

Mixed Reality and Puzzle-Based Pedagogy for Intercultural
Competence: Developing the I-Agents Arabic Unit

by

ILA RIGGS BROWN

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Approved: *Keli Yerian Ph.D.*
Primary Thesis Advisor

In the modern era, the internet and increased globalization have fundamentally transformed our ability to communicate with others across borders and seas. However, expanding international connectivity requires the capacity to identify and mitigate problems that may arise from communication based on differing communicative foundations, a skill not explicitly addressed in most American curricula for developing youth. As global interconnectedness expands and cultural heterogeneity within communities rises, American youth must develop the self-reflective skills that intercultural competence offers. In pursuit of contributing to intercultural competence education, my thesis discusses the development of a two-day Arabic lesson that utilizes mixed reality, physical, and digital materials. Developed under the existing I-Agents program, this curriculum follows an overarching narrative that exposes students to pragmatic phrases, cultural beliefs, linguistic features of Arabic, and core values of various Arabic-speaking nations. This thesis aims to enhance students' understanding of the Arabic language and the many countries that use it, while allowing them to examine their preconceptions about the Middle East and Arabic. My project documents the process and my learning along the I-Agents Arabic curriculum development as an emerging curriculum developer.

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Introduction

Education lies at the heart of developing well-informed and culturally conscious generations. Incorporating intercultural competence-enhancing programs in elementary schools is a crucial step in exposing learners to new concepts and promoting multilingualism in children. During a time of globally and socially fractured environments, the concept of global citizenship has become an academically visible label for those seeking to bridge these fractures. A common approach to global citizenship is to unify diverse communities by being foremost a citizen of the world. However, this approach ignores the value in our diverse backgrounds and the importance of roots for an individual. Another perspective suggests that individuals require critical thinking abilities and tolerance for ambiguity. These skills are the core foundations of intercultural competency. When considering the communicative implications of the two approaches, it is likely more productive to provide students with the analytical and reflective tools to understand these differences rather than encourage homogeneity.

I have been intrinsically motivated by this project as Arabic has been omnipresent in my personal and student life. After immigrating, my Syrian grandfather chose to linguistically assimilate, believing that his Arab identity couldn't coexist with being American. This experience is not uncommon, as assimilation often feels like the safest path to avoid discrimination. My passion for this project stems from the belief that intercultural competence stands as a tool for peace. In building healthy, reflective communication, it mitigates the propensity for violence and hate that is born from perpetuating stereotypes and withdrawing from unfamiliarity.

From an educational perspective, intercultural competence stands as a tool that exposes children to new concepts and guides them in making meaning through their lens. It is essential to

note that this curriculum is not intended to be a comprehensive two-day encapsulation of Arab culture, nor an introduction to the Arabic language as a subject. Instead, its purpose is to incorporate both linguistic and cultural elements that enable students to understand various ways of conceptualizing communication better and introduce concepts, providing a foundation for enacting intercultural competence with people from these communities. With this goal in mind, the content I have created can be visualized as a series of stepping stones toward intercultural competence, formatted within an overarching narrative.

About The Center for Applied Second Language Studies

In pursuit of enriching American youths' intercultural competence abilities, the Center for Applied Second Language Studies (CASLS) is an institute that develops curricula delivering intercultural competence lessons through mixed reality and puzzle learning for 18 languages. CASLS is one of 18 Title VI National Foreign Language Research Centers that strive to increase the nation's capacity for language education. CASLS develops research-backed curricula that integrate current best practices into the language teaching field, with an emphasis on interlanguage pragmatics and social competencies (CASLS, 2022). These approaches purposefully hinge on the notion that language is inherently a communicative act that requires introspection on one's own cultural and linguistic practices. CASLS has developed a variety of Mixed Reality Experiences (MREs) that serve as collaborative on-ramps to meaning-making, utilizing gameplay and media to situate learning in meaningful contexts. MREs combine functional language learning in situations that require teamwork and therefore co-construct meaning. Under this MRE umbrella lies my Arabic module, which adds this critical language to the 18 included in the complete I-Agents curricula.

About I-Agents

I-Agents is a short-term series of programs, with region-focused units lasting three weeks each. The primary goal of the program is to increase cultural awareness, with a secondary goal of enhancing learners' self-efficacy. It takes place as a weekly hour-long session nested within Edison Elementary School's Treetop Academics after-school program. These units are built around a narrative, which integrates historical, social, and linguistic elements specific to the society that predominantly uses that language. The narrative provides context to each puzzle during gameplay, which is provided by a recurring character named "R". There are 18 languages built into this series. Further, each unit has three levels coordinating with the learners' age cohorts: Sun (K-1), Leaf (2-3), and Fire (4-5). According to *I-Agents: Guidelines for Developing Escape Rooms for Elementary Ages*, I-Agents curricula leverage escape room mechanics and knowledge-based activities to enhance intercultural awareness and build multilingualism. The Arabic project I created incorporates a diverse range of linguistic and social elements that aim to provide students with a deeper understanding of the Arabic-speaking world. It is a new addition to the 18 languages and fills a need for geographic diversity because it is the only Semitic language in the series. I have worked in the I-Agents program since January 2025, assisting and occasionally leading lessons every Wednesday from 2:00 to 3:00 PM. Through this exposure, I have gained a solid understanding of how each unit is run, students' preferences for specific formats, and the behind-the-scenes preparation that instructors undertake before class begins. This prior work with the program has greatly informed my final product.

Background

Why is Intercultural Competence Important?

The rise of globalization has led to significant shifts in social, cultural, and geopolitical environments worldwide (Zhang & Zhou, 2019). The rapidly widening spheres of influence, brought about by the technological revolution, have created more diverse social and political spaces, elements shaping our country into a new landscape (Petrov, 2018; Zhang & Zhou, 2019). Contemporary globalization is referred to as globalism, defined as “hyper-structurization at all levels of social relations – in economics, politics, management, [and] culture” (Petrov, 2018, p. 84). This hyper-structurization is a displacement of traditional structural systems; in contrast to popular belief, this does not promote homogeneity but instead encourages competition between countries in a global market (Petrov, 2018).

The U.S. is a prime example of a powerful actor in shaping international markets. The US has a significant influence on trade, as evident in its actions, including blocking the WTO Appellate Body to impose reforms on nations with competing industrial markets (Poon, 2024). These competitive dynamics are evident in the current administration’s *America First Priorities*, which have rhetorical implications that elevate nationalistic ideologies and seek to reduce reliance on international trade (The White House, 2025; Bukhari et al., 2025). The United States’ disengagement from international organizations and agreements is expected to leave a vacuum of global political power that can be filled by other conglomerates such as China or the European Union (Bukhari et al. 2025). This shift in future economic and trade power emphasizes the need for U.S. citizens to be able to participate in global markets that diverge from their national social and cultural backgrounds.

The context of international power rearrangement is a vital piece of understanding why intercultural competence is valuable to US citizens. Not only are we in a period of remarkable change in international political power, but the average citizen is also exposed to global social spaces via technology (Zhang & Zhou, 2019). Considering the implications of this trajectory, the next generation must have the tools to enact inclusive empathy and relative understanding when they meet unfamiliar social or cultural dynamics (Woolf, 2010).

For children in the US, increased opportunities to cross-culturally communicate through the internet and migration patterns imply that the social dynamics they will navigate are wholly different than those of their predecessors. Contexts with a high probability of interacting with someone outside of their cultural or linguistic sphere can confront young people with discomfort and frustration if communication breaks down. The development of intercultural competence courses in mental and physical health sectors has been robust, necessitated by disparities in health outcomes across demographics. Oregon has required cultural competence training for all Oregon Medical Board licensees under HB 2011 (2019) (OMB, 2021). However, when it comes to primary education, intercultural competence isn't mandatory in Oregon schools. Given the absence of an intercultural competence requirement, CASLS has adopted this responsibility as a part of its Language Resource Center (LRC) duties to support K-12 education and critical language programs (Rodriguez, 2024).

The I-Agents curricula demonstrate how intercultural competence can be introduced in a supplementary program that engages critical thinking skills, fosters communication development, and promotes awareness of linguistic and cultural communities outside one's own. By employing Mixed Reality, specifically in puzzle form, the curriculum encourages the

acquisition of developmental skills that support the co-creation of meaning while pushing learners to become resilient in the face of challenges.

Employing Mixed Reality to Facilitate Intercultural Competence

As a supplementary course, a Mixed Reality Experience (MRE) has the potential to expand students' collaboration and empathy towards others (Peters, 2025). Collaborative skills are developed through a component of self-efficacy that is inherent in puzzles, specifically, colloquially recognized as the "aha moment." This marks a breakthrough in the puzzle at hand, persevering through its intensity, which challenges learners to sit with frustration, take risks, and make another attempt (CASLS¹). Csikszentmihalyi, a psychologist specializing in creating optimal educational experiences, describes this as a "flow" that is achieved when "a person's body or mind is stretched to its limits in a voluntary effort to accomplish something difficult or worthwhile" (1990, p.1). The flow state promotes two psychological processes: differentiation and integration. Differentiation promotes individuality because the learner feels more capable and skilled at persevering through a difficult task using their unique approach. Integration is the state in which learners' intentionality, feelings, and senses are devoted to the task at hand. Puzzles that utilize MREs, like I-Agents curricula, enact both processes by encouraging learners to make connections, think critically, and find clues across the material they are presented with.

Essential components of MREs include under-specification, integrating supportive frames and schema, and leveraging multimodalities. Under-specification lets participants choose their unique path, where there is no explicit right or wrong way to make meaning. This element highlights the inherent creative and co-constructed nature of language, coordinating other facilities of knowledge, thinking socially, culturally, and logically (Daradics et al. 2021).

Employing under-specification comes to life in a lesson that requires learners to hypothesize,

inducing them to coordinate information across domains and utilize hidden-in-plain-sight and locked elements. (Daradics et al. 2021). By establishing ambiguity, the learners must engage with each other to proceed. In essence, under-specification facilitates epistemological exploration and promotes pro-social behavior.

Secondly, supportive frames and schemas associate material and information with familiar narratives, which personalize the rules or participation (Daradics et al., 2021). In I-Agent's curriculum, the facilitators are both instructors and characters in the narrative; they deliver content and provide intention to each puzzle. Under-specification works because the contexts are structured within a salient narrative, allowing information gaps to be filled. I-Agents frequently employ a familiar pattern, such as numbering, to help learners make connections. The example of the I-Agents Yucatan Mayan unit is an example of this. In one specific puzzle, Mayan numbers are the primary focus; these follow a similar pattern to tally marks, counting in sets of five until they diverge at twenty (CASLS²). When learners were observed engaging in this unit, they reached the aha moment promptly, drawing on their prior knowledge of counting in fives, thus making puzzles requiring mathematical equations in Yucatec Mayan less time-consuming. MRE creators design these puzzles considering their audience's background; in a practical sense, it can consciously determine the pace of the lesson.

The final component of MRE design is leveraging multimodalities: the learner physically embodies the task using multiple media. In contemporary programs that utilize technology, it is beneficial for learners to experience both digital and analog materials. Diversified tasks target specific types of thinking and processing, drawing from a range of knowledge, which benefits learners by pushing them to make connections across media.

MR puzzles are an apt medium for conveying information that challenges students to navigate ambiguity while connecting linguistic and cultural content to reach an “aha moment”. The I-Agents Arabic module aims to enhance students' background knowledge of the Arabic language and culture through a process that feels purposeful. The narrative ties together videos, ascribing a narrative purpose to each puzzle and a measurable end goal. One way progress is measured is through autonomous feedback in the form of constraints placed on the answer areas, making sure that students know when they arrive at the correct answer and can proceed without a teacher checking every paper. The end goal of the I-Agents Arabic unit is to find Iram of Pillars and how it disappeared. MR materials support the sequential delivery of Arabic material alongside the narrative. Each video, puzzle, or slide I created seeks to either address a core value or manage misconceptions often held about the Arabic language and culture.

Arabic in the United States

The I-Agents’ two-day K-5 Arabic curriculum seeks to provide content and an instructional guide for an after-school program in Eugene, Oregon, through a critical language. Critical Languages are characterized by their propensity to strengthen “our national security, economic prosperity, and engagement with the world” in alignment with the U.S. Department of State’s diplomatic goals (CLS Program, 2025). The effort to expand Americans’ linguistic capacity to serve diplomatic goals was stimulated by President Bush in 2006 with the “National Security Language Initiative (NSLI, 2025)” (Taha, 2007). Following major events that necessitated diplomatic relations in the Middle East, namely 9/11, the Arabic language was recognized for its security and economic value by the NSLI (Taha, 2007).

Currently, the presence of social issues like Islamophobia and anti-immigrant rhetoric emphasizes the criticality of cultural and linguistic awareness in non-Arab countries. After

Hamas's attack on October 7th, the Council on American-Islamic Relations (CAIR) reported the highest incidence of discrimination perpetuated based on a person's Muslim or Arab identity in their 30-year history. Over half of the discrimination complaints for the year 2024 were filed within the three months following the attack (CAIR, 2024). In Oregon, Arab hate crimes rose 17% between 2022 and 2023; even more pressing, anti-Muslim hate crimes rose by a concerning 263% during this time (Kerodal et. Al., 2024, p. 69). Hate and violence can be a product of both conditioned attitudes and the lack of skills in coping with ambiguity, i.e., fear, as a product of not understanding people who diverge from the cultural or communicative values one holds. These truths underscore the need for education systems to develop action plans that equip American youth with the skills to manage these feelings. The relationship between Arabic and Islam is undeniable; the treatment of both in the U.S., especially in this decade, makes it pivotal for Americans to deepen their understanding of predominant values in the Middle East. Within the U.S., Arabic is valuable as a vessel for both economic opportunity and cultivating a culture of respect and understanding towards Arabs.

Process Reflection and Feedback

My thesis project seeks to address these gaps in understanding through the vessel of I-Agents' bottom-up work with American youth. By exposing students to Arabic language and cultural elements within Arabic-speaking communities in a classroom, students are prompted to challenge any negative perceptions they hold. The foundational methodology for developing the project combines research collected inside and outside of CASLS, supplementing existing templates and MRE design insights with Arabic-specific background research. Throughout the development of this program, my process has involved extensive reflection on the cultural and linguistic elements that I chose to include, with a critically analytical rationale behind each

choice. I held discussions with colleagues, friends, and educators who have backgrounds in Arabic or language teaching to guide my choices.

Throughout the creation process, I worked one-on-one with Christopher Daradics, who oversees the I-Agents program, meeting weekly to evaluate the design mechanics of each step in the puzzles and assess the effectiveness of the animated videos. These meetings transformed the materials I created from my initial ideas, as translating my original goals into each puzzle shifted constantly. Christopher's feedback helped me visualize how the students would perceive the lessons, how straightforward the narrative and directions are, and how the format of each puzzle supported its learning objectives. Another source of feedback was Jason Aulicino, founder and executive director of the Treetop Academics program. Jason has played a crucial role in logistically visualizing each I-Agents unit. His feedback addressed the coherence of the instructions for teachers, the timing aspect of activities, and the rigor of each puzzle, all of which were differentiated by age group. Finally, Dr. Yerian helped me stay true to principles in the language teaching field, such as Backward Design, authentic materials, and incorporating feedback.

This project not only presents a new I-Agents unit but also documents my design process and learning that came as a result of feedback. Along the way, I made numerous changes that reflect my goals in creating a curriculum that is coherent in direction and narrative, challenging in the way it employs ambiguous tasks, and valuable in the content and Arabic words it teaches. Throughout this process, these goals shaped my final product. Designing an I-Agents unit requires multiple materials and media elements, including puzzles, videos, a slideshow, supplemental materials, and teacher guides. This thesis will specifically focus on designing the puzzles as they are the unique element of I-Agents curricula.

Arabic I-Agents Curriculum

I-Agents Curricula Design Requirements

I-Agents' curricula follow a criterion that standardizes their appearance, constrains time, and necessitates a cross-platform connection among all the materials, digital and physical. Design elements that I-Agents modules require include a mission checklist on the first page; bottom of the page graphics with the logo, step number, and activity title; a branded color palate, and color-coded indications of the puzzle level color (Sun is yellow, Leaf is green, Fire is red) (Style Guide for I-Agent's Materials, CASLS). Puzzle packets and slides are developed using Canva, and videos are created on the Vyond animation software. Throughout the curriculum, the character "R" must appear, narrating the steps to solve each puzzle using the "female-Cora" voice in Vyond (Style Guide for I-Agent's Materials, CASLS). The puzzle font always remains Public Sans, except for activity titles, which must be Glacial Indifference (bold, 26.3 pt for step number; regular, 21.3 pt for name).

Mixed reality materials also pose the challenge of maintaining consistency between characters and imagery across different media. To do this, I created all the characters in Vyond to use in both the animated videos and puzzles. Typically, the I-Agents curriculum often includes videos created outside of CASLS. It is critical to keep learners engaged with the purpose of each puzzle. Therefore, I decided to create my own videos to support a connection across materials and integrate the narrative into all media used.

The final design parameter for typical I-Agents courses is that the curriculum must fill three lessons, each 50 minutes long. The I-Agents Arabic module is two days long because the other units had already met the Grant quota for the required hours of material. The shortened

curriculum also allows for I-Agents Arabic to be squeezed between the other modules when needed.

Lesson Overview

DAY 1 - Introducing Iram, Steps 1 & 2		
Steps	Procedure	Facilitation Materials
<p>Introduction to Mission [15 minutes]</p>	<ul style="list-style-type: none"> • Introduction to the mission using <i>The Lost City of Iram</i> video. During the introduction of the word “Marhaba” pause for learners to repeat what they hear. • After the video, play 2 truths 1 lie with learners to recall information discussed during the video. • Project <i>The King's Tablet</i> onto the screen, expose learners to the sounds Arabic letters make, have them recall the 3 major ways Arabic writing differs from English (It is read “backwards”, some letters connect, and short vowels are written above the long vowels and constants). • Next, project a duplication of <i>The King's Map</i> of the Middle East and North Africa on the screen, this version is without the country labels. Ask students to make predictions on where the countries mentioned in the video are located. After, have them check their predictions against the completed <i>The King's Map</i>. • Divide learners into groups (sun, leaf, and fire). 	<p>“The Lost City of Iram” (Appendix A.)</p> <p>The Kings Map (Fig. 3)</p> <p>The Kings Tablet (Fig. 2)</p>
<p>The Lost City of Iram [15 min]</p>	<ul style="list-style-type: none"> • Play the R introduction to Mission at the end of <i>The Lost city of Iram</i>. 	<p>“The Lost City of Iram” (Appendix A.)</p>

	<ul style="list-style-type: none"> • Give learners the I-Agents Arabic Packet and have them use the information from <i>The King's Map</i> and <i>The King's Tablet</i> to find out where their next destination will be. • After solving this word puzzle it will be revealed to the learners that the next country, they will search for Iram in is Egypt. • Learners check off Step 1 on their Mission Checklist once they have verified their answers are correct. 	<p>The Kings Map (Fig. 3)</p> <p>The Kings Tablet (Fig. 2)</p> <p>The 7 Wonders of the Middle East (Fig. 1)</p>
Souq Search [15 min]	<ul style="list-style-type: none"> • Introduce the Egyptian Souqs using the video <i>Nawwarit Masr</i> • Ask students to restate their mission purpose before moving on to the next puzzle • Students will end up discovering that they will travel to Wadi Rum Jordan next. • Learners check off Step 2 on their Mission Checklist once they have verified their answers are correct. 	<p>“Nawwarit Masr” (Appendix B.)</p> <p>Souq Search (Figs. 9 & 10)</p>
Cool Down [5 min]	<ul style="list-style-type: none"> • Ask learners to try and pronounce the different dialectal versions of “I want”. Ask them if English has dialects? (It does!) and identify some different dialects within English, (ex. British English, Indian English, or Singaporean English); 	
DAY 2 - Steps 3, 4, & 5		
Steps	Procedure	Facilitation Materials
Introduction to Mission [20 minutes]	<ul style="list-style-type: none"> • Today students will start by refreshing their memories, ask them about what happened last week? where did they end up? what is a souq? 	“Welcome to Wadi Rum” (Appendix C.)

	<ul style="list-style-type: none"> • Next, they will watch the video <i>Welcome to Wadi Rum</i>, this will introduce their mission • The next video, <i>The Key to Trust</i> is a crash course on Arabic pragmatic phrases they will need to know • At the end of <i>The Key to Trust</i> there is a mini recall pause quiz where the King gives learners a situation and they say what phrase they would use. • Call on students in the classroom come up with a situation and have another student say which phrase they would use, if any? • Divide learners into groups (sun, leaf, and fire). • Students get their mission from R, fill in the blanks in the text above the Bedouin tribe member • Learners check off Step 3 on their Mission Checklist once they have verified their answers are correct. 	<p>“The Key to Trust” (Appendix D.)</p> <p>A Talk Over Tea (Fig. 14)</p>
<p>Secrets in Stone [15 min]</p>	<ul style="list-style-type: none"> • Now that students have gained the Bedouins trust they may watch the video <i>Waqt Al-Shay</i> • Refresh the students on the directions before they can start the next step. Ask students to come up and show you the direction as you command them with words. • After solving this map, they will receive their final destination: Rub Al-Khali 	<p>“Waqt Al-Shay” (Appendix E.)</p> <p>Secrets in stone (Fig. 17)</p>

	<ul style="list-style-type: none"> Learners check off Step 4 on their Mission Checklist once they have verified their answers are correct. 	
Souq Search [15 min]	<ul style="list-style-type: none"> Before they start this puzzle they must listen to the final transmission from the king (Appendix F.) Students work in small groups to fill in the blanks in the puzzle <i>The Fall of Iram</i> When students finish, the teacher asks them to tell the story of Iram. Have students speculate what Iram would look like if it was still around today. 	<p>“The Final Transmission” (Appendix F.)</p> <p>The Fall of Iram (Figs. 22)</p>
Cool Down [5 min]	<ul style="list-style-type: none"> Do a unit recap, asking students to recall key linguistic, historical, and cultural lessons that each puzzle taught. Learners check off Step 5 on their Mission Checklist once they have verified their answers are correct. 	

Narrative

The I-Agents Arabic module places learners on a quest to find and explain the disappearance of a lost city referenced in the Quran: Iram of the Pillars, *Iram dhāt al-‘imād*, which God vanquished due to the corruption of its leader, King Shaddad (Quran 89:6-14). In the narrative, the Djinn, inhuman spirits infamous across Middle Eastern tradition, have hidden the location and reasoning for Iram’s destruction. This story holds historical, social, and cultural value that transcends the Arab world. It is referenced in *The Book of One Thousand and One Nights*, featured in the *Uncharted* video game series, and T.E. Lawrence, also known as Lawrence of Arabia, famously coined the name for the city, “Atlantis of the Sands” (Elmaz,

2017). In Western imagination and Arabic literature, Iram has evolved into a romanticized paradise hidden within the inhospitable desert, with explorers in the twentieth century going so far as to attempt to physically locate the city after its fame spread beyond the Arab world (Webb, 2019). Iram's location remains a mystery to this day, with speculations that it may reside in Wadi Rum, Jordan; Damascus, Syria; or Alexandria, Egypt (Elmaz, 2017). I ideated this story as the narrative for the I-Agents Arabic unit due to its cultural significance and mysterious nature. Because the city's disappearance is a modern-day mystery, it is both exciting and leaves something to be discovered, giving the puzzles a final objective.

“R” assigns learners their mission: the King of Saudi Arabia has tasked them with finding the location and reason for the disappearance of Iram. The clues have been scrambled by the Djinn. The I-Agent students will travel across Egypt, Jordan, and the Arabian Peninsula to gather clues, exploring cultural, linguistic, and historical elements specific to each country. Each country adheres to the speculative location of Iram whilst also representing cultural hubs within the Arabic-speaking world. The conscious choice to format this tale around a search for the city contextualizes each area during the MRE. Inviting students to explore multiple countries exposes them to the geographical, linguistic, and historical diversity of the Middle East and Arabic itself.

Overview of Materials

The design process of the I-Agents Arabic puzzles involved feedback on the visual readability, language, and cultural content, and the effectiveness of the puzzles in delivering the content. In the following sections, I will discuss each puzzle, 1-5, in the series. First, I will outline the learning goals and walk through the process of completing the puzzle, referencing the puzzle parts in the Figures below. The introduction section also describes the lesson plan and supplementary videos, along with their corresponding scripts, which are provided in the

Appendix. Next, the final draft of the puzzle is shown in the prominent Figure under the first section. This is followed by a section that explains how the puzzle is differentiated for the different age levels within the groups. The Sun group consists of kindergartners and first graders, the Leaf group comprises second- and third-graders, and finally, the Fire group includes fourth- and fifth-graders. Some puzzles require differentiation between levels to make the puzzle more conducive for each group's cognitive levels. Lastly, I describe how the puzzle changed throughout its development and how the feedback I received at each stage influenced the final product's design. This structure will not only outline the purpose and process of the puzzle but also describe my design process, which is the focus of my thesis document.

Puzzle 1: 7 Wonders of the Middle East

Introduction to Puzzle 1

The goal of Puzzle One, “7 Wonders of the Middle East”, is to recognize the phonological, script-related, and directional elements of Arabic that make it challenging for English speakers. They will be exposed to significant cultural and historical sites in the Middle East and gain familiarity with the region's geographical layout. Before receiving their packets, the students are shown a video that will orient them to the narrative and establish a basic level of knowledge of Arabic. In Appendix A, the script for “The Lost City of Iram” delivers key Arabic information, while the King of Saudi Arabia illustrates the narrative and mission for this module (Appendix A). The video introduces students to Arabic and its distinctive script, which is read from right to left, unlike the English script. During my design process, the Arabic writing system was perceived to be the biggest challenge for learners. The video explicitly illustrates the directional and visual arrangement of Arabic script by first exposing learners to the word “مَرْحَبًا”

/mar'ħabæ/ in English and then introducing its Arabic representation (Appendix A). Color coding and animation depict how the arrangement of letters is backwards from English and how some letters connect within a word. This is essential reinforcement because it will dictate how they order the letters in the scrambled code.

The video proceeds to give students information about each site depicted on the page. In this first activity, students are asked to figure out which of the sites¹ is their starting point. Ultimately, the King of Saudi Arabia explains that the clues are scrambled due to the Djinn (Appendix A). He discusses the significance of Djinn and their role in Middle Eastern lore. The video ties these characters to the puzzles to build learners' familiarity, as they are critical to understanding the explanation of Iram's disappearance in Puzzle Five (Appendix A). After watching the two videos, students receive a message from the character "R" on the slides, which restates their mission and reminds learners that Arabic is read from right to left, not left to right (Appendix A). This is essential reinforcement because it will dictate how they order the letters.

The first step in the 7 Wonders of the Middle East puzzle is transliterating each letter in the green code at the bottom using "The Kings Tablet" (Fig. 2). The scrambled word includes the long vowel $\text{ﻯ} /j/$, written in "The Kings Tablet" as a "ī" for comprehensibility². After this, they are left with the letters "ya or ī, ah, z, j" written under the code. Next, they must determine how to unscramble the word. By examining the seven sites listed above, they will notice that only one contains the letters forming "jīzah": the "Pyramids of Jīzah" image (Fig. 1). For this step, they also must decide if the ﻯ is a ya or ī. As a form of feedback, the correct number of spaces for the

¹ All Sites were chosen for their UNESCO Heritage status or regard as a Wonder of the Middle East

² I chose to transliterate Arabic in according to the International Standardization Organization (ISO 233-3) because its simplified equivalency was more apt for first time Arabic exposure than using the International Phonetic Alphabet (IPA).

word “jīzah” are formatted in the green spaces where they will write the code. This step assures that they know the word only has five letters, thus it must be a “ṯ” in the space. Finally, to find the country this site is in, they must use the Map Page to find the numbered cites within their respective countries (Figure 3). They will write their answer in the red spaces, which are also parsed out to match the number of letters in “Egypt,” their next destination.

7 Wonders of the Middle East



Jericho



J'itā Grotto



Wādī Ramm



al-Rub' al-Khālī



Mausoleum at Halicarnassus



Pyramids of Jizah



The Hanging Gardens of Babylon

Unscramble the letters to find the **Country** where you will begin your mission



The Djinnns have concealed the path to Iram, Help me find where to start!



(What country is this located in) (Use the Kings tablet for writing letters)

=



=

ج زة ي

STEP 1

7 Wonders of the Middle East



(Figure 1)

The Kings Tablet

I need your help I-Agents, the only information I have to help you is this map but the Djinn have scrambled clues that lead to Iram!

0	th = ث	t = ت	b = ب	ā = ا
1	d = د	kh = خ	h = ح	j = ج
2	s = س	z = ز	r = ر	dh = ذ
3	t = ط	d = ض	ṣ = ص	sh = ش
4	f = ف	g = غ	a' = ع	z = ظ
5	m = م	l = ل	k = ك	q = ق
6	ya = ي	w = و	h = ه	n = ن
7	á = ع	i' = ا	i-e = و	u = و
8	a' = ا	a = و	ah = ة	

Arabic Short vowels are only written in very formal settings

(Figures 2 & 3)

Differentiation

7 Wonders of the Middle East

The Djinn have concealed the path to Iram. Help me find where to start!

Unscramble the letters to find the Country where you will begin your mission

STEP 1
7 Wonders of the Middle East

The Kings Tablet

0	th = ث	t = ت	b = ب	ā = ا
1	d = د	kh = خ	h = ح	j = ج
2	s = س	z = ز	r = ر	dh = ذ
3	t = ط	d = ض	ṣ = ص	sh = ش
4	f = ف	g = غ	a' = ع	z = ظ
5	m = م	l = ل	k = ك	q = ق
6	ya = ي	w = و	h = ه	n = ن
7	á = ع	i' = ا	i-e = و	u = و
8	a' = ا	a = و	ah = ة	

Arabic Short vowels are only written in very formal settings

(Figure 7 & 8)

For the Sun group, the “7 Wonders of the Middle East” is differentiated through explicit color coordination clarifying the transliteration of “ي” as “ī” by showing one space under the letter in the first step (Fig. 7). In “The Kings Tablet” each letter they will need is also highlighted with its respective color matching the scrambled code (Fig. 8). To unscramble the word, they are given the order of letters which match the colors in the code and transliteration spaces (Fig. 7). This helps reduce the cognitive work of processing the opposite direction arranging required in the Leaf and Fire puzzles. Instructing this group relies more on explicit guidance, and the puzzles are projected for the group to follow along on their packets before they work independently. This ensures that students understand the steps necessary to arrive at the answer.

Modifications During Design



(Figure 4)

(Figure 5)

(Figure 6)

Changes made in these stages reflected the feedback I received on task clarity, integrating autonomous feedback, and narrative integration. After consulting with Christopher Daradics on Draft 1, I removed the country names, which were color-coded to indicate long and short vowels, to clarify the task (Fig. 4). The original function was to provide the country where each site was

located; however, this would have obscured the learner's primary objective. In its place I made the King's Map which can also be used in Puzzle Two (Fig. 3). To integrate feedback, I used the spaces in my final product to distinguish correct answers from incorrect (Fig. 1). In Figures 4, 5, and 6 I was playing with different iterations of the answer space to alleviate the cognitive jump between the transliterating the Arabic script into English. Figure 5 was missing a space for students to write the word "Jīzah", and another to write the country where the Pyramids of Jīzah are located. Figure 6 included this space but needed spaces for the letters to employ autonomous feedback if the students transliterated the word with the correct number of spaces. To integrate the narrative, Dr. Yerian and Christopher Daradics advised me to include imagery of the Djinns and a discussion of them at the beginning of the story. They are mentioned in the King's speech bubble and pre-activity exposure within "The Lost City of Iram" video (Fig. 1). I originally had two videos attached to this activity. The first was a video discussing Arabic facts and differences from English with no plot integration. The second was the introduction of the King of Saudi Arabia's mission. During my second script draft, Christopher Daradics advised me to incorporate the Arabic information into the storyline, allowing the facts to be woven into the greater narrative in a meaningful way (Appendix A).

Puzzle 2: Souq Search

Introduction to Puzzle 2

By the end of "Souq Search," learners will be able to recognize that Arabic has many dialects and distinguish the three dialects spoken in the regions. This puzzle exposes students to different dialectical variations of the verb "I want" and exposes learners to the dialectical diversity in Arabic. Before starting this puzzle, learners will be shown a video embedded in the

slides where the King of Saudi Arabia welcomes them to Egypt (Appendix B). This video sets students up to understand the context in which the puzzle is situated. It helps them visualize and understand the importance of Souqs, large open-air markets, as a hub of gathering for people throughout the Arab world. The King introduces their objective for this puzzle: “I have special intel that you are looking to trade to get information from someone speaking the Shami /ʃa:mj/ dialect who is a merchant in the Souqs” (Appendix B).

To begin, learners must use the dialect cypher to decide which color-coded region uses the Shami dialect (Fig. 10). Matching the color-coded English “Shami” to the Arabic word will reveal that people in the green region speak Shami Arabic. Next, they will need to find the green colored word for “I want” in the seller’s dialogue bubbles (Figs. 9 & 10). By matching these they will see that “I want” in the Shami dialect is “بدي” /bidj/ (Fig. 9). Finally, they need to find the hidden flag and match it to the country the seller is from, where they will travel to next (Fig. 9 & 10). By revealing the Shami speaking region, they can search that area on the map to find the country that uses the flag hidden in the plate to the speakers’ left (Figs. 9 & 10). This is the flag of Jordan, the home of their next destination, Wadi Rum.

Welcome to the Souqs!

A seller here has information about where to look for Iram, **they are speaking the Shāmī Dialect** saying “I want” to trade for the information.

Step 1: Find out where the **Shāmī** dialect is spoken using the dialect cypher.

Step 2: Match the color in the Shāmī dialect region to the word for “I want” in this dialect.

Step 3: find a hidden artifact with the flag of the country the seller is from, **this is your next destination.**



dīnār a'shrah

Bidī

١٠ د.ا. بدی



riyāl a'shrah

A'bgá

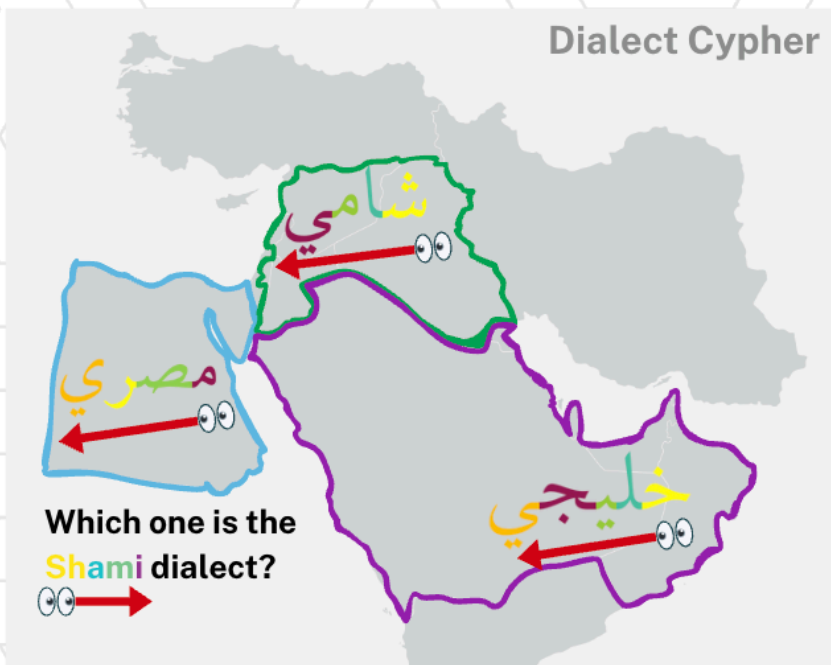
١٠ ريال أبغى



STEP 2

Souq Search

(Figure 9)



The seller has told you to look for Iram in:



STEP 2
Souq Search

(Figure 10)

Differentiation

Welcome to the Souqs!
A seller here has information about where to look for Iram, they are speaking the Shāmī Dialect saying "I want" to trade for the information.

Step 1: Find out where the Shāmī dialect is spoken using the dialect cypher.
Step 2: Match the colors in the Shāmī dialect region to the word for "I want" in this dialect.
Step 3: find a hidden artifact with the flag of the country the seller is from, this is your next destination.

Dialect Cypher

The seller has told you to look for Iram in:

STEP 2 Souq Search

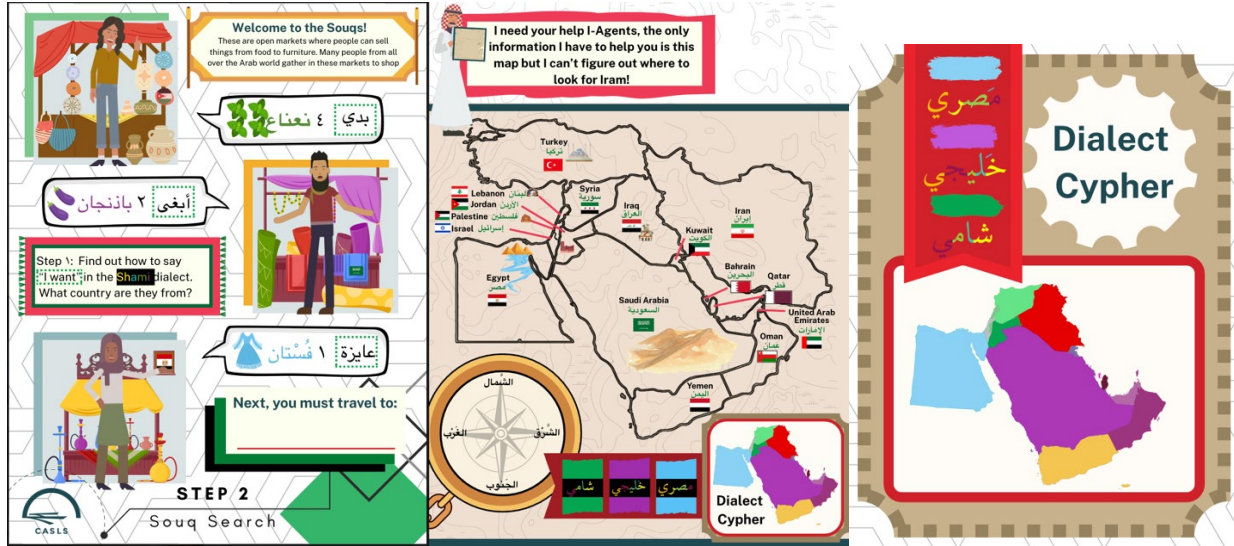
STEP 2 Souq Search

Figure 12 (left) shows a souq scene with a woman and a speech bubble containing the text: "gi-ne a'shrah A'āizah عابرة ١٠ ج م". Figure 13 (right) shows a souq scene with a man and a speech bubble containing the text: "dīnār a'shrah Bidī بدى ١٠ د ا". Below the souq scenes are two identical "STEP 2 Souq Search" labels with a CASLS logo.

(Figures 12 & 13)

The Fire group’s puzzle differs in that the colors are included to match the Arabic dialect names to their English counterparts for the Khaliji and Masri dialects. Still, not the Shami (Fig. 13). The “Dialect Cypher” requires them to cross out the other two to narrow down the regions. This extra step also requires them to take note of the short vowels in the dialect “خَلِيجِي” /xaljdzj/ Khaliji, as its colors are like the dialect they are searching for: “شامي” /ʃa:mj/ Shami (Fig. 13). This requires learners to eliminate the two other dialects rather than simply finding the Shami dialect first. I also chose to execute it in this way because it draws their attention to the different regions first and necessitates them to recognize the geographical areas where the other two dialects are spoken.

Modifications During Design



(Figure 11)

In the first iteration of “Souq Search”, feedback mainly focused on organizing information. Draft 1 condensed the puzzle and the supporting “Dialect Cypher” onto two pages, which fragmented the instructions (Fig. 11). This put an immense cognitive load on learners to place the dialects in their respective regions. By formatting the puzzle on two pages and creating a dialect map with clear connections between dialect name, region, and each seller’s dialectal iteration of “I want,” my final product bridged these gaps (Figs. 9 & 10). Another small but meaningful change was the seller’s requests, in the first I had them requesting objects to trade for information, the goal being to demonstrate the prevalence of bargaining in Souqs (Fig. 11). However, the connection between the object and the puzzles goal was thin because the dialectal forms of “I want” are the primary focus. Instead, I had the seller request money with the bills and currency names from the country of origin. In a basic sense, currency is a more authentic item than the original cartoon pictures.

Puzzle 3: A Talk Over Tea

Introduction to Puzzle 3

Through the content in “A Talk Over Tea”, learners will be able to identify the appropriate contexts in which Inshallah, Mashallah, and Bismillah should be used. Pragmatics is a critical layer of language use that is often overlooked. In Arabic, these seemingly religious phrases are used day-to-day by everyone, including non-Muslims. This puzzle guides students through the contexts in which each word is appropriate for use. Before starting this puzzle, learners are shown the video “Welcome to Wadi Rum,” where they are introduced to the landmark’s history and the nomadic Bedouin tribes that are dispersed throughout the Middle East (Appendix C.). In the following video, “The Key to Trust”, the King of Saudi Arabia appears and introduces the pragmatic uses of 4 important phrases embedded in different contexts (ما شاء الله /ma: fa:ʔ ʔllh/, إن شاء الله /ʔn fa:ʔ ʔllh/, بسم الله /bsm ʔllh/, and والله /wa:llh/) (Appendix D). He then initiates a knowledge check, prompting learners to answer, while watching, which phrase they would use in specific situations, i.e., “Imagine you sit down at my table for a meal, what would we say before eating?” (Appendix D). Finally, on the slideshow “R” clarifies the task saying, “I- agents, you have been invited to have tea with the Bedouins; you must gain their trust by using some common phrases the King will teach you” (Appendix D). Recalling the phrases in the video they just watched and practiced, learners are prepared to fill in each blank with their respective phrase (1. ما شاء الله. 2. إن شاء الله. 3. بسم الله).

_____ your country's
hospitality is amazing!
_____ we will find Iram.
Lets enjoy some tea together,
first we must say _____



To earn his trust, fill in each blank with the correct word. Use the key below to help you.

١
إِنْ شَاءَ اللَّهُ
← i'n-shā-āllah

٢
بِسْمِ اللَّهِ
← bismāllah

٣
مَا شَاءَ اللَّهُ
← mā-shā-āllah

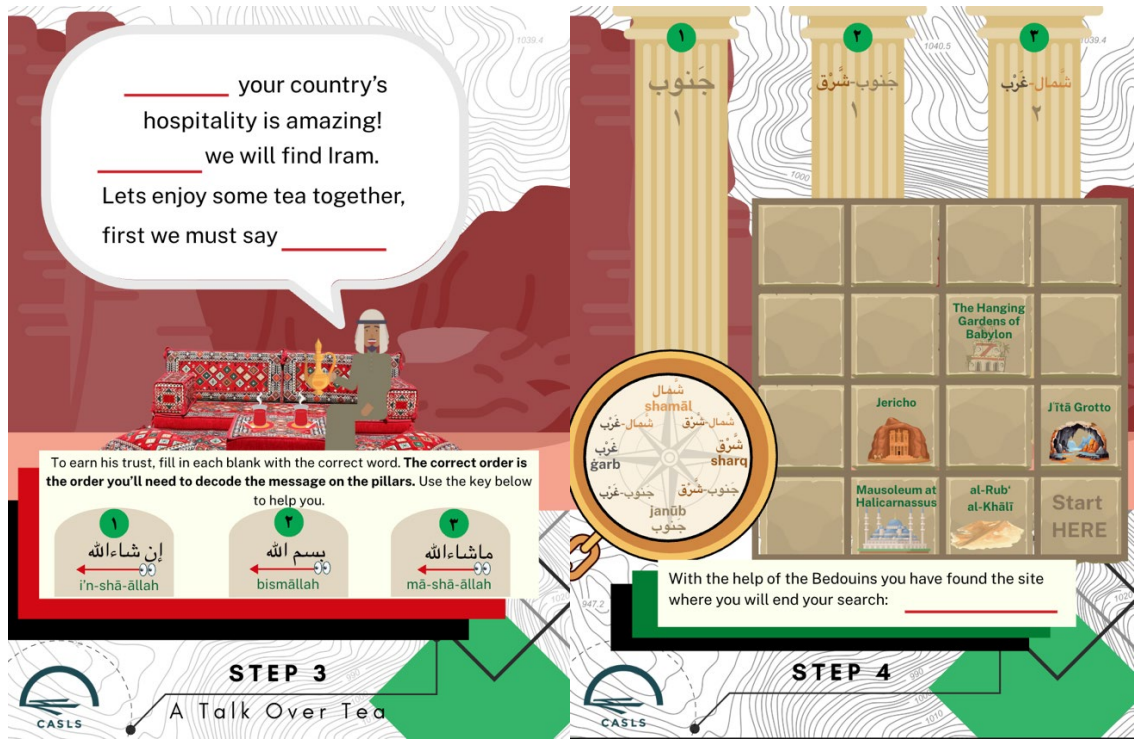


STEP 3

A Talk Over Tea

(Figure 14)

Modifications During Design



(Figures 15 & 16)

In the first arrangement of “A Talk Over Tea,” the green numbers above each word were meant to be in the same order as students were to follow the directions on the pillars in “Secrets in Stone” (Figs. 15 & 16). However, I ran into two problems that made this an undesirable connection. The first was that almost every order I could plug in with three directions ultimately reached the same destination, with outliers only occurring because they would go off the map. In this version, they could simply follow whatever order didn’t place them off the map, disregarding the sequencing altogether. The second reason is that “A Talk Over Tea” already holds value as an introduction to the pragmatic use of these phrases, so there was no need to give it another purpose. To contextualize this puzzle in the narrative, I framed the activity as a step to gain the trust of the Bedouins (Fig. 14 & Appendix D). Making it a crucial part of continuing to the next step, where they show the learners the pillars.

Puzzle 4: Secrets in Stone

Introduction to Puzzle 2

In this puzzle, learners will be presented with pillars that include both Arabic numbers and the Cardinal directions in Arabic. They must use the directions on the pillars to find the final site they will visit. By the end of the activity, learners will be able to follow the Arabic cardinal directions and interpret Arabic numbers to locate a specific site. Before beginning the puzzle, a video titled “Waqt Al-Shay”, Teatime in English, is shown (Appendix E). The Bedouin tribe member introduces the students to some aspects of tea culture in different Arab countries, followed by an overview of the cardinal directions in Arabic (Appendix E). The Puzzle Two worksheet includes a reminder of these directions on a compass in the bottom left corner (Fig. 17). To solve this puzzle, learners must first locate pillar one (١) (Fig. 17). To do this they could use three pieces of information they have at their disposal: that Arabic is read right to left, the numbered steps in the mission sequence, or the “Kings Tablet” which provides the numbers and their English counterparts (Fig. 1). Once determining the direction they will read the steps, right to left, they will use these exact numbers to indicate how many steps in each direction they should take.

To make sure learners know they are interpreting the directions correctly there are clues on the pillar that coordinate to each location they will end up after following the direction on the same pillar (Fig. 17). The first direction will lead them to Jītā Grotto which they can verify through the clue “you will need water” because the icon under Jītā Grotto depicts the pool of water under the rock formations (Fig. 17). After following each clue students will arrive at Al-Rub Al-Khali in space 1:3 (Fig. 17).

1040.5

3
After walking 1 space جَنُوب
You will reach your final destination

2
After walking 3 spaces غَرْب
You will find plants

1
After walking 2 spaces شَمَال
you will need water

Jericho 			
The Hanging Gardens of Babylon 	Mausoleum at Halicarnassus 		J'itā Grotto
al-Rub' al-Khālī 			
			Start HERE

شَمَال
shamāl

غَرْب
garb

شَرْق
sharq

جَنُوب
janūb

947.2

1021

990

1000

With the help of the Bedouins you have found the site where you will end your search: _____

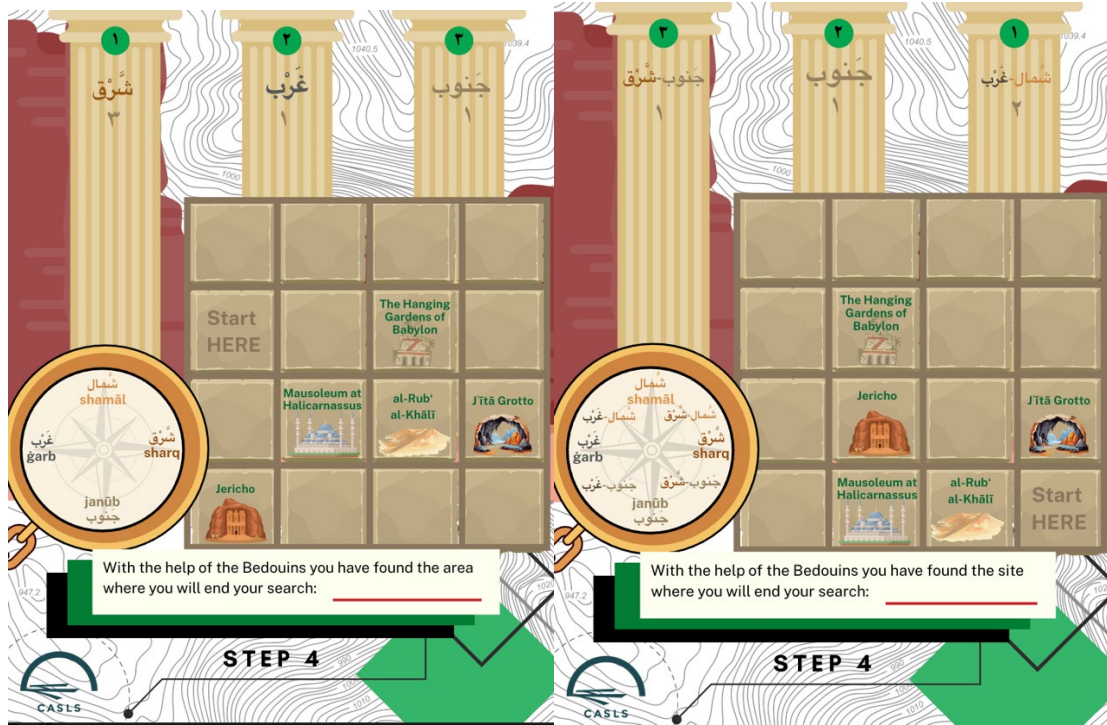
STEP 4

Secrets in Stone

CASLS

(Figure 17)

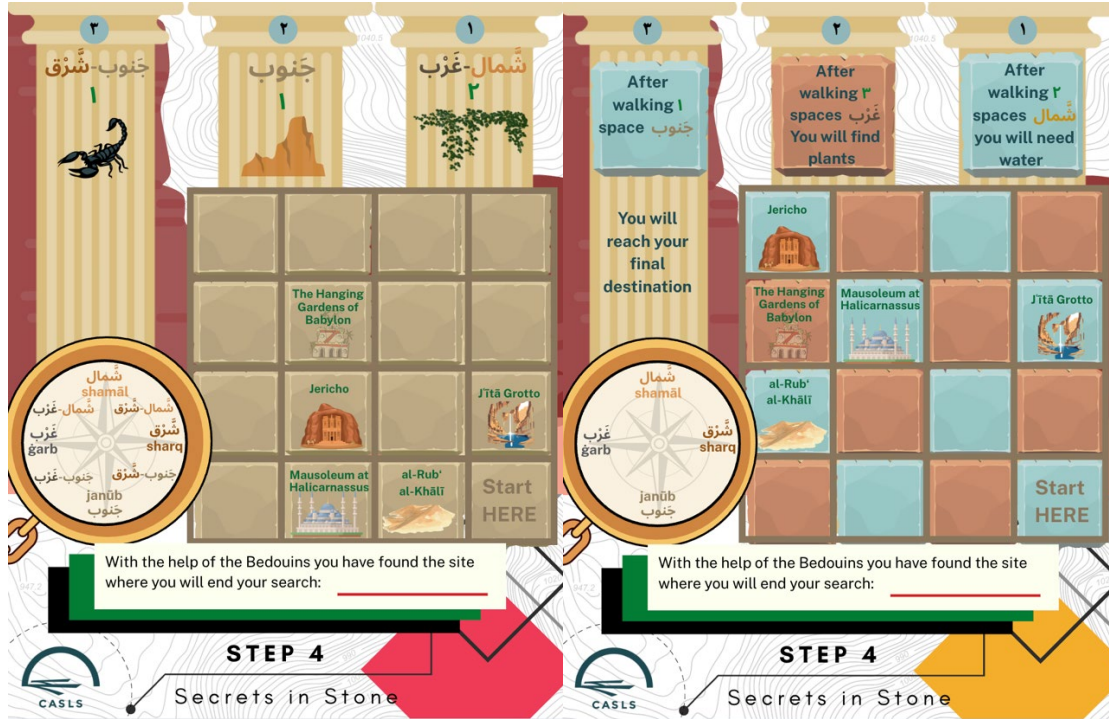
Modifications During Design



(Figures 18 & 19)

As mentioned in the *Modifications During Design* section in **Puzzle 3: A Talk over Tea**, this puzzle was initially tied to the previous activity. Both Drafts 1 & 2 followed this principle, encountering the same issues of multiple sequences to reach the same answer and impossible directional cues that reveal the sequence without the previous puzzle (Figs. 18 & 19). In the final product, the puzzle stands alone, and I have added layers of feedback in each step that cue the learner they are in the right place after each movement. These also engage with the other destinations on the map, giving them a more meaningful place in the activity.

Differentiation



(Figures 20 & 21)

The Fire group’s puzzle has two added layers of complexity. The first is the lack of explicit directions and cues on the pillars (Fig. 20). Simple icons are meant to convey the same autonomous feedback as the Leaf puzzle yet leave room for interpretation (Fig. 20.). The second layer is the addition of intercardinal directions, meaning they will sometimes move diagonally (Fig. 20.). For the Sun group puzzle checkerboard squares are added to provide a second means to check they are in the right space after each move (Fig. 21).






Puzzle 5: The Fall of Iram

Introduction to Puzzle 5

“The Fall of Iram” provides a cumulative puzzle that describes why Iram disappeared after students fill in the blanks using the clues provided on the page. By completing this step, learners will be able to combine context clues and familiarity with the narrative and its characters

to fill in the tablet key and fill in the blanks on the tablet. Before starting this step, the students will be shown a video, “The Final Transmission” (Appendix F). In this clip, the King of Saudi Arabia introduces the final puzzle and reads the Arabic script. However, the connection begins to glitch, and he finally indicates that the I-Agents must interpret the Arabic without his help (Appendix F). The tablet key acts as a mini puzzle, prompting learners’ to assemble the mini dictionary to fill the gaps in the English Translation (Fig. 22). Clues for each word are scattered throughout the page (Fig. 22). For example, the word for city, “مَدِينَةٌ” /madjna/, includes examples of cities below the pictogram (Fig. 22). More clues are hidden in King Shaddads speech bubble, the word for “King” (المَلِكُ /?lmalak/) is written in the space above his dialogue, showing he is the speaker, the crown over “المَلِكُ” and color coordination leads students to connect the word to the concept (Fig. 22). Another clue is embedded in the dialogue portion where “الله” /?llh/, “God”, is colored purple in the phrase “إِنْ شَاءَ اللهُ” /?n ja:? ?llh/, if God wills, to match the purple word “God” in the translation next to it (Fig. 22). After filling in these clues’, students must match the color of the word to their respective place in the text, completing the story of Iram: “King Shaddad ruled Iram with the Djinn, King Shaddad and the Djinn were greedy, God buried Iram in Sand to punish King Shaddad” (Fig. 22).

Fill in the blanks to decode the tablet

Picture	Arabic	English
	الجن (al-jinn)	the Djinn
	(al-malak)	_____
 Portland Ex. Eugene Salem	مَدِينَة (madīnah)	_____
	(i'ram)	_____
	الرمال (al-ramāl)	_____



حكم الملك شداد إرم مع الجن.
Shaddad ruled _____ with _____

كان الملك شداد و الجن طماعين.
Shaddad and _____ were greedy

دفن الله المدينة في الرمال عقاباً للملك شداد
_____ buried the _____ in _____ to _____
punish _____ Shaddad.

STEP 5
The Fall of Iram



(Figure 22)

Modifications During Design

The final puzzle took the longest to conceptualize by far. A successful I-Agents final puzzle ties together the narrative goal in a satisfying way, prompting learners to draw on the concepts shown in the previous puzzles. This is why backward design is critical in developing curricula, as it connects the finale to all that comes before. Because the goal of the narrative mission is not only to find Iram, but also to learn how it disappeared, it became evident that I would have to create something where the students discover this themselves. Initially, I planned to split the tablet key and tablet puzzle into two pages, including the verbs: "حُكِمَ" /ḥukm/ he ruled, "دُفِنَ" /duḥin/ he buried, "عَقِبَ" /ʿiqa:ba:un/ he punished, and the adjective "طَمَاعِينَ" [tʰama:ʕjn] greedy (Fig. 22). After reassessing the goal of the puzzle, I decided adding new information would stray from the purpose of revisiting what they had already learned.

Differentiation

Picture	Arabic	English
	الجن (al-jinn)	the Djinn
	(al-malak)	_____
	مَدِينَة (madinah)	_____
	(Iram)	_____
	الرمال (al-ramal)	_____

المملكة السعودية: إرم! You've found إرم! Inshallah (if God wills) you will solve the missing pieces of this tablet that explain the disappearance of إرم.

حكم الملك شداد إرم مع الجن.
Shaddad ruled _____ with _____

كان الملك شداد و الجن طماعين.
Shaddad and _____ were greedy _____

دفن الله المدينة في الرمال عقاباً للملك شداد
_____ buried the _____ in _____ to _____

_____ punish _____ Shaddad.

STEP 5
The Fall of Iram

CASLS








(Figure 23)

There is a slight change in the Fire puzzle, where the phrase “إن شاء الله” /ʔn fa:ʔ ʔllh/ is written in Latin Script “Inshallah” with “Allah” in purple (Fig. 23). This requires cognitive effort in recalling the Welcome to Wadi Rum video, where the King of Saudi Arabia points out a defining feature of all these phrases; they all include the word “الله” /ʔllh/, which means God (Fig. 23).

Supplemental Activities

When testing new curricula, it is wise to have a contingency plan in place in case the lesson takes less time than expected. During my work with I-Agents, it became apparent that as the year progressed, students got faster at solving the puzzles, sometimes finishing with up to 20 minutes of extra time. In anticipation of this, I-Agent's curricula include supplemental materials and puzzles that allow learners to extend their knowledge during that time. For the Arabic curriculum, the first activity is a letter-connecting puzzle that builds learners' ability to distinguish between letters when they are connected in a written word. The words I chose for this puzzle are positive values and characteristics (Fig. 24).

Draw a line to connect the **calligraphy** with the **typed word**, then match it to the correct letters to learn its meaning

	سلام salām	ح ب = Love ❤️
	جيد jayad	ح ق = Truth 🗣️
	عقل a'ql	ع ط ف = Kindness 🤝❤️
	حب hub	س ل ا م = <u>Peace</u> ☮️
	عطف a'ṭaf	ق ل ب = Heart ❤️
	حق haq	ج ي د = Good 😊
	قلب qalb	ع ق ل = Smart 💡

(Figure 24)

The second supplemental activity is a math and numbers puzzle. Learners color the boxes green if the number is odd and red if it's even (Fig. 25 & 26). The red squares will spell out a word from the list at the bottom (Fig. 27). Students will be able to recognize the Arabic numbers and are provided a key at the top for an explicit reminder. The puzzle is differentiated into levels; the leaf and fire groups must solve mathematical equations to find the even or odd number that indicates the color they should use for the square.


Reveal the hidden word by coloring the numbers and colors in each of the boxes

Remember: Arabic numbers are read left to right NOT right to left like the letters


Color all odd numbers: أخضر: أحمر: Color all even numbers

0	9	8	7	6	5	4	3	2	1
9	0	3	0	1	3	33	6		
0	7	3	7	2	1	7	2		
40	8	9	3	9	0	9	2		
3	0	3	99	2	77	7	6		
2	6	7	8	1	60	0	10		
4	8	9	0	20	3	1	4		
1	4	10	6	4	6	8	2		


Which word is hidden?




لفز
(Lugz)
Puzzle



لعب
(La'ab)
Game



أمة
(U-mah)
Nation



لغة
(Lugah)
Language


Reveal the hidden word by coloring the numbers and colors in each of the boxes

Remember: Arabic numbers are read left to right NOT right to left like the letters


Color all odd numbers: أخضر: أحمر: Color all even numbers

0	9	8	7	6	5	4	3	2	1
1	10/0	40	9	77	7	10	1+3		
3+2	18/2	0	21	2x3	14/2	1	2		
10	4	3+10	9	0+6	0	6/2	1x2		
0	1+2	4+0	8+4	10	8+4	3+2	4		
4/2	6	0	1+1	3	10/0	7	4+10		
2	7x2	1	14/2	8+6	0	0+6	2x2		
3	7x2	3+9	2	8	6/3	6	0+1		


Which word is hidden?




لفز
(Lugz)
Puzzle



لعب
(La'ab)
Game



أمة
(U-mah)
Nation



لغة
(Lugah)
Language

(Figures 25 & 26)


Reveal the hidden word by coloring the numbers and colors in each of the boxes

Remember: Arabic numbers are read left to right NOT right to left like the letters


Color all odd numbers: أخضر (Green) Color all even numbers: أحمر (Red)

٠	٩	٨	٧	٦	٥	٤	٣	٢	١
0	9	8	7	6	5	4	3	2	1
١	١٥/٥	٤٥	٩	٧٧	٧	١٥	١+٣		
٣+٢	١٨/٢	٥	٣١	٢×٣	١٤/٢	١	٢		
١٠	٤	٣+١٠	٩	٥+٦	٥	٦/٢	١×٢		
٥	١+٢	٤+٥	٨+٤	١٠	٨+٤	٣+٢	٤		
٤/٢	٦	٥	١+١	٣	١٠/٥	٧	٤+١٠		
٢	٧×٢	١	١٤/٢	٨+٦	٥	٥+٦	٢×٢		
٣	٧×٢	٣+٩	٢	٨	٦/٣	٦	٥+١		


Which word is hidden?




لغز
(Lugz)
Puzzle



لعب
(La'ab)
Game



أمة
(U'mah)
Nation



لغة
(Lugah)
Language

(Figure 27)

Final Reflection

The U.S.'s current pullback from both international affairs and diversity awareness has amplified the urgency of intercultural understanding. The Arabic unit draws attention to a linguistic community that has historically had a tumultuous relationship throughout America's history. In the initial stage of planning for this project, I created a list of common misunderstandings I have encountered and discussed with other Americans regarding Middle Eastern societies. Identifying gaps in understanding was the starting point from which many ideas grew, all whilst considering which topics I could integrate into the plot in a sensible way. Listing the curriculum's desired learning outcomes helped me frame a narrative around the language and cultural lessons I incorporated. I found this to be a key part of my process as it helped frame all the learning objectives in meaningful contexts.

While creating the puzzles, I initially made the mistake of designing them linearly. When I reached Puzzle Five, I was tasked with integrating all the previous content into a satisfying conclusion. For me, this was a great lesson not only about the design process but also about how the multiple layers of this curriculum — videos, puzzles, and narrative — must be coordinated together rather than as separate pieces. During this realization, I also received feedback from multiple advisors about scaffolding an ending that feels satisfying, one that has been accumulating anticipation and feels purposeful. The Djinn are critical characters in this narrative and an integral part of the conclusion; however, the Djinn were not introduced until the end of my first draft. I concluded that Djinn needed to be woven into the narrative and puzzles from start to end for students to feel that their role in the destruction of Iram had a contextual buildup. Overall, designing a multi-layered curriculum required extensive cross-coordinating across media throughout the whole process.

In this modern age, intercultural competence is critical not only to expanding one's prospects in a globalized world but also to mitigating violence that stems from fear of unfamiliarity or misconceptions. Students in primary education are at a crucial stage of development, both mentally and socially. Intercultural competence education has the potential to shape learners into strong adults who can reflect on their communication styles and understand the perspectives of others.

The I-Agents Arabic curriculum aims to weave cultural, linguistic, and historical elements together within an interactive narrative. For children, this is especially important as they have two layers of motivation to participate. Minor “aha moments” in each puzzle and an overall narrative objective. This format of content delivery, through mixed reality and puzzles, creates a cohesive story with contextualized information. To develop intercultural competence skills, students are challenged to explore the pragmatics of politeness, learn about valuable folklore, and understand the dialectical and cultural diversity of the Middle East. At its core, I-Agents encourage learners to experience unfamiliarity and use varied layers of knowledge, communicative and contextual, to solve problems. Developing positive coping skills is crucial for navigating unfamiliar situations, such as in intercultural interactions, with the ability to process differences and foster a healthy, welcoming national community.

Appendix

Appendix A.

Video Script for “The Lost City of Iram”

King of Saudi Arabia: “مرحبا, I-Agents" This is how you say hello in Arabic, you can also say أَهْلًا عَلَيْكُمْ, or even just الو! What are you waiting for, say hello back, يا الله! You can call me the King of Saudi Arabia, welcome to my country. When I was around your age my parents told me bedtime stories every night, one I never forgot was the story of Iram. But it's rare for children outside of the Middle East to know about Iram of Pillars, it is told the Qur'an, the religious text of Islam, famous books such as 1001 Arabian Nights, and in local folktales, yet nobody has been able to find this city.

The Lost City of Iram, was a city in the Middle East once rich with fertile land, majestic pillars, and immeasurable wealth that vanished between 300 AD and 500 AD. For centuries, archaeologists and explorers have scoured the Middle East for this buried gem

I narrowed my search down to 7 famous historical sites where the city might be located:

أريحا Known as one of the oldest continuously inhabited cities in the world, Jericho is famous for its ancient walls and archaeological significance dating back to the Neolithic era.

وادي رم Located in southern Jordan, Wadi Rum is a dramatic desert landscape of sandstone mountains and red sand, often called the "Valley of the Moon," and has been a home to Bedouin tribes for centuries.

ضريح هاليكارناسوس The Mausoleum at Halicarnassus is a monumental tomb built for Mausolus, a Persian satrap, around 350 BCE in modern-day Turkey was one of the Seven Wonders of the Ancient World due to its grand architecture and sculptural reliefs.

مغارة جعيتا A spectacular limestone cave system in Lebanon, the Jeita Grotto features two interconnected caves with stunning stalactites and stalagmites and serves as a vital source of drinking water for the region.

حدائق بابل المعلق Often considered a legendary Wonder of the Ancient World, the Hanging Gardens of Babylon were described as an extraordinary series of terraced gardens said to have been built by Nebuchadnezzar II, though their existence remains debated.

الربع الخالي One of the largest sand deserts in the world, the Rub' al-Khālī spans parts of Saudi Arabia, Oman, the UAE, and Yemen, known for its extreme climate and vast, uninhabited dunes.

أهرامات الجيزة The Giza pyramids in Egypt, especially the Great Pyramid of Khufu, are iconic ancient structures built over 4,500 years ago and remain one of the most studied and visited monuments in the world.

These 7 cities are the closest I've gotten in my search because the Djinnns have scrambled my maps and clues. Spirits that can cause mischief. According to legend, Djinnns are creations of God that possess the power to shapeshift, possess humans, and even compel them to commit evil deeds. For some reason, they don't want us to find Iram and have scrambled all my clues. I need your help to decode the messages they left! You have a map of the 7 locations with scrambled Arabic words. To test your Arabic knowledge and make sure you are ready to begin your search for Iram. To solve this, you will need some key information about Arabic:

As you know, مرحبا means hello. In Arabic this word is written like: "مرحبا". You'll notice words are written in a different script, and some letters connect when they are in a word. Most importantly, Arabic is read right to left, which is the opposite way you read English, left to right.

You'll also notice that some letters are shown as orange marks above each letter (coded w/same colors as on "the Kings Tablet". These are how short vowels are written in Arabic. For example, "كَبِير", meaning "big", uses the long vowel "ي" but if you change it to a short vowel "ا" it becomes the word "كَبِر", it means to grow up. Listen to the difference "كَبِير" and "كَبِر". Like tones in other languages, the vowels are important and can change the meaning of a word

With all this information, I hope you can help me find Iram, Good luck I-Agents!

R: I-Agents, you have been called on by the king himself to locate the "Atlantis of the Sands, a magnificent city that sunk into the sand!", find out how it vanished! The king gave you a map of the 7 wonders of the middle east with a hidden word to show you where your journey will begin. The problem is, the Djinns have scrambled the directions in each puzzle to keep people from finding Iram and how it disappeared. Please help decode this to begin your mission! Remember Arabic is read from right to left not left to right. R signing off

Appendix B.

Video Script for "Nawarrit Masr"

King of Saudi Arabia: أهرامات الجيزة, نورت مصر I-Agents. From the pyramids of Jizah, to the Nile River, نهر النيل, Egypt's rich history and archaeological wealth makes it a great place to start your search for the Lost City of Iram. I received intel that a seller in the street markets, souqs in Arabic, has knowledge of Iram's location. Egypt is a hub of business and tourism and many Arabic speakers from all over the Middle East have gathered in the souqs. Souqs are outdoor markets where you can buy food, furniture, clothing, and much more! Arabic is a language that spans across many countries, because of this, each region that speaks Arabic has a unique dialect, a different way of speaking the language. However, despite all the different dialects, there is one form of Arabic that almost every Arabic speaker can read and write. It is

called Modern Standard Arabic, or *فصحى*, and it is taught in schools and Mosques in every country. FuSha was developed from Classical Arabic and its roots are ancient.

Because you're speaking with the souq merchants, it is important that you understand each dialect may use completely different words for the same thing, for example, someone asking for bread in Egypt would call it "عائش", whereas someone from Jordan would say "خبز". I hear a merchant speaking the Shami dialect wants to sell you information on Iram, the only problem is I cannot be there with you to help you figure out which dialect each merchant is speaking. You must determine who is speaking the Shami dialect and find the merchant with information, good luck I-Agents, the recovery of Iram is in your hands!

Appendix C.

Video Script for "Welcome to Wadi Rum"

Welcome to Wadi Rum, the sandstone desert of Southern Jordan. This landscape is full of carved out rock and home to snakes, scorpions, and camels, but did you know people live here too! The Bedouins are nomadic herders who have travelled around the Middle East since 6000 BC. Bedouin tribes exist all over this region, not just in Wadi rum. An important part of Bedouin history is their long practice of storytelling, passing folklore and religious tales down to each generation through oral tradition. The story of Iram is among those legends, the Djinnns have tried to hide the evidence of Iram, but they have been unable to erase the knowledge passed down through these stories.

Another tradition throughout the Middle East is providing guests with great hospitality, including lots of tea and even inviting strangers into their homes. I-agents, you have been invited to have tea with the Bedouins; you must gain their trust by using some common phrases the King will teach you.

Appendix D.

Video Script for “The Key to Trust”

The King of Saudi Arabia: ما شاء الله I-agents, you have already made such great progress towards helping me.... In Arabic, politeness is very important. I will help you learn some phrases that you can use to speak to the Bedouins. When you are appreciating someone's accomplishments, expressing joy, or praising someone, always say mashallah before complimenting them. This literally means “what God has willed”. Some people in the Middle East believe this wards off the evil eye, which is a curse of bad luck you give someone by being jealous of their appearance or accomplishments. إن شاء الله, you will complete this puzzle. You can say inshallah when you are talking about a future plan or goals. This phrase means “if God wills”. Saying inshallah is important to many Arabic speakers who feel that it’s important to recognize that everything that happens is a part of God's plan. When you make a commitment to do something, you can say والله. You can also use it to promise what you're saying is true, like “I swear!”, “I promise” or “seriously!”. For example, “I will do the dishes tomorrow Wallah!”. Wallah means “by God”. In casual settings and among younger people, it is used like the English slang “for real”. Finally, before you begin eating or drinking, most Arabic speakers will say بسم الله, which means “in the name of God”. It is a reminder of where your food or drinks have come from, the earth.

Knowledge check!

If I was talking to you and said, “Will you be able to find Iram?” Which phrase could you use at the beginning of your reply? (answer: Inshallah)

If I told you about my wonderful children, which phrase could you use to praise them? (answer: Mashallah)

Imagine you sit down at my table for a meal, what would we say before eating? (answer: Bismillah)

Good job, I-Agents, you are ready to have tea with the Bedouins!

R: I-Agents, your first mission is to gain the Bedouins' trust by filling the correct phrase into each blank in the speech bubble. R signing off.

Appendix E.

Video Script for “Waqt Al-Shay”

Bedouin tribe member: Mashallah I-Agents, you're doing great work. I hope you enjoyed your شاي الحطب, which is what we call tea that's boiled over wood—a common drink in some Bedouin Tribes.

Unlike the ceramic teacups you're probably used to, many Middle Eastern households serve tea in small glass cups that allow you to see the quality of the tea leaves and drink it quicker. The faster you drink the tea, the stronger its flavor!

Tea is important throughout the Arab world, as it is the world's largest importer of tea.

Morocco is famous for its شاي بعنا, mint tea, which is poured from a metal pot 2 feet above the teacup, a skillful feat!

Before we go, here is an Arabic compass with the cardinal directions north, east, south, and west. This will help you when you arrive at the pillars, north is شمال, east is شرق, south is جنوب, and west is غرب. Did you notice that this last word has a unique “G” sound? This is because Arabic has some sounds that we don't have in English, including this letter “غ”. Some other unique letters we have include:” ح”, which makes the same sound as when you fog up a glass window, “haaaaa”. There are also some letters that English speakers often mix up: د ض ظ ط ذ

Now that you are hydrated and prepared to use your compass, it is time to go into the arid desert and find the pillars which will give you directions to Iram's location. Wadi Rum has many petroglyphs and inscriptions etched in the rocks, this grid looks like a map to me and local legend says it has something to do with Iram

R: Now that you have gained the Bedouins trust they have shown you these pillars with clues that will reveal your destination. Follow the clues on the 3 pillars using the compass. R signing off.

Appendix F.

Video Script for "The Final Transmission"

King of Saudi Arabia: Marhaba I-Agents, and congratulations for finding Iram of pillars for me! The final piece of this mystery is discovering why Iram disappeared.

In the sand you have come across a stone that details what happened long ago. the stone says:

حكم الملك شداد إرم مع الجن.

كان الملك شداد و الجن طماعين

دفن الله المدينة في الرمال عقابًا للملك شداد

I can help you read it... (simulated glitching as if losing service) What... oh no! You are so far in the desert.... I am losing connection... You must figure out this story without my help...good luck!...

R: Without the King of Saudi Arabia, you must solve this last puzzle alone! To discover what happened to Iram, you must use the color-coded words on the page to help you fill in the stone.

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