
<td>May 2019</td>
<td>May 2019</td>
<td>These milestones were completed prior to the prospectus.</td>
</tr>
<tr>
<td>Negotiate scope of work with David, Jennifer, Zane’s committee</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Literature review</td>
<td>June - Sep 2019</td>
<td>June - Sep 2019</td>
<td></td>
</tr>
<tr>
<td>Learner analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refine learner analysis</td>
<td>Oct - Dec 2019</td>
<td>Oct - Dec 2019</td>
<td></td>
</tr>
<tr>
<td>Implementation &amp; evaluation plans</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finalize &amp; defend prospectus</td>
<td></td>
<td>Dec 2019</td>
<td></td>
</tr>
<tr>
<td>Identify first authentic passage</td>
<td>Dec 2019</td>
<td>Jan 2020</td>
<td>I think I overestimated what I’d be able to accomplish in the second half of December, which led to a small delay.</td>
</tr>
<tr>
<td>Fully develop first version of the Instructional Sequence Map</td>
<td></td>
<td>Jan - Feb 2020</td>
<td></td>
</tr>
<tr>
<td>Task Description</td>
<td>Start Date</td>
<td>End Date</td>
<td>Notes</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------</td>
<td>----------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Design first iteration (Most elements are likely to be pen &amp; paper)</td>
<td></td>
<td></td>
<td>Jan 2020</td>
</tr>
<tr>
<td>Coordinate implementation logistics in ESL curriculum.</td>
<td></td>
<td>Jan 2020</td>
<td>First test happened in the first week of February, just a little later than desired.</td>
</tr>
<tr>
<td>Implement first iteration with an ESL district</td>
<td>Jan 2020</td>
<td>Feb 2020</td>
<td>I was able to execute the first 3 iterations three weeks in a row, which helped mitigate initial delays.</td>
</tr>
<tr>
<td>Evaluate, adjust, develop &amp; implement 1-2 successive iterations (Develop additional components)</td>
<td>Feb 2020</td>
<td></td>
<td>I elected not to transition to digital components for the next two iterations, which happened in the first half of March.</td>
</tr>
<tr>
<td>Evaluate, adjust, develop &amp; implement 2-3 successive iterations (All components are digital if possible.)</td>
<td>Feb 2020</td>
<td>Mar 2020</td>
<td>This deliverable was ultimately not necessary for the purposes of testing/evaluating the intervention with missionaries, so I delayed focusing on it.</td>
</tr>
<tr>
<td>Finalize media metadata database design.</td>
<td></td>
<td>June 2020</td>
<td>In mid-March, COVID-19 mitigation measures drastically altered affairs for the MTC. Given the need to facilitate emergency remote instruction, I dropped focus on this project for a time, which led to additional delays.</td>
</tr>
<tr>
<td>Seek to stabilize the intervention (Smaller adjustments focused on usability, clarity, etc.)</td>
<td>May - June 2020</td>
<td></td>
<td>In mid-March, COVID-19 mitigation measures drastically altered affairs for the MTC. Given the need to facilitate emergency remote instruction, I dropped focus on this project for a time, which led to additional delays.</td>
</tr>
</tbody>
</table>
## Project Deliverables

*Deliverables listed in project proposal*

### Data structure

**Proposal**

Database structure for modeling metadata attached to an authentic text, including:

- Media type

### Sythesize criteria for selecting authentic media

<table>
<thead>
<tr>
<th>Start</th>
<th>End</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 2020; Oct 2020</td>
<td></td>
<td>I took some notes on these questions early on, but didn't gain as much insight into useful criteria for selecting media as I expected initially. Some helpful feedback came from learner comments and experiences; I ultimately summarized my learnings at the very end of the project in October.</td>
</tr>
</tbody>
</table>

### Begin documenting crowd-sourceability

<table>
<thead>
<tr>
<th>Start</th>
<th>End</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar 2020</td>
<td>July 2020</td>
<td>Delays on these processes are attributable to COVID-induced delays and a learning curve in engaging a fully remote audience for testing.</td>
</tr>
</tbody>
</table>

### Synthesize evaluation findings

<table>
<thead>
<tr>
<th>Start</th>
<th>End</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete analysis of crowd-sourceability</td>
<td>Oct 2020</td>
<td>As noted above, testing and evaluation yielded relatively little insight on this secondary objective; ultimately, I concluded that crowdsourcing useful prompts would take so much effort that it would jeopardize the main objective of the project, so I dropped that pursuit.</td>
</tr>
</tbody>
</table>

### Communicate findings with stakeholders

<table>
<thead>
<tr>
<th>Start</th>
<th>End</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draft project report</td>
<td>Jun - Oct 2020</td>
<td>Most of the delays from this point on are attributable to my personal challenges and shortcomings.</td>
</tr>
</tbody>
</table>

### Complete analysis of crowd-sourceability

<table>
<thead>
<tr>
<th>Start</th>
<th>End</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal project defense</td>
<td>April 2020 to Nov 2020</td>
<td></td>
</tr>
</tbody>
</table>
Deliverables
Ultimately, the metadata I envisioned in my proposal was focused on bringing order to a collection of resources if the intervention were brought to the scale of supporting 60 languages or more. However, these data were not critical to testing the core premise of the intervention, and other useful data about the media examples emerged instead. Following is the final structure of the content data I used for the project:

```json
[
  {
    title: 'Video: Soy mormona, madre de dos hijos autistas y maestra',
    source: './assets/michelle_y_paola_tiny.mp4',
    poster: './assets/michelle_y_paola_poster_img.jpg',
    clips: {
      '1': {start: 0, end: 24},
      '2': { start: 0, end: 166 },
      '3': { start: 56.5, end: 65.25 },
      '4': {
        start: 56.5,
        end: 65.25,
        transcript: [
          {
            text: 'Mi mamá es la directora. Mi esposo maneja el bus.',
            start: 56.5,
            end: 60
          },
          {
            text: 'Mi hermana es la encargada del área de español',
            start: 60,
            end: 63
          },
          {
            text: 'y yo soy la encargada del área de inglés.',
            start: 63,
            end: 65.25
          }
        ]
      }
    }
  }...
]
```

If the intervention were brought to scale, it would be important to account for some of the higher-level features I identified in the proposal, such as level, topics, and structural features. As part of a broader initiative to align resources to leveled objectives, I did explore modeling these
objectives with a few colleagues, with the idea that resources could then be linked to them. For work purposes this was conceived as a separate project, but I include a sample here to illustrate the thinking that accompanied this project in parallel.

```json
{
    id: 555555,
    statement: 'I can ask questions about a person's belief in deity.',
    locale: {code: 'fr_FR', name: 'French'},
    level: 'Intermediate',
    mode: 'INTERPERSONAL',
    verified: true,
    functions: ['Ask and answer simple questions'],
    accuracy: ['Understood by sympathetic listeners'],
    contentAndContext: ['Preferences', 'Religion', 'Daily Life', 'Belief'],
    culturalCompetencies: [
        'Use pronouns for emphasis rather than prosody.',
        'When is it appropriate to ask about someone\'s religion?'
    ],
    textType: ['Strings of sentences'],
    structures: ['Inversion questions', 'Qu\'est-ce que __'],
    resources: [
        {
            title: 'Ultimate Review—5. Asking Questions',
            type: 'TEXTBOOK'
        },
        {
            title: 'Asking Questions',
            type: 'VIDEO'
        },
        {
            title: 'Embark—Asking Questions',
            type: 'INTERACTIVE'
        },
        {
            title: 'Croyez-vous en Dieu ?',
            type: 'VIDEO'
        }
    ]
}
```

**Criteria for Media**

Proposal

Documentation of criteria used to select authentic texts according to [Chantal Thompson's (n.d.) guidelines](#), including:

- Linguistic functions
- Degree of interest to learners
- Authenticity
- Linguistic level
- Degree of cultural knowledge required
- Appropriateness for missionary audience
- Reliability of access
- Length

### Deliverables

<table>
<thead>
<tr>
<th>Feature</th>
<th>Criteria</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Linguistic functions</strong></td>
<td>See Linguistic Level.</td>
<td>The scope of the project did not dive into targeting specific functions within a level, other than requiring examples where learners could identify the tense of a passage.</td>
</tr>
<tr>
<td><strong>Degree of interest to learners</strong></td>
<td>Provide a variety of media options if possible.</td>
<td>I did receive feedback from a few learners that found my initial media selection less than engaging (one participant called it a &quot;weird video&quot;). Adding just one additional option to choose from seemed to mitigate this concern with my audience. A variety of speakers, including speakers of different genders, as well as different topics may be more effective than trying to choose a single resource that will appeal to all learners.</td>
</tr>
<tr>
<td><strong>Authenticity</strong></td>
<td>I adopted the common heuristic, &quot;for native speakers by native speakers.&quot;</td>
<td>I was not concerned that the passages I chose were produced and edited, as they were designed with a native audience in mind and contained spontaneous, naturally inflected conversational speech.</td>
</tr>
</tbody>
</table>
| **Linguistic level**     | An Advanced ceiling with some Intermediate passages is ideal for this application. | Virtually all authentic native speech contains Advanced functions. It's helpful is some passages consist mainly of Intermediate functions, which gives less skilled learners some opportunity to succeed at comprehension and build confidence, without sacrificing the challenge of dealing with authentic speech. I will not that the typical format of "I'm a Mormon" ads is ideal for this purpose, because they typically start and end with simple statements to acquaint
with the audience with the speaker(s), with more complex and nuanced language (often in the past tense) providing the emotional interest of their story.

| Degree of cultural knowledge required | Leverage applicability to the missionary purpose and Gospel concepts where possible. | By choosing passages from the "Soy Mormón" ad campaign, missionaries could bring certain expectations to bear regarding the content and context of the speech. Although many cultural differences exist in the discussion of religious faith, a shared system of beliefs and practices gives missionaries an instant connection to the speakers in these videos. |
| Appropriate for missionary audience | Family friendly content; Avoid emphasis on romantic love. | The goal is simply to avoid distracting missionaries or exposing them to morally objectionable content. |
| Reliability of access | Must be self-hostable. | For the purpose of this project, I hosted a highly compressed version of the media to facilitate an integrated experience. This gives the experience provider direct control over ensuring the availability of the resource, rather than relying on a third party who may remove the resource in the future. |
| Length | 2-4 minutes is ideal for this application. | Because the intervention includes listening to the entire passage for holistic meaning, exceeding 4 minutes would likely overtax learners' attention and stamina. |
| Compression guidelines | About 10MB. 640 pixel width. CRF 28. Use widely supported encoding profiles. | I found that a constant rate factor (CRF) of 28 with a 640 pixel video width yielded videos with tolerable quality on the phone-sized screens my learners were using. It's also important to optimize media for streaming playback and choose an encoding profile that supports playback on all necessary devices. |
| Background music | Avoid if possible. | Background music can serve as a context clue, but can also be very |
Crowdsourcability Documentation

**Proposal**

Documentation of which components of the design might reasonably be crowdsourced via other learning activities in the future. For the scope of this project, these may be explicitly designed to thoroughly prove the main concept.

**Deliverable**

I explored having learners create listening comprehension prompts for their companions in Version 1, but abandoned that tack in the face of consistent feedback that the exercise did not seem valuable. Based on the experience of developing and evaluating this intervention, I offer the following summary regarding crowdsourcing:

<table>
<thead>
<tr>
<th>Component</th>
<th>Crowdsourcable?</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authentic media video</td>
<td>• Recommend</td>
<td>More advanced learners could recommend an existing video resource that they have access to as a candidate for inclusion in this scaffolded intervention. Missionaries could also indicate which video they prefer most for this purpose, either by simply choosing it, or by liking or upvoting it explicitly.</td>
</tr>
<tr>
<td></td>
<td>• Like/upvote</td>
<td></td>
</tr>
<tr>
<td></td>
<td>*Requires expert review</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video transcript</td>
<td>• Advanced learners only</td>
<td>Advanced learners could conceivably transcribe videos of this type with 90% or greater accuracy as a learning activity, which could speed along development.</td>
</tr>
<tr>
<td></td>
<td>*Requires expert review or large-sample statistical analysis.</td>
<td></td>
</tr>
<tr>
<td>Comprehension questions</td>
<td>• Requires considerable</td>
<td>While learners could</td>
</tr>
</tbody>
</table>
Instructional Sequence/Map
The following parameters guided the design of the instructional sequence. The evolution of this sequence can be seen in the Scope & Sequence Versions.

Receptive skills development
A self-guided 5-stage receptive skills lesson flow (Chantal Thompson, n.d.):

- Activation
- Global meaning
- Specific meanings
- Linguistic (structural) focus
- Application/integration
Integrating Metacognitive Strategies
A determination of where in the above sequence is most effective to introduce various metacognitive strategies (Vandergrift et al, 2006):
- Prediction
- Monitoring
- Evaluation
- Problem-solving
- Avoiding mental translation

Instructional Content
Proposal
One or more authentic English media item(s) with accompanying metadata that satisfy the criteria for effective authentic media.

Deliverable
I identified two Spanish videos, which can be viewed in the Actual Product.

Instructional Content
Proposal
Questions, prompts, and hints that help learners engage in the various phases of receptive skill development and encourage metacognitive strategy use.

Deliverable
The questions and prompts can be viewed in the Scope & Sequence Versions and the Actual Product.

Learning Controls & Activities
Proposal
These features will be explored iteratively, with the goal to discover activities that are effective but scalable with minimal custom design. Ideas include:
- Open-ended comprehension questions
- Peer evaluation/feedback
- Comparing responses to anonymized peer responses
- A comprehension journal (Vandergrift & Tafaghodtari, 2010)
- Controls to vary the comprehensibility of the text, e.g.
  - hide some words
  - alter playback speed
  - show transcript
  - focus on an excerpt

Deliverables
I implemented playback speed controls controls and interactive transcripts that could be used to play back the passage line-by-line for certain excerpts. Open-ended comprehension questions were also beneficial. I did not explore peer evaluation and feedback beyond the attempt to have
them write comprehension prompts for each other and having them check understanding and reflect together; this was impracticable in the remote digital version.

**Platform**  
*Proposal*  
Website that lets missionaries access all of the above content, built to be interoperable with the existing Embark application (e.g. mobile-ready).  
- The earliest prototypes might include mixed-fidelity implementations, such as onscreen video mixed with paper instructions to facilitate rapid iteration.

**Deliverable**  
This was delivered as the Actual Product.

**Can-do checklist assessment questions**  
This deliverable was not included in my proposal. At one point stakeholders suggested that I incorporate a checklist of can-do statements similar and existing MTC self-assessment but applied specifically to listening skills. In consultation with Kyle Martin and Ken Adams, I began to study functions from ACTFL listening proficiency level descriptors with the intent to make them more specific/concrete (see Can-Dos Draft 1). However, this represented a substantial psychometrics problem that was beyond the initial scope of the project, so I elected not to pursue that line further in the course of development.

**Name Recommendation**  
I recommend naming this product the LASER (Listening Awareness Self-Evaluation Resource), because everyone loves a good backronym.

**Notes from Testing**

**2/4 Test 1 (n=10)**  
Missionaries in Week 5. It went really well overall. I'll try to summarize takeaways and learnings here:

**Observation notes**  
- Technical  
  - Need to whitelist tall.global domain so missionaries can get to it from their phones (had to serve it locally, which fortunately worked)  
  - Bug in Activity 7 that prevents them from seeking freely  
  - Eventually, I'll need a way to store responses and associate them with a user name, id, etc.  
    - I might want to use firebase or firestore for this
• UX
  • one sister didn’t realize she could vary the playback speed
  • several mentioned not realizing for a while that they could control video playback on the video.
  • unclear whether to start with 1 (paper only), or 2 (first activity on the digital screen)
  • For form-focus, it’d be nice to be able to play just the segment under analysis easily.
  •

• Instructional design
  • Unclear whether they should write answers in Spanish or English
  • // Objective may not be clear—to improve listening ability
  • Tense activity was unclear
    ■  Do I want the tense at the moment, or the 15 second range beginning at that time?
    ■  Jennifer: Just pick one subclip for them to do this with
  •

• Timing
• Measurement
  • //I should also measure how much the playback speed feature gets used
  • Have them jot down the time when they begin each activity
  • Consider getting feedback on the difficulty of the clip—did it fit their level?
• Behavior
  • E1 seems to have moved on from #7 before his companion. Maybe he’s just waiting or relying on him to complete it. Seems bored/jumpy, tapping fingers
  • I observed 2 sisters who would erase & revise their answers (writing in pencil)
• Comments overheard
  • “With music it was so hard [to understand]”
  • “I listened to it twice, I still didn’t understand it” (E1)
  • “It is so quiet [referring to the classroom]” (Sister Aa)
  ▪  they were very quiet at the start, some companions whispered their first companion activity, presumably to avoid disrupting each other.
  • “I cannot hear what she’s saying”
  • “I’m confused because right at 43 it’s imperfect, before the 45” [referring to #7 tense activity] (S1)
  • “[inhales] I got it!” (Sis Aa)
  • “...necesita voluntarios en su escuela” [during roleplay] (S5)

Activity Responses & Comments
• Interface
  • E1: "Confused to what the grey part is. Not incredibly visually appealing."
1: Solo Predictions

- Expected patterns or forms
  - E2: "No se que quiere que haga aquí"
  - S2: "?"

2: Solo Listen for General Meaning

- Notes
  - E3 answered this one in English
- COMMENTS
  - S1: "Can I listen to it more than once?"
  - S3: [notes written in margin] "-guatemala - love & serve -hermanas"
- Main idea?
  - "Uh.. since my Spanish isn’t perfect I have no clue, except autism" (E1) //it was too hard for him
- How do speakers feel?
  - "Based on the music, it seemed happy, based on the tone of voice at times, difficult?" (E1) //this is good!
- Summarize in 1-2 phrases
- How did you do at staying focused?
  - E1: "Not. I was kinda laughing at putting the video at .5x speed and still tryna figure out what was happening.
  - S1: "Muy bien porque la video era muy entertaining & made me smiling"
  - E2: "Fue fácil para mi, y yo podía enfocarme durante todo del video, pero la música fue un poco fuerte. Sería más fácil para enfocarme si la musica no fue tan fuerte."
  - S2: "At a scale of 1 to 10, I would say 8, because there were some points that kind of confused me at first but I was able to pick up some hints."
  - S4: "The video was really interesting and fun to watch so I did not have a hard time paying attention :)
  - S5: "Mas o menos. Trataba escribir mientras escuchaba."
  - S6: "bien, I focused on translating + listening to what she was saying."
  - S3: "En la beginning it was difficult to catch everything she was saying, but I focused and caught on."
  - E3: "I did well, although it was hard to understand with the music playing in the background."
  - E4: "Not that well. Music was distracting."

3: Companion Compare Notes

- E1: "We agreed on how confusing it was, the purpose, but it was cute?"
- S4: "Is this supposed to be a discussion? Or should we write anything down?"
S6: "Are we supposed to write an answer here?"

E3: "We thought the music was a little distracting. We do agree"

Can you fill in any gaps in your understanding?
- E2 "No, porque no las tuvimos"
  // a bit overconfident, or doesn’t understand what I mean

After discussing, listen to the passage together again. Can you fill in any gaps in your understanding?
- E3: "Listening to it again I understood a little more of the Spanish."

4: Solo write a Comprehension Question
- "Maybe this is used to try to bring companionships together? I wouldn’t use this if that were the case. Listening to a weird video, let alone multiple times, when we don’t understand might not feel like a great use of time. (This is just my observation)." (E1)

6: Companion Check Answers & Evaluate
- S6: "Only discuss or write down our thoughts as well?"
- How helpful was your assigned comprehension question? How could it have been better?
  - E1: "Yes. I got who drove the bus correct. Was it necessary? Both of us are still lost on the point of the activity. (Were still happy to help though.)"
  - E2: "No era muy útil, en mi opinión. No había muchas preguntas que pudiera haber escrito de la parte que tuve."
  - S4: "The question she asked was good because it helped me focus on the meaning of the whole clip."
    - Question was: "
  - S5: "It was great, and I had to listen to the video multiple times to understand and get the answer."
  - S3: "I think it cleared up a part I was confused about the first time, because I didn’t distinguish which sister taught each subject the other times I watched it. I liked the way it was formatted, and if it was a longer/more confusing video it would be helpful to answer more."
  - E3: "It was useful but could have been a little longer to pose a better more detailed question"
  - E4: "Mine was not very helpful. It was simply too easy. But I did ask for something specific. I could have made it a bit more difficult."

Would you change anything about how you listened?
- E2: "No sé que significa esta pregunta."
- S5: "No, it just took me a couple of times. I definitely could’ve answered very quickly with a transcript"
- S3: "Nope, I thought it was good."
- E3: "No I would dont, except for listening to it multiple times."
- E4: "I would not change anything. I think I did a good job."

**7: Companion Focus on Tense**

- **E1**
  - [Underlines "past, present, or future" in instructions] "Woah. Thats hard."
  - "No way of seeing the time"
  - "Visually unappealing"
  - "I feel like this could be an exam at the end of the learning in the MTC. Past, present, and future tense are 1) difficult 2) hard to differentiate between when you first start, + 3) no one wants to dissect this video again haha :)"
  - "There is no way to pause or rewind. You have to start the vid. over. Theres no way to see the time either. IDK where im at. 0.75x is terrifying."
  - "(Oh. I went to (2) and couldn't move)"

- **S1**
  - [underlines "main tense"] "It was helpful to slow down"
  - [line pointing to 1:30] "I felt this was a little hard because it seemed that tenses changes right as time sections switched"

- **S2**
  - //just wanted to point this out. She wrote "cuando ___ niñas", which is great, because she’s inferring that it’s past even though she couldn’t explicitly decode the form "éramos".
  - **S4**: "in some little sections there are multiple tenses being used so its confusing to know which one is the "main" tense. At the beginning it might use past & later it will use present in the same clip."

- **S6**
  - "0:15 no sé?"
  - "0:45 verbs ending in imperfect (aba) - ? hard"
  - [brackets 1:15 & 1:30] "unclear distinction -> in some its both right in the middle of a sentence"

- **S3**: [arrow to line between 0:45 and 1:00] "when I got to this point my video kept jumping back to 56 seconds"
  - //her tense analysis is quite detailed and seems impressively accurate (though not perfect).

**8:**

- E1 wrote answers in English and began with the disclaimer "(Probably been explained)"

**9: Comp Application Roleplay**

- **S1**: "This part was difficult and not as helpful I feel because my companion resorted to english & then it was hard to practice spanish back & forth because she wasn’t listening to my dialogue."
How did I do at listening in Spanish today?

- E1: "Very bad I felt lost + it gave anxiety haha. Maybe if they were talking specifically to me I could’ve done better"
- S1: "I feel I did ok but still have lots to go. I understand what I could but there was a lot of vocab I didn’t know yet"
- E2: "Pienso que hice bien, no fue difícil para enfocarme y podía comprender más del video."
- S2: "I think better than I would’ve done done in a high school class. It takes a while to fully understand the language and phrases, but it was good practice."
- S4: "Pretty well. I understood the overall message pretty clearly, but there were a few sentences that I didn’t understand specifically"
- S5: "Pretty will, though I wish I was better at comprehending what I’m hearing when I don’t have a script."
- S6: "good, hard to focus on her main message when I got stuck translating the first parts"
- S3: "Muy bien! Normalmente, escuchando a los videos esta muy difícil pero, hoy esta fácil"
- E3: "I did well, there were still some words I didn’t understand."
- E4: "I did well! It took me 1 or 2 runs to really try and understand what was going on but when I focused I figured it out."

What would I like to change about how I listen going forward?

- E1: "Just practice"
- S1: "Focused listening, don’t get distracted"
- E2: "Todavía no comprendo que significa esta pregunta. No puedo cambiar como escucho español."
- S2: "Listen more intently and deciphering phrases and sentences. Stay more focused toward the main idea."
- S4: "I want to be able to understand specific details, not just rely on overarching themes. I need to ask follow up questions when people talk to me."
- S5: "Just staying focused and listening more to native speakers and understand."
- S6: "the going sentence by sentence was helpful to really understand what she was talking about"
- S3: "Necesito a ser tranquila y preguntar sobre no me entiendo."
- E3: "I would like not to have background music."
- E4: "I should escribo notas. Por ejemplo, cuando oido verbos en diferente tiempos, debo escribir los verbos."

What’s the most important thing I learned today?

- E1: "Honestly I have no clue."
● S1: "I learned how to listen for specific things (ie past present, future) which helped me understand better"
● E2: "No siento que he aprendido nada de esta examen."
● S2: "How to understand & listen to a person who wants to share. How to empathize and relate to that person."
● S4: "I have a lot of progress to make in regards to understand little details, but I also learned that I can comprehend more than I thought :)"
● S5: "I need to practice understanding Spanish that isn't being told to me in simple, easy to understand terms like in the class."
● S6: "to focus on the overall message, listening, but also by asking follow up questions, we can understand more"
● S3: "como escuchar por tenses."
● E3: "People with special needs are being helped all around the world."
● E4: "Patience and being a good listener really can help me. I do not have to be perfect but I need to do my best"

○ 12:
  ■ E1 "This may be effective as an exam, but to learn Spanish this way would be difficult."
  ■ S5: "* I liked trying to comprehend by only listening to a native speaker, and I wish we could do that more in class."
  ■ S3
    ● "There was a video glitch in exercise 7"
    ● "I liked the format of the questions"
    ● "It was easy to follow and understand"
    ● "I enjoyed working with my companion"
  ■ E4: "I think it went well. The music made it hard sometimes but forced me to listen and actually ended up helping me to understand."

Informal group debrief

● "0.75 was good, 0.5 was too slow"
● Afterwards in the hall, E2 suggested that we should provide videos with many different accents, because they’re so different. He specifically mentioned the DR, because it’s so different. When I asked where they were serving, he said NJ, so they’re going to meet people from everywhere.
● Bret’s notes
  ○ Wish we had more practice like this, and I’m like "I wish your teachers would encourage you to use the features in Embark"
  ○ They want to know Panamá Spanish, I wonder if we do need to invest in different accents
  ○ Good to ask them individually what they feel about the level
But they pointed out that they don’t know what the right level is—how much am I supposed to be understanding?

"**Could we harvest TRC sessions that are targeting listening for this purpose?"

Stakeholder feedback

- Shaun (Training Manager)
  - Like that it gets from comprehension to application
    - I would have loved to have seen more interaction during this part
    - It was very quiet
    - Atmosphere in general didn’t lend itself to a lot of conversation or practice
    - IDK what we could do to leverage that opportunity, make it a good conversation or good opportunity.
    - More engagement between the two, might foster drive to continue
  - //tell me more
    - One comp said just one sentence each, I think they didn’t want to interrupt each other

- Jennifer (Curriculum Manager)
  - Check out oli.cmu.edu: scaffolded open ed resources for listening
  - Application is pointed at a different objective
  - Use one small clip for #7 (tense)
  - [For modularity], don’t make it a whole lesson
    - flexibility to apply multiple ways
  - This could function as a listening self-assessment
    - Strong need/appetite for that right now in the organization
    - Can be implemented with greater certainty as a required assessment
    - Have them rate themselves on related can-do statements afterwards
    - Have them write/respond in L1 for assessment purposes
  - //Listening is an untapped opportunity to connect language to their purpose
  - Pick Kyle’s brain on can-dos. Brainstorm:
    - I can
      - make predictions based on what I hear
      - understand the general meaning
      - understand the tense
      - listen to a passage and summarize the passage
  - Change the info gap (4, 5) activity into "now write it out in your own words"
  - Have them write
    - Listen for general meaning, write out general meaning, compare notes with companion
    - Listen for specifics, write as much as you can in your own words, compare notes with companion
• Bret
  o They all have headphones, then saw checklist from ahead of time
    ■ Should they always bring headphones everywhere?
  o Very quiet in the classroom [toward the beginning]
    ■ Felt a little too quiet to me
    ■ Then it changed later on
  o Confused by the numbering system on the computer
    ■ Why doesn’t it start with #1?
    ■ [Didn't have the packet initially]
  o When you slow down with the speed control, it goes from 1 to ½ to ¾
    ■ Jackson and I agree that it should go 1 > ¾ > ½
      ● "Just take one ibuprofen, if that's enough, don't take the second"
    ■ ½ tends to get a lot more distorted
  o [I don’t think this question makes sense now unless you plan to change your materials. Do you plan to have any content-specific comprehension questions?]
    ■ If you do, make sure that they can’t be answered well without understanding the language
      ● Test with those who haven’t seen the video
  o In some videos no controls. What was the rationale for that?
    ■ Didn’t like that I couldn’t tell the length.
    ■ If you don’t have control as a learner, you can feel anxious.
      ● If you don't show controls, at least show how long it is
    ■ Being able to pause is important
  o Very engaged, wasn’t sure if that was partly because there were so many observers
  o Not much interaction at first, very quiet
  o Looked like the question that they wrote down was in Spanish, wondered if the instructions were clear on that, whether it was supposed to be in one language or the other.
  o You could do this with Embark videos
    ■ Think it would have some advantages, more clearly relevant to the missionary purpose
  o With creating & understanding comprehension questions—what if they didn't understand it themselves? Creating a bad question and telling the companion they were wrong.
  o Is the tense exercise something that would apply to all videos or just some?
  o Suggestion for getting feedback: consider asking them to rate the section as they go or ask them to go back and rate each section on a scale how much they felt like it was beneficial.
  o For section 8, where they generate questions they might ask this person, I thought you might consider giving them a chance to ask and answer questions as a companionship.
Might be really challenging. They could even prep a little bit ahead of time:
- "These are my questions I'm going to ask. Do you understand what they all mean?"

Interview with E1
- Thought it was like a test
- Really fascinating the difference between interviews & focus groups. Completely different responses.
- Might want to couple interviews as part of the process, as well as focus groups.
- Feels like it's a hard way to learn Spanish [said this right after saying it was like a test]
- Felt the format was more effective as a test than as a way of learning
- I think there are better alternatives for learning
  - This isn't the best use of class time
  - Embark, red book, basic core, int core books, green book would all help me more than this
- This stuff is fine, but why are we working in companionships in the classroom for so long
  - Like, maybe companion study, but why
  - Did seem like the teacher was cut out of the equation
  - [follow-up discussion on this]: Consider piloting in a more realistic setting (e.g. their study time)
- Frustrated by having to wait for companion
  - Why should I be in lockstep with my companion, waiting, when I could be interacting with these same materials in Embark at my own pace
    - [Whereas if it had been a classroom activity, he could have seen the point]
- How to improve?
  - Make the UI more appealing
  - #s threw him off
  - Felt confusing
- What was the level?
  - This was way hard, over my head
  - Had 2 years of Spanish in HS
- [One benefit of individual work is being able to level appropriately for high motivation]
- Sounded scary sometimes when they slowed it down too much [like kind of creepy]
  - //music makes this way worse
- Felt like it was grainy, even at ¾, so he went to full-speed because he didn't like the graininess.
- Thought it would be better to just re-record it slower.
- He said a lot of it was understandable
  - [He thought this was compatible with the idea that it was over his head]
- Tone diff [don't remember what that means]
- Easier if solo; longer & harder with companion. Have to go side by side, in sync
  - I spent a lot of time waiting for my companion.
- [Discussion: multi-modes: Solo, Comp, Class]
  - In Comp mode, may be a better way to handle timing sync to avoid waiting
- Rating individual sections
  - 1: 3/10
  - 2: 5-6/10
  - 3: 4/10 didn't help much
  - 4: confusing 5/10. hard to come up with a good question that wasn't really easy to answer. the process was confusing.
  - 5: 5/10
  - 6: 7/10
  - 7: 8/10
  - 8: didn't know the objective. what's the point of this? 4/10
  - 9: 6-7/10
  - 10: 8/10

Takeaways
- Could use some explanation & background on the video
- Giving them a choice between two different videos might really help them feel more comfortable/bought in
- Some missionaries really liked the video and others really didn’t—don’t assume one-size fits all for interest
- It's possible that even those who felt good about it overestimated their level of comprehension. So far application questions seem not very specific to the person.
  - Take it back, E2 had some really specific ones. I'll see if he's an outlier. He had other indications of overconfidence elsewhere.
- Their levels are all over the place, and not necessarily obvious from observing their outward behavior or apparent confidence. E2 was super slouched and quiet the whole time but absolutely rocked it in his answers.
- It seems like those who least wanted to do activities like this again (from survey) were ones for whom it was too hard (E1) or too easy (E2).
Observation Notes

All Elders had headphones with them—most of the sisters did not

Sisters wanted to go into small teaching rooms to not interrupt, have it be quieter

 Started around 9:55am I think

A question about what "expected patterns or forms" means -> maybe add the word "grammar"

10:03 still really quiet in the main room

//again, should measure playback speed use

one companionship of sisters is watching it together because they don’t have headphones

10:07 still haven’t heard any discussion with companion yet

"alright, listo?" [E. whispers to his companion]. This leads to a whispered discussion

10:10 by appearance, seems like writing out as much as they can remember of the general meaning is taking longer than I thought

10:08 E11 seems restless, I wonder if he’s just restless or feels uncomfortable with the video [i.e. can he not understand it, like E1]

10:12 // maybe I should tell them it’s ok to be noisy

Comp: "qué pasa?" E11: "yo no entiendo"

//they could use more validation of the value of partial information [i.e. they’re doing something good/useful even if they don’t get it all]

10:15 E11: "I can’t pause it" [I think he was working on first Compare Notes #3]

//I need to surface controls, or explain why they’re gone

10:22 E15: "listo?" Comp: "no"

//I think they feel pressure to be exhaustive because it feels like a test. -> how can I help them focus on comprehending, rather than 'getting credit'?

10:24 I saw both an Elder and a Sister accessing some other site or app as a resource on their phone
I did specifically say that they could use their resources at the beginning

"I also said, "This might feel like a test, and you can use it as a self-test, but I'm not testing you"

10:25 discussion was louder when I came back into the room later. Probably a combination of the activity & my presence that affects that.

"2 different tenses in the same clip" (E11)

//consider using "timeframe" instead of "tense"

Activity Responses & Comments

1. [expected patterns or forms] "I'm not sure what this means"
   - Define 'expected patterns and forms'. --> could be grammar, speech, question/answer.
   - not sure what this means

2. Solo Listen for General Meaning
   - Comments
     - The video was echoy —I found out my video was playing on 75%
     - Note: I'm sure this made sense to many more people & was lots faster!! my brain is just slower & I don't get much yet!
     - [arrow drawn between main idea and summarize in 1-2 phrases] "very similar"

   - How did you do at staying focused?
     - "Mas o menos, debo tener leer instrucciones en esta pagina primera."
     - "Nescesité enfocar mas. You se que mas tiempo intento traducir las palabras y estoy lost en rest of el video"
     - 9/10
     - "bien! paro no much understand…"
     - "Yo pude comprender todo el video y pude comprender la mensaje."
     - "Mas o menos bien"
     - "muy bien"
     - "Probablemente 7/10"
     - "Yo focar bien"
     - "fairly well"
     - "Bien! yo intento encontrar palabras y phrases pienso, entonces conectar les outros."
     - "mas o menos, tal vez 80% del tiempo"

3. Compare notes
- S. Pettit: "Mostly [agree], misinterpreted her child getting sick"
- S. Barnholt: "Different levels of understanding. Was able to help my companion a bit"

4. Details
- E13 [included Spanish writing about details that were visible but were not spoken! super interesting]
- S. Brown [response to 2nd clip] "nosotros... bolejo (?) dico (didn't understand any... :() muchos personales..."
- E12: "maybe do this part in English—it's easy to just copy down Spanish phrases without understanding the meaning"
  - But his details were not actually super accurate

5. Compare notes details
- S. Pettit: "I completely understand first and almost all of the last part.

6. Self-evaluation
- Comments
  - E12: Spanish or English?
- What strategies or techniques helped me understand the details?
  - S. Pettit: "Seeing pictures/videos helped me make connections, and after having the words helped best as I understand more when talking w/ English accent."
  - S. Steiner: "Picking out the words I knew helped a lot."
  - E13: "El video (pistas que da el contexto), la empatía (qué yo diría si you estaría en sus zapatos), el Espíritu Santo y el don de lenguas (muchos oraciones antes el video y antes ésto día)."
  - S. Brown: "I just did my best to pick out words & connect them... I didn’t get many"
  - E14: "Always stay focused and understand the background story and what is happening."
  - E11: "Focusing on words I understood, getting used to the accent, getting context from the video"
  - E15: "I didn’t focus only on the words, I tried to interpret body language, tone of voice, and then piece together the words I did know"
  - E16: "Actively listening and focusing on the words being said"
  - E17: "listening to words I know and listening to the phrase instead of individual words help me understand."
  - E18: "using visual clues and I had to watch it over a few times to catch what was being said"
  - S. Barnholt: "Breaking down phrases and focusing on one passage at a time really helped me."
  - E12: "I picked out words I know + used what I saw together"
- Would I do anything differently the next time I'm listening for details?
  - S. Pettitt: "Like listen closer to context and pronunciation."
■ S. Steiner: "I would probably try to listen a little more after reading the words I knew a lot of them I just didn't hear them b/c of speed."
■ E13: "Preguntaría para contexto (si podría)".
■ S. Brown: "Just try to get more. Maybe pause it? It was Super [written in big letters] fast.
■ E14: "Listen and try to look for key words."
■ E11: "Not really, I did the best I could"  
■ E15: "I didn't actively listen for the tenses of the verbs, so I missed some of the details and when things happened."
  ● [Interesting that the "Focus on Tense" activity is on the same page, but after. Power of suggestion?]
■ E16: "Listen more carefully whenever someone speaks to me"
■ E17: "Focus as hard as I can"
■ E18: "Probably not, I'm listening to the best of my ability"
■ S. Barnholt: "I would probably try to listen more for the small, connector words for my brain to connect more dots."
■ E12: "No"
● 7. Companionship Focus on Tense
  ○ E18: "I feel it's easier and simpler doing this part on my own"
● 10. Reflect & evaluate
  ○ How did I do at listening in Spanish today?
    ■ S. Pettit: "Okay, got better"
    ■ S. Steiner: "I payed the most attention I could"
    ■ E13: "Muy bien. Siempre estaba enfocado y podia entender mucho."
    ■ S. Brown: "Not very well! I struggled to get much, but I got a little bit more each time I listened again..."
    ■ E14: "Better than I expected."
    ■ E11: "Pretty good"
    ■ E15: "Pretty well, some parts I understood more than others"
    ■ E16: "Muy bien"
    ■ E17: "Ok, I don't understand everything but I can usually make sense of about half of everything said"
    ■ E18: "I tried my best, but I still couldn't understand everything that was said"
    ■ S. Barnholt: "My confidence has boosted and I feel better about my comprehension and application."
    ■ E12: "I did ok"
      ● [also commented in margin] "could ask why"
  ○ What would I like to change about how I listen going forward?
    ■ S. Pettit: "Listen in spanish, not english so pick up their 'accent' and thinking in Spanish [heavy underline]"
    ■ S. Steiner: "Try not to focus so much on the words I don't know b/c then I never hear the words I do know"
- E13: "Yo querría saber mas palabras y frases para escuchar mas rapido."
- S. Brown: "Clear my own thoughts and focus only on what is being said."
- E14: "Get used to different spanish accents."
- E11: "I think I listen pretty well, I just have to get used to the speed and accents"
- E15: "Pick up on more details instead of just overview"
- E16: "Querría escuchar más activamente"
- E17: "Try to pay attention to the conjugated words so I can understand more"
- E18: "Try to understand what is being said as a whole and not word for word"
- S. Barnholt: "Be confident in finding words I know to connect the dots."
- E12: "I want to spend less time focusing on every little details, takes too much time"

○ What's the most important thing I learned today?
  - S. Pettit: "Listening is so important, how you show others you care"
  - S. Steiner: "Listen to the words I know and take context clues."
  - E13: "¡Puedo entender español un poquito!"
  - S. Brown: "Hear peoples needs… more focus!"
  - E14: "That I know more spanish than I thought I knew."
  - E11: "God blesses us sometimes in disguise"
  - E15: "That it is important to listen and comprehend what is being said to you"
  - E16: "You puedo entender Español si intento yo."
  - E17: "I need to pay attention to everything I understand and by context try and figure out what I don't know"
  - E18: "I'm still learning but I did a little better than I thought"
  - S. Barnholt: "I know more than I think I do. I can understand, it's just responding that can be difficult."
  - E12: "Listening is important"

● Short eval questions (from questionnaire):
  ○ After completing this listening activity, I feel more confident in my ability to listen in Spanish.
    - S. Pettit: 3
    - S. Steiner: 3
    - E13: 4
    - S. Brown: 2
    - E18: 3
    - S. Barnholt: 5
    - E12: 3.5
  ○ I would like to do more activities like this.
    - S. Pettit: 5
- S. Steiner: 4
- E13: 3
- S. Brown: 4
- E18: 3
- S. Barnholt: 4
- E12: 3

**Additional comments**
- S. Pettit: "I like the practice of stretching my brain and then talking through it for more understanding, then seeing what we got learning together.
- S. Brown: ";)"
- S. Barnholt:
  - "It’s difficult to do companionship study porque we don’t learn at the same rate, but studying together is important"
  - "Compare Notes at conclusion* Having to wait is time sucking when companions are on different spots in learning
  - "Maybe don't mix companion and personal studies too much because it can cause the activities to take longer, but the activity was really helpful to practice listening and understanding."
- E12: "It was a little bothersome having to stay at the same pace as my companion. I finished each section before him and would have to sit and wait."

**Takeaways**

- In reporting what topics came up, more than one missionary brought up topics and words that they use frequently but that didn’t occur in the video at all (though they are arguably related). This is really indicative of the need for a linguistic bridge for them to minister to people! Instead of engaging with specific details, they tend to go for sweeping generalizations.
  - When something is beyond their level, they can tell, and their strategic function tends to flounder. They may say things like "focus more" or "try harder" instead of having a specific handle on ways to improve.
    - Elders in particular seem to lend less credence to an activity if the comprehension is too challenging; I worry that they might give less effort on self-evaluation in these situations. But overall I think there’s a good level of effort from most.
- Could ask them to specifically identify non-verbal information or clues (like E13 volunteered)
- Having some background context might help, but a dearth of it is also an interesting instructional affordance to me.
- They don’t get what "expected patterns or forms" means
Asking them to mark the time may have created undue pressure. [E15 indicated when he was "waiting for companion"; evidently he didn't want me to think that he needed all that time himself or something!]

- It's also a very interesting insight that waiting for your companion can be a challenge

- It's possible that they extend the effort a bit more knowing that I'm the audience for their writings, vs. if it was just a personal activity. Maybe some implications for avoiding "disposable" self-assessment?

- It's helpful to be really specific about whether to respond in English or Spanish

- Again, their levels are a wide range. Several more advanced missionaries felt bothered having to wait for companions at an earlier level.

- They realized that listening matters in a way that may indicate how neglected it is in the current approach

**Interim Report 1**

Amigos,

We’ve tested two iterations of the listening comprehension project so far and I’m excited to share some highlights:

**Missionaries are diverse learners.**

Some missionaries find the video interesting and others don’t. The skill level implied by the quality of their answers ranges from “I didn’t get this at all” to detailed evidence that they understood most of the content.

**Waiting for your slow companion is a drag.**

Several missionaries expressed frustration about waiting while alternating between solo and companionship activities.

**Missionaries demonstrate thoughtful metacognitive awareness.**

When asked “What is the most important thing I learned today?”, some missionaries offered quite reflective responses. Here are few examples:

- "Yo puedo entender Español si intento yo."
- "I learned how to listen for specific things (ie past present, future) which helped me understand better"
- "No siento que he aprendido nada de esta examen." [Unfortunate, but still metacognition.]
- "I have a lot of progress to make in regards to understand little details, but I also learned that I can comprehend more than I thought :)
- "I need to practice understanding Spanish that isn't being told to me in simple, easy to understand terms like in the class."
● "Patience and being a good listener really can help me. I do not have to be perfect but I need to do my best"

It highlights the difference between bearing a message and ministering to all.

It’s striking to see that when missionaries’ receptive and/or productive skills are limited, they may succeed in sharing a message, but may fail to engage with an individual’s specific circumstances. When asked to summarize the passage in Spanish, a few missionaries produced broad statements that are true but only loosely related to what was said. For example:

● Specifically related
  ○ “Michelle has two children with autism. She and her sister are very loving and creative. They have a school for children with autism.”
  ○ “She have two autistic children, then she and her family started a school.”

● Loosely related
  ○ “The sisters are passionate about their families and students.”
  ○ “They love their family and teaching”
  ○ “It’s ok if you have children with autism because it can be a blessing.”
  ○ “Not really sure... they is teaching children and helping much personages (?)”
  ○ “These two sisters are helping their community. They are proud of their work.”
  ○ “This family have a lot of love. All people working in same school together. They lives a life happy but have times hard also.”
  ○ “Is how their family have make school for students”

● Universalized
  ○ “People normally are members of the Church and they overcome many challenges.”
  ○ “She is speaking about her life and how God gives us/her blessings through her family and life.”
  ○ “Education and families are very important for our happiness and also spiritual strengthening.”

There are many factors behind this (including potential issues with the prompt), but to me it vividly illustrates why proficiency matters—bearing a true message is worthwhile on its own, but the ability to comprehend and respond with specificity represents additional power for missionaries to minister to the people they serve.

This may be an opportunity to help missionaries self-assess.

On Jennifer’s recommendation and with Kyle’s help, I’m exploring the possibility of ending this activity with a self-assessment against several listening-oriented can-do statements. Stay tuned for developments!
I welcome your comments, counsel, and questions.

Thanks,

Zane

P.S. Feel free to forward this to classroom teachers who are involved in the tests. And please let me know if I ought to share this with anyone else.

2/18 Test 3 (1.2.0)

Observation Notes (n=9)

- E27: "So, do we need to wait for our companion?" [Activity 5]
  - Told him yes, but he can do 7 while he waits (Application questions)
  - [E27 is now flipping through the whole packet, I think still waiting for his companions. Just a moment later, looks like they're ready now (trio).]
- E. Glasses/Curly hair: "I'm on 5-B."
  - They're not doing a great job of coordinating together/waiting for each other. Just trying to rip through it, seems like.
- Another companionship of Elders (E. Stosch & E23) is comparing answers, like they listened, came up with answers on their own, then compared.
- S21: "I heard galletas" Comp: "They're going to make cookies"
- [Went a lot faster this time. Seemed like some of the elders were trying to go as fast as they could. Started at ~10:40-45, most were done by 11:20].

Activity Responses & Comments

Unfortunately, I did not record these in detail until after Test 4 (3.6.2020)

- 2 Solo General Meaning
  - **Summarize**
    - E21: really good summary!
    - E22: Pretty good, threw in past subjunctive just 'cause.
  - **How did I do at staying focused?**
    - E21: "I thought I did ok. Native speakers are pretty hard to understand but I think I got the general idea of what the passage was about. Seeing the video really helped."
    - S21: "I did good, I had to constantly remind myself to stay engaged because when I normally don't know what they are saying, I zone out."
    - E23: "I did ok. There were lots of parts I didn't understand but I got at least some of it"
    - E24: "I did well, though I couldn't understand a lot of what was being said."
    - E22: "I was very focused in trying to listen to what was being said."
E25: "It was difficult when I didn’t understand the beginning. However I feel like once I focused I could get bits and pieces."

E26: "I did pretty good at staying focused. I was interested in the story."

S22: "I think I did pretty well at just getting the main details and staying focused on the main parts."

E27: "I watched the video and tried to understand what they were saying."

4 Solo Self-Evaluation

○ What strategies or techniques helped me understand the details?
  ● E21: "Repeating the clips a few times really helped me. Also watching their actions and their surroundings really helped too."
  ● S21: "The pictures. Pick out key words I know, use the pictures, and guess based on context clues."
  ● E23: "Reading along with the video helped me a lot."
  ● E24: "Picking out voids I knew and then applying the context of the video."
  ● E22: "A written transcript"
  ● E25: "Watching the clips and context"
  ● E26: "I was able to understand it"
  ● S22: "I definitely used context clues and the words that I did understand. Some others I just guessed."
  ● E27: "I knew the words nothing else"

○ Do anything different?
  ● E21: "Really focus on possessive terms and phrases, those can really help with the story."
  ● S21: "Focus on what they are saying more"
  ● E23: "Try to find a transcript or captions"
  ● E24: "Listen better? It’s easy to just watch and not understand."
  ● E22: "Pay more attention to the background instead of listening so much"
  ● E25: "Listen for pronouns & conjugations"
  ● E26: "Not really"
  ● S22: "I would maybe try not to get stuck/caught up on the phrases I don’t understand."
  ● E27: "No its basically if you know words you can understand context"

6 Check with transcript (tense)
  ○ E22: "They were both present, eof [maybe meant 'kind of'?]"

8 Solo Reflect & Evaluate

○ How did I do at listening in Spanish today?
  ● E21: "I did pretty well at listening in Spanish. I’m still learning but I did well."
  ● S21: "I did well, I understood okay."
  ● E23: "I did good but I didn’t understand a lot"
E24: "As best I could."
E22: "I think I did pretty good, I picked up more than I thought I could."
E25: "It's hard, but think I did pretty good getting the idea."
E26: "I understand Spanish so it was easy"
S22: "I think I did pretty well, but I could do better at focusing on overall message and not as much on little details."
E27: "I listened to the whole thing and some things I understood, some things I didn't."

What would I like to change about how I listen going forward?
E21: "I need to be very attentive and look for the words and phrases that I know so I can understand it better."
S21: "Listen for more key words."
E23: "I would try to focus more to understand what is happening more"
E24: "Listen for more context and tone to understand words I may not have understood before."
E22: "Pay more attention to the background or body language instead of just words"
E25: "Pick out important details instead of focusing on the whole sentence."
E26: "Nothing since I already understand"
S22: "I would maybe focus on main message more and also look up words I don't know instead of just guessing."
E27: "I don't know how you change listening, you pay attention and can either understand it or can't"

What's the most important thing I learned today?
"The most important thing I learned today is that I don't need to have a perfect knowledge of Spanish to understand a story."
S21: "I use a lot of context clues and not a lot of vocab knowledge to understand."
E23: "I learned that words get mixed together a lot when spoken."
E24: "Listening includes knowing vocab, context, and tone."
E22: "Pay attention to the background"
E25: "I can listen and understand native spanish speakers at their pace."
E26: "How to listen to details that the person is speaking about"
S22: "It is important to know things in Spanish but a huge part of understanding is knowing how to listen."
E27: "Personally I don't know what I was supposed to learn here unless your idea is to understand words when lations are speaking faster then our teaches in the MTC"
Takeaways

- See Test 4

2/25 Down Week

Goals for this week:

- Develop basic can-dos for listening at Novice and Intermediate, then get feedback from Kyle & maybe Troy.
- Source a second media resource. Code a way for the learners to choose?

Can-Dos Draft 1.0

Novice
- I can understand common greetings and introductions.
- I can recognize words that are very similar to my native language.
- I can recognize very common words.
- I can understand some words if they are slowed down or repeated.
- I can understand some ideas of what a person is saying based on clues like body language, their actions, and the setting of the conversation.

Intermediate
- I can understand everyday words and phrases.
- I can understand when what I hear is predictable based on the situation.
- I can understand basic information that is being shared.
- I can understand if something is said multiple times in different ways.
- I can understand simple sentences.
- I can understand one idea at a time.

Advanced
- I can understand the main idea and most of the details being shared.
- I can understand the details of a personal story.
- I can understand remarks about many common topics.
- I can figure out what unfamiliar words mean based on context and what I already know.
- I can understand a news story.
- I can understand multi-step instructions.

3/3 Test 4 (1.3.0)

Note: I failed to fully capture and synthesize takeaways from Test 4 before conducting Test 5.

Observation Notes (n=6)

- Still some confusion about starting with activity 1 or 2 [alignment between paper and digital]
  - I think they get excited about the media, want to dive in
    - Maybe I should just have a "Next" button for activity #1
I could do more to visually distinguish the metacognitive tips from the input boxes. 
//measure whether speed controls are used. Maybe log media plays & speed. 
//the Elder who said he's "cansado" has his head down on his harm while listening. 
companions picked 2 different videos—can't do companionship activity together! 
  - have to either require them to choose the same one, or nix comp activities. 
Sister S. has a bone-conduction hearing aid and can’t use headphones effectively, so we had her do it in the small teaching room next door with her companion. 
  - Super interesting accessibility issue—how can she study on her own? 
//As always, elders go way faster than sisters

Activity Responses & Comments

1. Make Predictions
   - S31 closely mimicked the example
   - E31 really didn’t try, just wrote "eternal life" on the left side, that’s all.

2. Solo Listen for General Meaning
   - Comments
     - //Summarize prompt may not be working
     - E31’s summary was generic and inaccurate
     - How did you do at staying focused?
       - S31: "I think that I did pretty well; there were a couple of parts where they were using some more specific terms, but overall, I think I understood."
       - S32: "I think I did alright. Even if I didn't understand everything, I would try to catch words I knew & could piece together a lot from it I think."
       - E31: "I understood what was going on but I can’t respond in Spanish as well as I want to."
       - E32: "It was ok at the beginning but later I was a little out of focus."
       - E33: "Pretty good! The video was entertaining, and I felt engaged in the activity afterwards."
       - E34: "7/10. My understanding was good for me. But still didn’t get a lot of it. I was focused though."

3. Solo: Listen for Details
   - E31: Assumed his wife died. [He says "separado" so I assumed it was not by death.]
   - E32: [Wrote individual words he heard instead of articulating details. I think this is ok]
   - E33: Decent responses

4. Self-Evaluation: Details
   - Comments
     - E33: "I like how this part shows what he said, very helpful to review."

What strategies or techniques helped me understand the details?
S31: "Remembering what they had said before (context clues) helped us figure it out when we didn’t understand a word or phrase. Seeing the words after, and learning the new words, so we can add them to our vocabulary."
- Interesting that she said “us” — they were in a room doing it out loud, sounds like they did it together.

S32: "Knowing the general context and then focusing on certain pieces. Also being able to SEE the words w/ the video made a huge difference."

E31: [Left if blank]
E32: "cuando yo escucho más y repito la video otra vez"
E33: "The video was clear, I just am still learning to comprehend what people are saying. I listen for words I know, and then piece it together."
E34: "No say, I really only understood the basic core of what they were saying."

Do anything differently next time?
- S31: "Not only focusing on the big-context clue type words, but also learning to look for and recognize the smaller words that I know.
- S32: "I think I need to focus more on all the words instead of the ones that I did not know so I could piece together context clues."
- E31: "listen closer"
- E32: "Voy a repetir y escuchar más"
- E33: "Nothing too different, just use context clues to understand his message."
- E34: "Yes, Be more careful and listening closer. Practice makes perfect."

5. Companion: Timeframe
- "Mi compañero tiene un video diferente"
- "We watched two different videos."
- "(Not my biggest skill. sorry)" [got the tense of the passage wrong]

6. Self-evaluation

7. Solo: Application Questions
- S31’s were quite good
- S32’s are pretty good too

8. Reflect & evaluate
- How did I do at listening in Spanish today?
- S31: "I felt that I did pretty well. There are some areas of improvement especially in the vocab department but I understand the general message."
- S32: "I got the general idea but not specific details so if I really want to get to know them, I need to pay attention"
- E31: "I can understand not all of the Spanish but about 50%"
- E32: "I was only able to listen and get some words."
E33: "Pretty good, it's hard to do. But, we're only been here 4 weeks, and I'm sure listening to native speakers in the field will help a ton."
E34: "4/10. For me I did good. But I missed a lot."

- What would I like to change about how I listen going forward?
  - S31: "Practice recognizing small words – their meaning and how they’re used. Listen more! :) (practicar escuchando en español!)
  - S32: "expand my vocabulary & focus!"
  - E31: "Listen closer and try to learn more words"
  - E32: "I need to listen confidently and asking questions."
  - E33: "Really focus on the whole message they have, and then try to understand it."
  - E34: "I would like to get good at listening to the people who are native. I will change how I talk to others, find the people who speak fast."

- What's the most important thing I learned today?
  - S31: "I know more than I think I know! Just need to practice more!"
  - S32: "I can listen to others and understand more than I thought – but there’s room to grow"
  - E31: "Pay attention to past tense, present and future tense."
  - E32: "I learned to listen more carefully and notice the differences on words that are said."
  - E33: "Spanish is hard! But through practice and listening more, I can become better."
  - E34: "I'm not very good at comprehension."

- 10. Additional comments
  - S31: "Thank you!

Informal Focus Group
- "First time I've heard a native speaker in 5 weeks"
- "Good when I knew what they were talking about"
- "I love listening to native speaking. I realized I had to go back again and again and again."
- "On the Embark app there’s a listening activity, but it's not in depth. This is more in-depth, like analyzing how you’re listening to it and how you can improve on..."
- "I know more than I think I know"
- "I like how it has you get the big picture down first and then go more into depth with certain parts."
- "This is something I would use"
- //anything you wish was different?
• "subtitles"
  • "Being able to read would be a little helpful too. That won't happen in real life, but just like to start understanding."

Takeaways
• I wonder if I could scale up testing of this prototype—what would that entail?
• I could try one where the companion activities do not draw on shared prior experience (might be interesting for different levels).
• Could make the whole thing soloable and then let them choose whether to do it separately or together.
• Working with & for missionaries is just the best. I’m so spoiled.
• It’d be interesting to let them design the experience for themselves, but require them to do it ahead of time, rather than deciding in the moment, e.g. whether to let themselves see the transcript.
• It would be interesting to pilot this as a group activity. Maybe followed by a solo activity?
• Wonder if there’s bias because they can see big gains the first time they focus on listening...?
• Spanish production obfuscates measures of their comprehension
• Strong theme of learning more vocab in this group (which is probably accurate for their level)
• We ought to elicit reflections on metacognition regularly and then sample them often as a way to better understand our audience.
• They can understand a lot more with a written transcript (Spanish & English are close enough that reading comprehension is likely much higher).
• "However the instructions in the activity is just a little bit confusing for me." (E32, whose native language is Tagalog, but whose English is quite good).
• The packet/phone combo is working pretty well—what if the prompts just tell them to write in a notebook?
  o Disadvantage is that then we don’t harvest their answers

• From Test 3 notes
  o Transcript is a powerful lever for altering the level.
    ■ Maybe teach them how to self-level the challenge?
  o Could make question about strategies more explicitly about their actions: "What strategies or techniques I used helped me understand the details?"
  o

Interim Report 2

Dear colleagues,
I’m excited to report on developments to the listening comprehension prototype after two more rounds of testing. Here are some things I’m learning:

**Positive reception overall.**
A majority of missionaries surveyed agreed (4) or strongly agreed (5) that I would like to do more activities like this (64%) and After completing this listening activity, I feel more confident in my ability to listen in Spanish (54%). Anecdotally, the minority who strongly disagree mainly seem to have experienced a level disparity (i.e. bored or overwhelmed), though those who perceived themselves as more advanced than the task still demonstrated inaccuracies in their comprehension. This may suggest that the activity does not expressly support “stretching yourself” beyond a certain level.

**Metacognition is a strength and opportunity.**
As reported before, many missionaries supply thoughtful insights about how to improve their own listening skills. A small minority do not buy into reflective questions, e.g.: “I don't know how you change listening, you pay attention and can either understand it or can’t.” If our aim is to prepare self-reliant language learners, metacognitive awareness seems like a critical enabling factor to help them develop if they haven’t already. I’m curious how this varies across cultural backgrounds; the vast majority of participants have been English-speaking Americans who seem to be used to discussing comprehension strategies explicitly.

**Self-evaluations reveals a lot about our audience.**
Reading missionaries’ responses to reflective self-evaluation questions has been one of the most beneficial components of the prototyping process. I recommend that we explore replicating this process in other situations—it provides interesting color and has invited me to understand and empathize with the beliefs and mental models missionaries hold with regard to their learning. This might also bear fruit at the level of rigorous qualitative inquiry/thematic analysis at the institutional level.

**Looking forward.**
Here are some of the details I’m wrestling with:

- Developing can-do statements that are specific enough to match the context of the experience.
- Whether to continue with a mixed paper-and-digital format or test an all-digital solution. Paper is more flexible but can’t capture their input at scale.
- Exploring other social configurations, e.g. all-solo, all-companionship, teacher-facilitated district study, etc.

I welcome your questions and comments. Thanks!

Zane
3/10 Test 5 (1.4.0)

Observation Notes (n=6)

- //really should measure plays and playback speed!
- Question: "Do we only pick one video?"
- Started at about 9:48am probably
- Elder asked sister sitting next to him about whether to listen to it more than once, seems like she answered "just one time"
  - //could make it clear that it's ok to listen multiple times
  - //whether or not you get replays is also a cool gamification mechanism (cf. proficiency app designs)
- //one key tension is helping them have the flexibility paper offers vs. being able to capture their input and scale it
- "Dang it. I wrote in English"
- Question: Bug in 3-a with "no supported video with correct MIME type found" and then
  - Also confused about the fact that the clips were from the same video as before
  - //interesting, this is the first time someone has mentioned it. wondering if others have had that question?
- One elder is writing right across the middle section of the paper—why?
- Same elder is referencing his VP book
- Seems like they're spending significantly more time on activities 1-3
  - Majority are still on #3-4 at 10:15am!
- //Reference to "chart below" in #5 doesn't make sense, since there's no chart anymore!
- All of their comments have been sub-voice or whispered unless directed at me
- "I don't know if I used the right clips or…"
- First missionary (S43) finished and began questionnaire at 10:23am (35 min.).
- In this instance, elders aren't outpacing sisters. Interesting!
- Question: "Is it ok if we didn't say these phrases [indicating transcript cards] but we talked about them?"
- Question: "Necesitamos hacer 5 y 6 con el compañeroismo?"
  - //that's the idea
- E42 just got to 5-6 around 10:28am!
- All 4 sisters done by 10:33am, both elders are still going.
- Afterward: "It'd be cool to translate words by clicking on it in the app"

Activity Responses & Comments

For this version, learners were provided with a condensed sheet of activity instructions and asked to write responses on separate notebook paper. I'll try to capture everything here.
1. Predictions

E41

[copied tabular format but accidentally swapped headers; drew arrows and explained]:

<table>
<thead>
<tr>
<th>What will they talk about</th>
<th>How will they say it</th>
</tr>
</thead>
<tbody>
<tr>
<td>hola yo soy, soy de, la iglesia</td>
<td>there life, introduce them selves, where he's from,</td>
</tr>
<tr>
<td>tú form, present tense</td>
<td></td>
</tr>
</tbody>
</table>

E Gerlek

What will they talk about?

-Sports/TV; being a single father and the difficulties of that, especially in the Church

How will they talk about it?

-los deportes, televisión, las cosas difíciles con tener hijos sin una esposa—en la Iglesia y también los desafíos con necesitar ayudarles a crecer solo

S41

What topics?: family life, church background, what they love/enjoy about the gospel, maybe their testimonies?

How?: present tense, past (preterit y imperfect), present progressive, express themselves joyfully!

[Comment: I wish the video had the option for captions: both in english + spanish so I can read along -> maybe recognize more words.]

S42

Como somos mormona.

Soy, miembro, la iglesia

S43

Mother to autistic children mamá/madre
They introduced themselves and they are sisters. Then she talked about her job at the school. She introduced her mom, husband, other sister.. She talked about the children and they were happy to talk about them.

2a. Which topics came up?

E41

[answered in English first, then re-did it] El video fue sobre su vida, su hijos, el trabajo, donde el es de, la inglesia de jesucristo de los santo de los ultimas dias, la muerte de su esposa y fue muy dificil en el. Tambien photographia.

E42

[labeled this a/b; seems eager to demonstrate understanding but didn't pay super careful attention to prompts so far]. Él trabaja en radio (no televisión). A él le gusta porque puede conectar con personas diferentes. Él es fotógrafo tambien. Tiene doos hijos, y ha separado de su madre por mucho años. Fue dificil pero él se siente que tiene un papel (<- role?) muy importante en sus vidas.

S41

sus trabajos ?, sus ocupaciónes, sus familias y las características de ellas familias. Ellas relación son hermanas.

S42

Mormona, escuela de hijos, familia

S43

servicio con los niños, maestra, familia, mamá de dos hijos autistas

S44

topics: familiar, su trabajo, su hijos autistas

2b. How do the speakers feel about these topics?
E41:

[answered in English first, then re-did it] el fue muy alpasionado sobre sus hijos, tabajo photographia y la inglesa pero triste sobre su esposa

S41

Las Ellas encantan sus trabajos. Ellas crearon un lugar por sus hijos autista, ellas fue muy emocionada por la oportunidad sus hijos tienen a amuentar.

S42

muy apasionada sobre [arrow pointing to word ‘familia’ from previous answer]

S43

Ellas les encantan su escuela y los niños. Ellas sienten que servicio es muy importante. Ella dijo que sus niños fueron la razón que la escuela empieza

S44

elle ama su familia, y ella ama su trabajo

2c. How would you summarize this passage in 1-2 phrases?

E41:

El ama su life y es felicidad

E42

Él es locutor de radio y fotógrafo, y es un padre soltero con dos hijos.

S41

Una hermana tiene dos hijos con autismo. Ella y su hermana crearon un lugar por estos niños. Ellas encantan a trabajar con sus hijos y ayudarles a amuentar.

S42

Ella es amoroso y bondadoso. Ella ama su trabajo y su vida.

S43

Las hermanas empiezan una escuela con su familia. Ella tiene dos hijos autistas y ella siente que ella necesita servir los otros familias con hijos autistas.
ella ama a su familia y hace todo lo posible para servirlos.

2d. How did I do at staying focused?

E41

I did good at one point I stopped focusing but imediatly refocused and got all the main point and what he was saying."

S41

Once I could start to understand what was happening, it was easier for me to focus. It was hard to focus @ the beginning because I was thinking about how I didn't know what was going on.

S42

It was hard. There were so many words I didn't know. I tried to be focused the whole time, but did notice myself getting distracted.

S43

I felt like I stayed focused. I was able to understand the broad message even if I couldn't understand all the words.

S44

- I stayed focused by trying to understand the spanish words I do know so I could try to understand what she was saying

3a. Details

E41:

el es trabajando en la noche y en el radio el dice "bien benides" el is muy alpasionado en la arria donde el es trabarido.

E42

[Comment: *The video starts a second or so after the transcript]

Cuand está trabajando en radio, él usa un acento_ ocho en la noche

S41
la mama de ella es el director de la escuela. la ella tiene un esposo que maneja el autoobús. Ella tambien tiene un hermana que enseña español. mientras ella enseña engles.

S42

Madre es lectora. Esposo maneja autobus. Hermana es miestra. y ingles

S43

La mamá de ella es la director de la escuela, y su esposo conducir el autobus y su hermana enseña las clases de ingles y español.

S44

su mama es la directora, su esposo es el bus conductor, su hermana enseñanza español y ingles.

3b. Details

E41:

el tiene dos hijos (Rachel michel) (hard to understand) el dice eso esta nueva anos sin madre de ellos por el esta muy dificil.

E42

Él tiene dos hijos - él ha separado de su madre nueve años - fue dificil para él

S41

ellos piensein este esun bendicion. Les gustan a comer + conocer los niños.

S42

comida, muchas personas nesseitan ayuda.

S43

La escuela es un bendición porque ellos pueden ayudar muchas personas

S44

relation con su familiar es bueno y they?

4x. Solo self-evaluation: anything I misinterpreted or missed?
E41 [answered X,Y,Z for A, then for B]:

A) I said that he says welcome but I missed the part about "Vicent Hernandez les hace compañía. I got every thing else though

B) I miss understood the part about his wife I thought she died but everything else was the same

E42

A) "sean todos" ≠ acenots - "de ocho a once de la noche" - "les hace compañía"

I missed a lot; he put stress in what seemed like weird places, so I had a hard time understanding, especially "sean todos" y "ocho a-ON-cedda noche". I completely missed his name as well.

B) I missed "ya casi", but I understood everything he said (except thier names). It was much slower and each byte was separated, so it was way easier.

S41

for the most part, I understood it all after listening to the original clip 2 or 3 times. I didn't get all of it the 1st time, but I did after listening to it again. [squished into remaining space and margin, as though added later] I did miss somethings in clip 4-B.

S42

a) les, her mom is the director. She and her sister manage different language areas.

b) the school is a blessing, they have the opportunity to live with many people, that need their help

S43

I missed that she taught english, I thought it was her sister. I also missed that they work/live/are surrounded (convivir?) by lots of people

S44

A) I assumed her sister taught spanish because of the video even though I didn’t know the words - la encargada del área - when I heard them. I didn’t know she was over the english area.
B) I thought she said her family was a blessing, not school. I didn't know she said "live with many people..." -> [page turn] I thought she said eat because of the video. I missed when she said they have needed their help.

4y. What strategies or techniques helped me understand the details?

E41

A) By listening for key phrases and listening careful is how I understood the message

B) by focusing and listening I was able to understand everything

S41

looking up unfamiliar words, or words I think they may be describing in my dictionary helped me know I was on the right track. Also, the pictures + visuals in the videos helped me understand most of the words I didn't know.

S42

Being able to see the words. To visualize them.

S43

I understood the details by not focusing on words I didn't know and trying to see how the words and the pictures went together

S44

Seeing what they were talking about through video helped me, even though I didn't understand alot.

4z. Would I do anything differently the next time I'm listening for details?

E41

A) Just try to really focus on context to hopefully brake down anthing I dont know.

B) I would try to focus on key words cause he never said the word death I just assumed. Also the name were hard to understand.

S41

Not that I can think of.
Listen more intently

I would try a bit harder to listen to individual words even if they are going fast.

I think I need to focus on the words I do know rather than the words I don’t and how fast they were talking. Also learning more vocab! I think it will help when I am surrounded more by native speakers too. No one here talks that fast. It is hard not to get down on your Spanish abilities/understanding from this too.

5. What timeframe is used? What key words/topics let you know?

A) Past, god has always been there for us pasando and había dejado solo
B) vivo yo so this is present

A) Main time frame: pasado - "aprendí", "pasado", "siempre", "estaba"
B) timeframe: presente "vivo" "es" "me ayuda"

A) fue, dijo, cambió -> preterito (past)
B) estan, aprendiendo, tenga -> present tense

a) past, fue
b) , aprendiendo, furtle

a) past, fue, dije, dijo, she was talking about when her sons were diagnosed with autism
b) present, están, vamos they’re in the cooking class right now.
S44

a) fue (past) dije (past): past pretiero

b) apprendiendo (learning present)

6. Check answers

E41

A) I got some of it and the timeframe right.

B) I got all of this one!

E42

A) Correcto - missed a lot because he skips vowels (or S's) occasionally (e.g. "eh[s] que", "Día", "estaballí")

B) Correcto - I caught every word (except "a hacer", but I figured it must have been that).

S43

✓

S44

missed a few words

7. Write 3 questions

E41

1. Porque usted ama locutor

2. Cuántos tiempo has vivido en PortaRico

3. Porque esta difícil cuando separado para esposa

S41

1. Cuántos años sus hijos tienen cuando usted averiguó sobre sus diagnosis?

2. Quién su ayudó hacerse un encargada?

3. Cómo el evangelio su ayuda a estar feliz en su vida con niños autista?
¿Cómo empieza este?
¿Por qué es importante a tu?
¿Qué plana hacer próxima?

S43

a) ¿Cómo se siente cuando su ayuda los niños en sus clases?
b) ¿Cómo puedo ayudar con sus clases?
c) ¿Qué hace en la clase de cocina?

S44

¿Cuánto tiempo lleva trabajando su familia juntos?
¿Qué es el nombre de hijos?
¿Qué es lo mejor o más desafiante parte sobre su trabajo?

8a. How did I do at listening in Spanish today?

E41:
I did good. There was definitly some stuff I didn't catch but I got most of it.

S41

pretty good! I missed some words but surprised myself w/ what I did now

S42

I did okay. It is hard for me and take awhile for me to understand.

S43

I think I did a pretty good job. There were times when I found myself translating int English, but I was able to focus on the main message instead of words I don't know.

S44

[Note: didn’t mark subsections in her response]. I was able to pick up some or about half of what she was saying. I would like to make sure I know those vocab words I didn’t know and apply them. For me it helped to see what they were doing but I relied mostly on that and not the actual words. I learned that truly listening to understand is most important when talking to people.
8b. What would I like to change about how I listen going forward?

E41:

just listen more carefully for words

S41

I don't know what I could do to change how I listen.

[Comment: *What does this mean?]*

S42

I would like to pay more attention to the general meaning and try to understand as many words as possible.

S43

I would like to focus on listening and understanding in Spanish and not translating in my head.

8c. What's the most important thing I learned today?

E41:

That I can understand a lot but it's a lot harder to listen to native speakers because they're fast.

S41

even if I don't understand everything, I can get a pretty good idea.

S42

The most important thing I learned today is listening and paying attention is really hard, but really important.

S43

I learned that I can understand an entire Mormon message in Spanish, and while it wasn't super fast, it wasn't slow and I still understood.

10. Explore & other comments

E42: [Comment: *Part 10? "explore," has the transcript for the other video.]*
Takeaways

- Having a variety of difficulty within the activity block seems positive; missionaries at different levels need an opportunity to secure a win.
  - "I got all of this one!" from E41, even though much of it was a struggle.

**Test 6 (2.0.0)**

_This was actually the 7th test, but I captured almost no data (just one survey response) with the previous test group. Nothing substantive changed, other than a more aggressive activity logging strategy so that I didn’t miss information._

I’ll start by taking the most recent data for each user (i.e. the last snapshot taken during their session) and analyzing what I can from it. See _this doc_.

**Takeaways**

- It seems that I haven’t properly distinguished playing activity clips from transcript clips, as an activity clip always triggers a subsequent transcript clip (unless it’s playing the whole thing).
- Timing is all over the map!
- Many bailed before finishing—why?
- One sister responded in English with the placeholder "mi respuesta" but then switched to Spanish when the placeholder was "en español" (Of course the prompt questions were also different, but it’d be worth unifying across the app)
- Generally, seems too long.
  - Two elders that finished took 51 & 52 minutes
  - Two sisters that spent more than 10 minutes but didn't finish took 25 and 38 minutes
  - I could easily take out the second passage for the activities that have 2 passages
- Still getting decent quality length responses, IMO
- I should record what kind of device they’re using!
- Quite a few bailed in the first 3 minutes. Making predictions is great for learning, but hard and maybe intimidating or not engaging/motivating.
  - Maybe I could hook them with a short _video teaser_, then have them make predictions?
- Again, I’m getting the impression that the difficulty level may be make-or-break. Having an option to progressively reveal _hints_ would be really cool.
- I wasn’t expecting that they would just flip through the tabs and bail. I wish I knew what they were looking for or how they were evaluating whether to give it a try.
In addition to hooking them, is there a way to show "progress" to give the reward/completion motivation?

- Both those who finished the whole thing...
  - were Elders (surprising!)
  - had significant breaks with no activity in their stream (stepped away and came back)
  - seemed to play the audio a lot
  - Didn't use playback speed at all
    ■ Maybe it was a sweet-spot level wise?
  - Made comments like this
    ■ "when I see it layed out in front of me I realized how much I missed."
      (4 A&B)
    ■ "I feel like I did pretty good until I got the script haha" (8)

- I should explicitly ask whether it was too easy or too hard
- Reflecting on broader themes from work, I wonder about the elements of the design that are outside of the tool—how they get to it, how it's framed, how it fits into their lives. Is that beyond the scope of this project? (probably)
- [Later] It's ugly. I'm worried that this is holding people back.
- They follow placeholder examples. A lot of them add a middle initial in response to "Parley P. Pratt" haha!
- They tend to leave questions blank at the end of a page, rather than the beginning. This might be because of visibility on their device, but also because they are answering in order. If you really want something answered, put it first!
- I should post an event as soon as they consent to share data, instead of on first submit.

**Planned Changes**

- High priority
  - [X] Change all placeholders that are directing them to respond in a particular language to either "en español" or "English is ok here"
  - Remove all duplicate activities
    ■ [X] Remove 3-B,
    ■ [X] remove 4-B
    ■ [X] adjust 4-A to match,
    ■ [X] remove 5-B
    ■ [X] remove 6-B
  - [X] Add a question about difficulty level to the beginning of the survey
  - [X] Add a question about length to the beginning of the survey
  - [X] Move the overall questions to the beginning of the survey (end with MALQ)
  - [X] Add a video teaser clip to the "make predictions" section, so they start by watching/listening rather than answering a bunch of questions.
  - [X] Update theme to improve legibility
  - Log which device they're using
Extra mile
- Tease apart playclip and playtranscript
- Improve visual appearance
- Make "Choose video" instructions more prominent
- Post an event as soon as they consent to share data, to capture any that don’t respond at all.

Note: I discovered that I was looking at paginated results in DynamoDB, so I need to go back to make sure that I didn’t lose anything in my previous analyses.

2.1.0 6/5/2020
Updates listed above

2.1.1 6/10/2020
Added additional logging to better understand drop-off behavior, etc.

2.1.2 6/12/2020
Fixed playback bugs

Scope & Sequence Versions
Draft from prospectus

<table>
<thead>
<tr>
<th>Language Objective</th>
<th>Metacognitive Objective (tentative alignment)</th>
<th>Example Activities</th>
</tr>
</thead>
</table>
| Activation         | Prediction                                   | "List 10 words you think you’ll hear in this passage."
|                    |                                             | "What topics do you think the speaker(s) will discuss?" |
| Global Meaning     | Monitoring Evaluation                        | "What is the main idea of this passage?" |
|                    | Avoid mental translation                     | "Summarize the passage in 1-2 sentences." |
|                    |                                             | "Discuss your answer with your companion. Do you agree?" |
|                    |                                             | "Put these phrases in the correct order." |
| Specific Meanings | Evaluation Problem solving | "Write one question for your companion to answer based on this sentence."
"Check your companion's answer. Where can you find information about the correct answer?"
| Linguistic/Structural Feature | [None] | "Mark every instance of the verb 'to be'."
"Compare answers with your neighbor. Do you agree?"
| Application | Problem solving | "Write 3 questions you would ask the speaker(s) about what they said."
"Pretend you are one of the speakers. How would you answer this question?"
Version 1 [1.0.0] (1/28/20)

Prep Checklist

- Pens & paper for feedback
- Print worksheets with name place
- Check native language of tester missionaries
- Devices for them to take the questionnaire
- Test distribution of prototype

Intro Checklist

- Independent with companion (no teacher; kind of)
- Not testing you
- Please write feedback!
- Please raise your hand if you have technical difficulties
- Headphones ok
- Please do your best
- Ok to use your resources—the goal is to learn!
- Devices for Questionnaire
1. Solo: Predictions

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Read the title of this video and look at the preview picture. Based on what you see, make predictions about what you expect to hear.

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<td></td>
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2. Solo: Listen for General Meaning

Now you will listen for the general meaning of the passage. Consider the following questions:

- What is the main idea?
- Which topics came up?
- How do the speakers feel about these topics?
- How would you summarize this passage in 1-2 phrases?

**Stay focused**

When something is hard to understand, it’s easy to get distracted or want to give up. Practice recovering your focus when this happens so you can get the main idea.

When you’re ready, press the 2 button to listen to the entire passage.

Then answer the questions below:

<table>
<thead>
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<th>Question</th>
<th>Answer</th>
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<tbody>
<tr>
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<td></td>
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<td>How did you do at staying focused?</td>
<td></td>
</tr>
</tbody>
</table>
3. Companionship: Compare Notes
Share your answers with your companion. Do you agree? What gaps are there in your understanding?

After discussing, listen to the passage together again. Can you fill in any gaps in your understanding?

4. Solo: Write a Comprehension Question
Assign each missionary in your companionship their own letter: A or B. Each letter marks a different short clip from the passage.

Use your button (4a or 4b) to listen to your clip. You will also be able to see a written transcript of what the speakers are saying. Based on what you hear and read, write a specific comprehension question for your companion. The answer should be a specific fact that can be learned from understanding the clip. For example:

What does Penelope do for a living? [Answer: She's an architect.]

<table>
<thead>
<tr>
<th>Comprehension question</th>
</tr>
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</table>

Share this question (but not the answer!) with your companion. They will use it to complete the next activity **without a transcript**.

[Note: for trios, two missionaries can be A and one can be B].
5. Solo: Comprehension Challenge

Use what you know

You may often need to make educated guesses about words you don't know. Use what you know about the topic, known words, and non-verbal clues to decide whether your guess makes sense.

Review the question from your companion. Using your same assigned letter (A or B), click on the appropriate button (5a or 5b) to listen to the clip. Feel free to listen multiple times before writing your answer.

My answer

6. Companionship: Check Answers and Evaluate

Share your answer with your companion. Were you correct? Feel free to share the clips in 4a or 4b with each other to clarify if needed.

Discuss the following evaluation questions:

- How helpful was your assigned comprehension question? How could it have been better?
- Would you change anything about how you listened?
7. Companionship: Focus on Tense

With your companion, try to determine the main tense (past, present, or future) that is being used in each portion of the passage. Feel free to slow down, rewind, and replay the passage as you complete the chart below.

Example:

<table>
<thead>
<tr>
<th>Time</th>
<th>Tense</th>
<th>Key words/topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>0:00</td>
<td>past</td>
<td>sabía, fue; being an orphan as a kid</td>
</tr>
<tr>
<td>0:15</td>
<td>present</td>
<td>es, me da; how he feels now</td>
</tr>
</tbody>
</table>

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<td>0:30</td>
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<td>2:00</td>
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<tr>
<td>2:30</td>
<td></td>
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</tbody>
</table>
8. Solo: Application Questions

Imagine that you met the speakers from this passage on your mission. Write 3 questions you would ask them to get to know them better.

<table>
<thead>
<tr>
<th>Application Questions</th>
<th>1.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.</td>
</tr>
<tr>
<td></td>
<td>3.</td>
</tr>
</tbody>
</table>

9. Companionship: Application Roleplay

Choose one of the speakers from this passage. Imagine that you and your companion are attending ward council and have been asked by the bishop to share what you know about this person and how you might help them. Take 3-5 minutes to roleplay what you would share. For an extra challenge, have one companion take the role of the bishop or Relief Society president and ask & answer questions about the person and how to serve them.

10. Solo: Reflect and Evaluate

Answer the following questions:

<table>
<thead>
<tr>
<th>How did I do at listening in Spanish today?</th>
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<th>What’s the most important thing I learned today?</th>
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11. Complete the Questionnaire

12. (Optional) Explore and Offer Additional Comments
Version 2 [1.1.0] (2/10/20)

Prep Checklist
- Pens & paper for feedback
- Print worksheets with name place
- Check native language of tester missionaries
- Devices for them to take the questionnaire
- Test distribution of prototype

Intro Checklist
- Independent with companion (no teacher; kind of)
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- Please write feedback!
- Please raise your hand if you have technical difficulties
- Headphones ok
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- Ok to use your resources—the goal is to learn!
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- //asked them to write start times in the margin
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Stay focused

When something is hard to understand, it’s easy to get distracted or want to give up. Practice recovering your focus when this happens so you can get the main idea.

When you’re ready, press the 2 button to listen to the entire passage.

Then answer the questions below using **Spanish sentences or phrases**:

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3. Companionship: Compare Notes
Share your answers with your companion. Do you agree? What gaps are there in your understanding?

After discussing, listen to the passage together again. Can you fill in any gaps in your understanding?

4. Solo: Listen for Details

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</tr>
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</table>

You will listen to two short clips, 4a and 4b. After listening to each clip, write out as many details as you can remember using Spanish sentences or phrases:

<table>
<thead>
<tr>
<th>4a) Detalles</th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>4b) Detalles</th>
</tr>
</thead>
</table>

5. Companion: Compare Notes on Details

Review with your companion the details that you remembered from each clip.

Then listen to each clip again with a written transcript (5a & 5b). Discuss how well you understood the details.
6. Solo: Self-Evaluation—Details

Answer the following evaluation questions:

<table>
<thead>
<tr>
<th>What strategies or techniques helped me understand the details?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Would I do anything differently the next time I'm listening for details?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

7. Companionship: Focus on Tense

With your companion, try to determine the main tense (past, present, or future) that is being used in each portion of the passage. Feel free to slow down and replay the passage as you complete the chart below.

<table>
<thead>
<tr>
<th>Clip</th>
<th>Tense</th>
<th>Key words/topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>7a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7b</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. Companionship: Check with Transcript

Using the transcripts in sections 8a and 8b, check your answers to Activity 7.
9. Solo: Application Questions

Imagine that you meet the speakers from this passage on your mission. Write 3 questions you could ask them to (a) show that you listened carefully to them and (b) help you get to know them better.

<table>
<thead>
<tr>
<th>Application Questions</th>
<th>1.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.</td>
</tr>
<tr>
<td></td>
<td>3.</td>
</tr>
</tbody>
</table>

10. Solo: Reflect and Evaluate

Answer the following questions:

<table>
<thead>
<tr>
<th>How did I do at listening in Spanish today?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What would I like to change about how I listen going forward?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What’s the most important thing I learned today?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

11. Complete the Questionnaire

12. (Optional) Explore and Offer Additional Comments
Version 3 [1.2.0] (2/17/20)

Prep Checklist

- Pens & paper for feedback
- Print worksheets with name place
- Check native language of tester missionaries
- Devices for them to take the questionnaire
- Test distribution of prototype

Intro Checklist

- Independent with companion (no teacher; kind of)
- Not testing you
- Please write feedback!
- Please raise your hand if you have technical difficulties
- Headphones ok
- Please do your best
- Ok to use your resources—the goal is to learn!
- Devices for Questionnaire

Changelog

- Clarified that self-eval is ok in English
- Made all activities Solo except focus on tense & check
- Substituted "timeframe" for "tense"
- Clarified that application questions should be in Spanish
- Adjusted format of predictions to be more like pre-speaking (what/how) & gave example
- Removed redundant "main idea" in favor of "summarize in 2 sentences"
- Enabled controls for first activity (now enabled for all except initial state
1. Solo: Predictions

**Make predictions**

Making predictions before you listen prepares you to make sense of what you hear by bringing to mind what you already know about the topic.

Read the title of this video and look at the preview picture. Based on what you see, make predictions about *what* topics you expect to hear and *how* you expect the speakers may express themselves, including vocabulary words and grammar forms you expect to hear.

**Example:**

<table>
<thead>
<tr>
<th>What will they talk about?</th>
<th>How will they say it?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rescuing stray dogs</td>
<td><em>perro, rescatar, buscar</em>; speaking to pets using <em>tú</em> form</td>
</tr>
<tr>
<td>Plans for the future</td>
<td><em>voy a, vamos a + infinitive verb</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What will they talk about?</th>
<th>How will they say it?</th>
</tr>
</thead>
</table>
2. Solo: Listen for General Meaning

Now you will listen for the general meaning of the passage. Consider the following questions:

- Which topics came up?
- How do the speakers feel about these topics?
- How would you summarize this passage in 1-2 phrases?

<table>
<thead>
<tr>
<th>Stay focused</th>
</tr>
</thead>
<tbody>
<tr>
<td>When something is hard to understand, it’s easy to get distracted or want to give up. Practice recovering your focus when this happens so you can get the main idea.</td>
</tr>
</tbody>
</table>

When you’re ready, press the 2 button to listen to the entire passage. Then answer the questions below using **Spanish sentences or phrases**:

<table>
<thead>
<tr>
<th>Which topics came up?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How do the speakers feel about these topics?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Summarize this passage in 1-2 sentences.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

Now evaluate yourself. **(English is ok here)**.

<table>
<thead>
<tr>
<th>How did I do at staying focused?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>
3. Solo: Listen for Details

<table>
<thead>
<tr>
<th>Use what you know</th>
</tr>
</thead>
<tbody>
<tr>
<td>You may often need to make educated guesses about words you don't know. Use what you know about the topic, known words, and non-verbal clues to decide whether your guess makes sense.</td>
</tr>
</tbody>
</table>

You will listen to two short clips, 4-A and 4-B. After listening to each clip, write as many details as you can remember in your own words using Spanish sentences or phrases:

<table>
<thead>
<tr>
<th>3-A Detalles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>3-B Detalles</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
4. Solo: Self-Evaluation—Details

Listen to each clip again with a written transcript (4-A & 4-B). Then answer the following evaluation questions (English is ok here):

<table>
<thead>
<tr>
<th>Was there anything I misinterpreted or missed?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What strategies or techniques helped me understand the details?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Would I do anything differently the next time I’m listening for details?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

5. Companionship: Focus on Timeframe

With your companion, try to determine the main timeframe (past, present, or future) that is being used in each portion of the passage. Feel free to slow down and replay the passage as you complete the chart below.

<table>
<thead>
<tr>
<th>Clip</th>
<th>Tense</th>
<th>Key words/topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Companionship: Check with Transcript

Using the transcripts in sections 6-A and 6-B, check your answers to Activity 5.
7. Solo: Application Questions

Imagine that you meet the speakers from this passage on your mission. Write 3 questions you could ask them in Spanish. Your questions should...

- show that you listened carefully to them
- help you get to know them better

<table>
<thead>
<tr>
<th>Mis preguntas</th>
<th>1.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.</td>
</tr>
<tr>
<td></td>
<td>3.</td>
</tr>
</tbody>
</table>

8. Solo: Reflect and Evaluate

Answer the following questions (English is ok here):

<table>
<thead>
<tr>
<th>How did I do at listening in Spanish today?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What would I like to change about how I listen going forward?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What's the most important thing I learned today?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

9. Complete the Questionnaire

10. (Optional) Explore and Offer Additional Comments
**Version 4 [1.3.0] (3/3/20)**

**Changelog**

- **Ideas**
  - Use application questions from previous users (handpicked) as an application activity for the new district
  - Fix mislabeled number 4-A, 4-B
  - Explore how to have them input text on the device.
    - Consider Sister’s suggestion about having them record answers.
  - Add Can-Do Statement Eval

- **Changes**
  - Fix mislabeled number 4-A, 4-B
  - Added second video option

**Prep Checklist**

- Pens & paper for feedback
- Print worksheets with name place
- Check native language of tester missionaries
- Devices for them to take the questionnaire
- Test distribution of prototype

**Intro Checklist**

- Independent with companion (no teacher; kind of)
- Not testing you
- Please write feedback!
- Please raise your hand if you have technical difficulties
- Headphones ok
- Please do your best
- Ok to use your resources—the goal is to learn!
- Devices for Questionnaire
1. Solo: Predictions

**Make predictions**

Making predictions before you listen prepares you to make sense of what you hear by bringing to mind what you already know about the topic.

Read the title of this video and look at the preview picture. Based on what you see, make predictions about what topics you expect to hear and how you expect the speakers may express themselves, including vocabulary words and grammar forms you expect to hear.

**Example:**

<table>
<thead>
<tr>
<th>What will they talk about?</th>
<th>How will they say it?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rescuing stray dogs</td>
<td><em>perro, rescatar, buscar</em>; speaking to pets using tú form</td>
</tr>
<tr>
<td>Plans for the future</td>
<td><em>voy a, vamos a + infinitive verb</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What will they talk about?</th>
<th>How will they say it?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2. Solo: Listen for General Meaning

Now you will listen for the general meaning of the passage. Consider the following questions:

- Which topics came up?
- How do the speakers feel about these topics?
- How would you summarize this passage in 1-2 phrases?

<table>
<thead>
<tr>
<th>Stay focused</th>
</tr>
</thead>
<tbody>
<tr>
<td>When something is hard to understand, it's easy to get distracted or want to give up. Practice recovering your focus when this happens so you can get the main idea.</td>
</tr>
</tbody>
</table>

When you're ready, press the button to listen to the entire passage. Then answer the questions below using Spanish words and phrases:

<table>
<thead>
<tr>
<th>Which topics came up?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>How do the speakers feel about these topics?</td>
<td></td>
</tr>
<tr>
<td>Summarize this passage in 1-2 sentences.</td>
<td></td>
</tr>
</tbody>
</table>

Now evaluate yourself. (English is ok here).

<table>
<thead>
<tr>
<th>How did I do at staying focused?</th>
<th></th>
</tr>
</thead>
</table>
3. Solo: Listen for Details

<table>
<thead>
<tr>
<th>Use what you know</th>
</tr>
</thead>
<tbody>
<tr>
<td>You may often need to make educated guesses about words you don't know. Use what you know about the topic, known words, and non-verbal clues to decide whether your guess makes sense.</td>
</tr>
</tbody>
</table>

You will listen to two short clips, 3-A and 3-B. After listening to each clip, write as many details as you can remember in your own words using Spanish words and phrases:

<table>
<thead>
<tr>
<th>3-A Detalles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3-B Detalles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>
4. Solo: Self-Evaluation—Details

Listen to each clip again with a written transcript (4-A & 4-B). Then answer the following evaluation questions *(English is ok here)*:

<table>
<thead>
<tr>
<th>Was there anything I misunderstood or missed?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>What strategies or techniques helped me understand the details?</td>
<td></td>
</tr>
<tr>
<td>Would I do anything differently the next time I’m listening for details?</td>
<td></td>
</tr>
</tbody>
</table>

5. Companionship: Focus on Timeframe

With your companion, try to determine the main timeframe *(past, present, or future)* that is being used in each portion of the passage. Feel free to slow down and replay the passage as you complete the chart below.

<table>
<thead>
<tr>
<th>Clip</th>
<th>Tense</th>
<th>Key words/topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Companionship: Check with Transcript

Using the transcripts in sections 6-A and 6-B, check your answers to Activity 5.
7. Solo: Application Questions

Imagine that you meet the speakers from this passage on your mission. Write 3 questions you could ask them **in Spanish**. Your questions should...

- show that you listened carefully to them
- help you get to know them better

<table>
<thead>
<tr>
<th>Mis preguntas</th>
<th>1.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.</td>
</tr>
<tr>
<td></td>
<td>3.</td>
</tr>
</tbody>
</table>

8. Solo: Reflect and Evaluate

Answer the following questions (**English is ok here**):

<table>
<thead>
<tr>
<th>How did I do at listening in Spanish today?</th>
</tr>
</thead>
<tbody>
<tr>
<td>What would I like to change about how I listen going forward?</td>
</tr>
<tr>
<td>What's the most important thing I learned today?</td>
</tr>
</tbody>
</table>

9. Complete the Questionnaire

10. (Optional) Explore and Offer Additional Comments
Version 5 [1.4.0] (3/10/20)

Changelog

- **Ideas**
  - Use application questions from previous users (handpicked) as an application activity for the new district
  - Eliminate paper packet and have them use their own journal
  - Add Can-Do Statement Eval
  - Add a tip about avoiding mental translation
- **Changes**
  - Removed blanks for responses—asked them to answer on a separate sheet of paper instead
  - Removed advanced repetition of "consider" questions in Activity 2
  - Added "Avoid Mental Translation" tip to Activity 5 (timeframes)

Prep Checklist

- Pens & paper for feedback
- Print worksheets with name place
- Check native language of tester missionaries
- Devices for them to take the questionnaire
- Test distribution of prototype

Intro Checklist

- Independent with companion (no teacher; kind of)
- Not testing you
- Please write feedback!
- Please raise your hand if you have technical difficulties
- Headphones ok
- Please do your best
- Ok to use your resources—the goal is to learn!
- Devices for Questionnaire
1. Solo: Predictions

**Make predictions**

Making predictions before you listen prepares you to make sense of what you hear by bringing to mind what you already know about the topic.

Read the title of this video and look at the preview picture. Based on what you see, make predictions about **what** topics you expect to hear and **how** you expect the speakers may express themselves, including vocabulary words and grammar forms you expect to hear.

**Example:**

<table>
<thead>
<tr>
<th><strong>What</strong> will they talk about?</th>
<th><strong>How</strong> will they say it?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rescuing stray dogs</td>
<td><em>perro, rescatar, buscar</em>; speaking to pets using <em>tú</em> form</td>
</tr>
<tr>
<td>Plans for the future</td>
<td><em>voy a, vamos a</em> + infinitive verb</td>
</tr>
</tbody>
</table>
2. Solo: Listen for General Meaning

Now you will listen for the general meaning of the passage. Consider the following questions:

<table>
<thead>
<tr>
<th><strong>Stay focused</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>When something is hard to understand, it's easy to get distracted or want to give up. Practice recovering your focus when this happens so you can get the main idea.</td>
</tr>
</tbody>
</table>

When you’re ready, press the button to listen to the entire passage. Then answer the questions below using **Spanish words and phrases**:

2a. Which topics came up?

2b. How do the speakers feel about these topics?

2c. How would you summarize this passage in 1-2 phrases?

Now evaluate yourself. (**English is ok here**).

2d. How did I do at staying focused?
3. Solo: Listen for Details

You will listen to two short clips, 3-A and 3-B. After listening to each clip, write as many details as you can remember in your own words using Spanish words and phrases:

3a. Detalles
3b. Detalles

4. Solo: Self-Evaluation—Details

Listen to each clip again with a written transcript (4-A & 4-B). Then answer the following evaluation questions (English is ok here):

4x. Was there anything I misinterpreted or missed?
4y. What strategies or techniques helped me understand the details?
4z. Would I do anything differently the next time I’m listening for details?

Use what you know

You may often need to make educated guesses about words you don’t know. Use what you know about the topic, known words, and non-verbal clues to decide whether your guess makes sense.
5. Companionship: Focus on Timeframe

<table>
<thead>
<tr>
<th>Avoid mental translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>It can be tempting to translate each word you hear into your native language, but avoiding this habit will improve your comprehension over time. Try to listen en español!</td>
</tr>
</tbody>
</table>

With your companion, try to determine the main timeframe (past, present, or future) that is being used in each portion of the passage. Feel free to slow down and replay the passage as you complete the chart below.

5a. What timeframe is used? What key words/topics let you know?
5b. What timeframe is used? What key words/topics let you know?

6. Companionship: Check with Transcript

Using the transcripts in sections 6-A and 6-B, check your answers to Activity 5.

7. Solo: Application Questions

Imagine that you meet the speakers from this passage on your mission. Write 3 questions you could ask them in Spanish. Your questions should show that you listened carefully to them and help you get to know them better.

7a. Mis tres preguntas

8. Solo: Reflect and Evaluate

Answer the following questions (English is ok here):

8a. How did I do at listening in Spanish today?
8b. What would I like to change about how I listen going forward?
8c. What’s the most important thing I learned today?
9. Complete the Questionnaire

10. (Optional) Explore and Offer Additional Comments
Important Sketch

- could embed just-in-time tips
  - e.g. for clients: clone, trace, undo, re-undo
  - really like the idea of linking more
  - alternatively
  - in funny stories or
  - people's memories
  - help w/ that
  - e.g. 'his Grace'

- challenge tools within for drilldown phases

- share your open-ended ones
  - could watch some others

- child's mind map with metacognition