

# CALICO

## INFOBYTES

August 2026

---

*CALICO Infobytes are short, practitioner-friendly overviews of current topics in computer-assisted language learning. CALICO publishes Infobytes several times a year, and previous articles are available to members at <http://calico.org/infobytes>.*

---

### *Interacting with Language in Mixed Reality: Insights from Six Applications*

by Ogulcan Durmaz, University of Illinois at Urbana-Champaign, Informatics  
and Dr. Randall Sadler, University of Illinois Urbana-Champaign, Linguistics

Mixed reality (MR) is a technology that embeds interactive digital content into users' physical spaces, where objects and users coexist and interact in real time. Currently, it requires advanced head-mounted devices, including [Meta Quest 3/3S](#), [Apple Vision Pro](#), and [Samsung Galaxy XR](#), for immersive experiences. As shown on the left side of Figure 1, the Meta Quest 3 headset uses a set of high-resolution cameras to project the user's real-world environment into the headset. The headset then projects new visual and audio information to the user. With MR devices ranging in price from \$300 to \$4000, the Meta Quest 3S (\$300) is the most affordable option, making the blended experience relatively more accessible to the general audience, especially students.

On the right side of the figure, the user is playing a game called First Encounters, in which the aim is to capture as many puffball aliens as possible. As seen in the image, the real-life room is included in the view, but new elements, and even a new world (the alien world seen through the wall), are introduced and may be interacted with. One critical advantage of MR is that since the user still sees and occupies their real-world setting, instances of motion sickness (a common issue with virtual reality) are almost non-existent, an important advantage for educational use. In addition, since MR is embedded within a real-life setting, issues related to balance, multiple users running into one another, or accidentally hitting each other are naturally reduced.

**Figure 1**  
*Meta Quest 3 Headset and First Encounters MR Game*



The advantages that MR brings make it a promising direction for innovation in language learning, regardless of the market's focus on entertainment, gaming, and socialization rather than pedagogy. After reviewing the Meta Quest Store, we have thus far found only three applications designed specifically for it. In addition, we identified three more applications that do not directly target language learning but have the potential to contribute to it. Their features can inspire those who wonder what an effective language learning application would look like.

Based on our review, we present below the six MR applications in two broad categories. First, three apps designed specifically for language learning, including NounTown Home, Spatial Lingo, and Wordomi, will be discussed. These will be followed by three general apps that have potential for language practice, including Meta Horizon Worlds MR, Cryptic Cabinet, and Zoe. Through this Infobyte, we will discuss how they might be used for language learning. As seen below, each app also includes bulleted information on price (with a link to the store), game mode (single-player or multiplayer), scale (typically for an entire room), and a quick suggestion for the intended use.

## **MR Apps Designed for Language Learning**

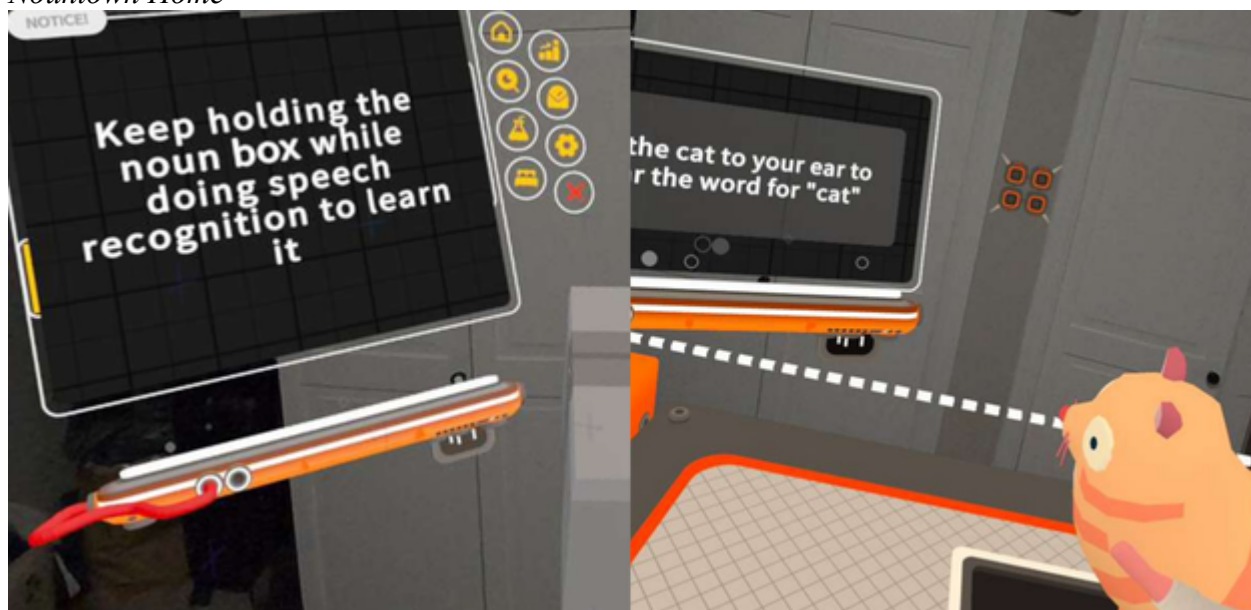
### *App 1. Noun Town: Home*

- Price: [\\$9.99 on the Meta Store](#), Free Trial Available
- Game mode: Single user
- Scale: Roomscale
- Suggested focus: Solo language practice

Initially created for VR, Noun Town: Home mainly focuses on vocabulary and pronunciation. The app offers learning experiences in different languages, such as Japanese, Korean, Chinese, Spanish, and French, covering over 800 words and phrases. It serves as a bridge between the real world and digital elements by allowing users to label their household objects in the target language in order to contextualize vocabulary within their everyday environment. Benefitting from speech recognition technology, the app provides immediate feedback on pronunciation and allows learners to practice speaking in a low-pressure setting.

Figure 2 below shows the user exploring Nountown Home to practice Spanish. In this case, he is trying to practice nouns and pronounce “cat” in Spanish. The game randomly places boxes into the user’s physical space. When he picks up the box and pronounces the word shown in the Notice screen, the object jumps out of it. He listens to the object’s pronunciation by bringing it closer to his ear. Then, he pronounces it again. If the pronunciation is correct, the progress is saved, and he picks up a new box to practice with a different object. These objects can be placed in the room and picked up later for further practice.

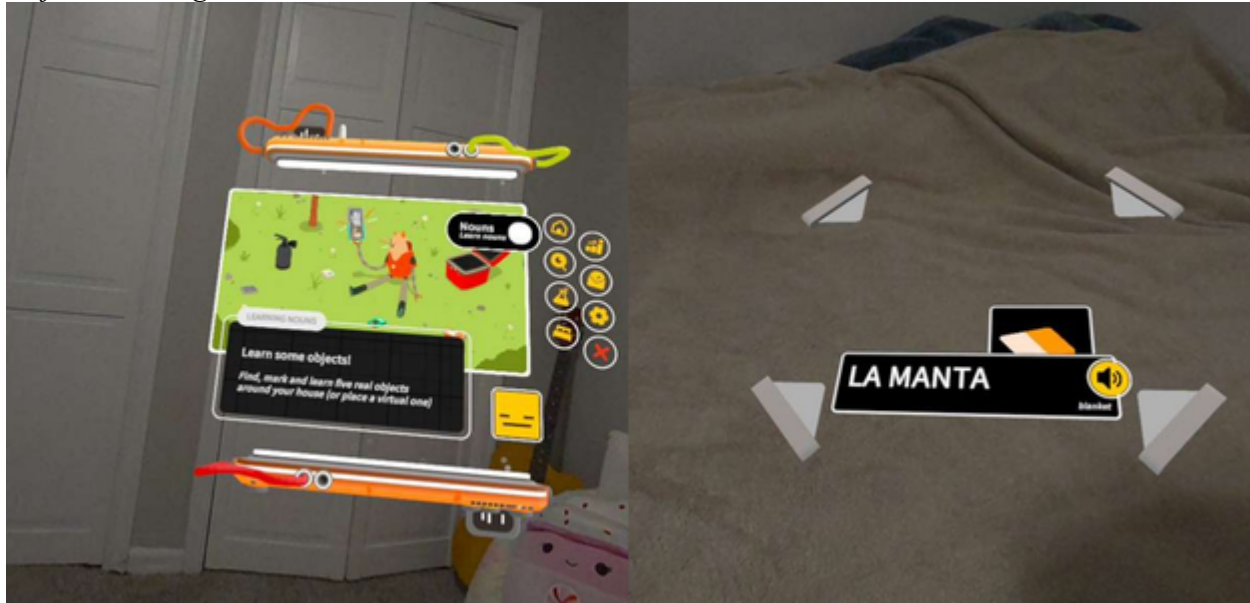
**Figure 2**  
*Nountown Home*



To reinforce learning, NounTown: Home incorporates mini-games, daily streaks, and non-player characters (NPCs). These characters allow learners to practice not only vocabulary but also conversation as they progress. In addition, Figure 3 shows the object-marking feature, which enables learners to label objects in their surroundings. These labels come from the app’s built-in dictionary, which includes words for objects users may encounter in their living environments. When a user marks an object, the label is placed in the real world and can be heard via the audio icon. Overall, NounTown: Home transforms the learner’s physical space into an engaging and interactive language-learning environment.

**Figure 3**

*Object Marking in NounTown: Home*



### *App 2. Spatial Lingo*

- Price: [Free on the Meta Store](#)
- Game mode: Single user
- Scale: Roomscale
- Suggested focus: Solo vocabulary practice

Spatial Lingo is an open-source MR app developed by Meta. Rather than memorizing vocabulary from a list, users learn new words by exploring their real environment, where everyday objects are instantly translated and highlighted via AI-enhanced object recognition (see Figure 4). It currently supports English and Spanish, but is open source, so other languages may be added. Using the passthrough camera (a special sensor that blends physical world and digital objects), the app identifies common objects around the player and retrieves the corresponding word for each detected object. Object recognition connects the learning experience to what the learner can see and touch in their own space, thereby providing a meaningful departure from traditional vocabulary instruction.



**Figure 4**  
*Spatial Lingo*



Figure 4 shows an in-game experience from Spatial Lingo. Beyond simply labeling the room, the app introduces a game-based social element to the learning process through a virtual guide that facilitates vocabulary and pronunciation practice. It asks for the pronunciation of the recognized object, captures the user's voice, and evaluates the accuracy of the pronunciation. While the app is quite promising, it comes with limitations, especially in its speech recognition system. In our playtest, we encountered instances in which the humanoid character could not recognize our speech. It was also unclear whether the issues stemmed from the app's technical side or from user-related factors, such as differences in pronunciation between native and L2 English speakers. Regardless of its limitations, the app provides a blueprint for innovative language learning in MR, turning the learner's own environment into a vocabulary-rich space.

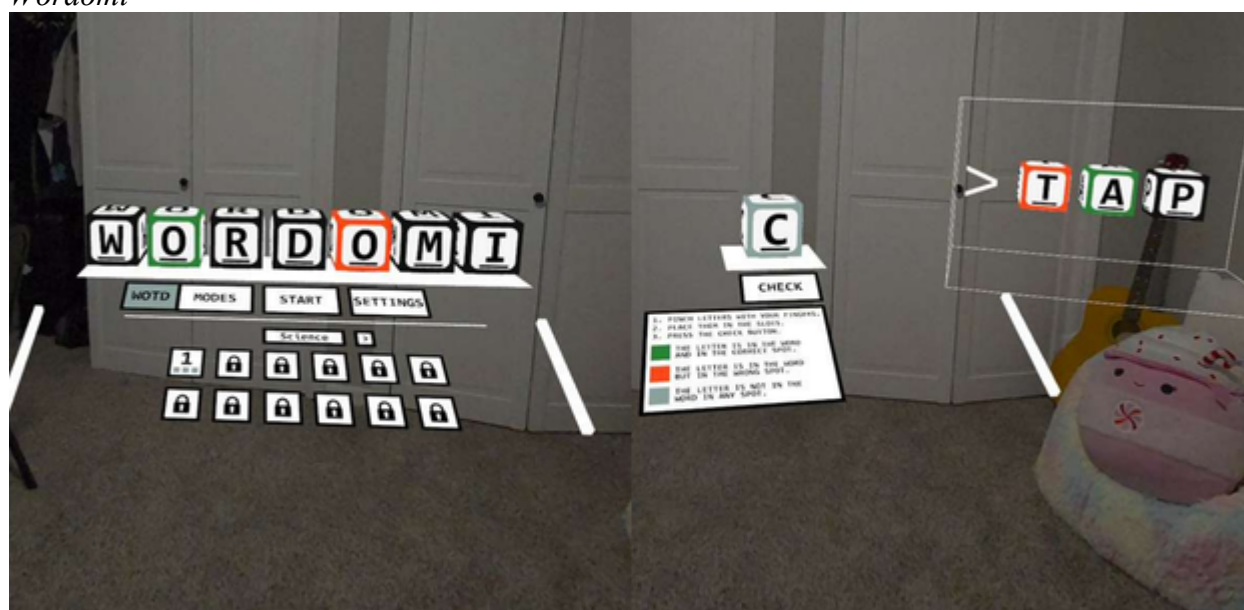
### *App 3. Wordomi*

- Price: [\\$9.99 on Meta Store](#)
- Game mode: Single user
- Scale: Roomscale, though even a table is sufficient
- Suggested focus: Incidental vocabulary learning

The inclusion of Wordomi in this section is just a bit of a “cheat” in that it focuses only on English and its intended game-based format, but its design, described by the creators as a combination of “Wordle and crossword puzzles,” shows strong potential for language practice. In this app, each level starts by offering users a grid with a set number of spaces (dots) where letters may be placed to form a word. Once a word is placed, a new set of letters is ejected from that grid for the user to create their next word, with the position again indicated in the grid.

Figure 5 below illustrates a typical gameplay in Wordomi. On the left, the user is shown an interface where they can choose the game mode. The WOTD (Word of the Day) and Theme are two of these mods. In WOTD, the program asks for a random word, while in the Theme mode, users can choose a theme for words, such as food or science, and play the game by progressing through levels of varying difficulty. The availability of themes enables users to guess more easily. However, one notable drawback is that the game does not include a built-in dictionary, which requires an external tool to look up word meanings. The game also only checks for accuracy and provides information on neither the meaning nor the pronunciation. It introduces new vocabulary items for learners but leaves further learning to their own will and motivation.

**Figure 5**  
*Wordomi*



## MR Apps with Potential for Language Learning & Practice

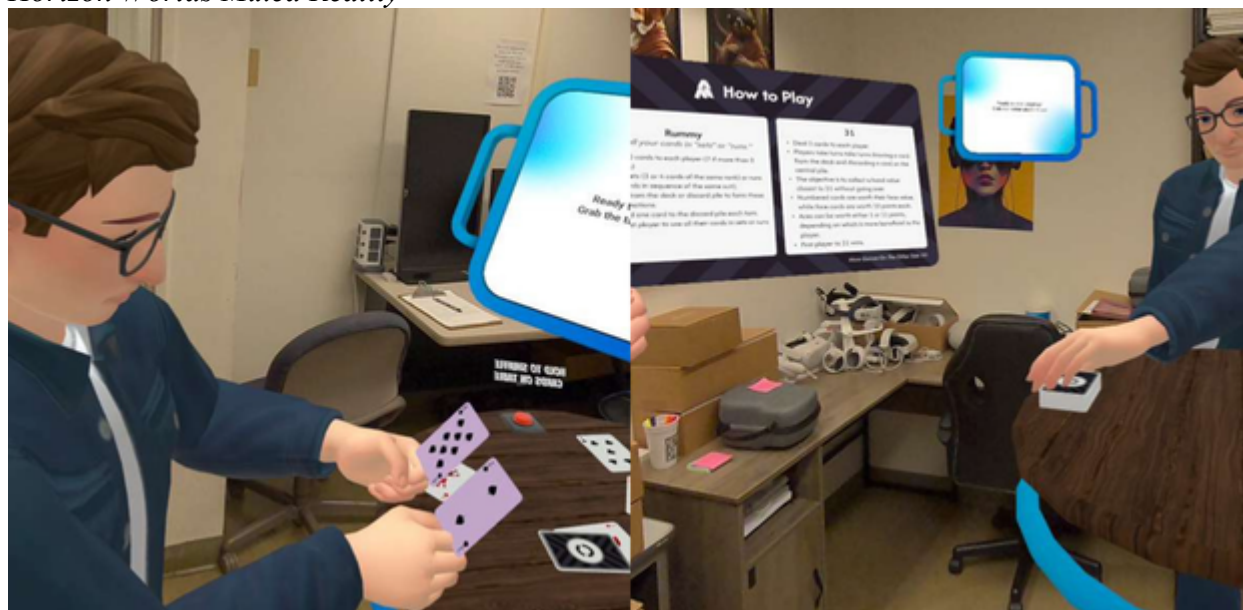
### *App 4. Horizon Mixed Reality*

- Price: [Free on the Meta Store](#)
- Game mode: Up to 8 synchronous
- Scale: Roomscale
- Suggested focus: Synchronous MR language practice with friends

Meta Horizon Worlds is a platform where users can play, explore, and connect with friends. Its game world called Mixed Reality with Friends extends this by allowing people to share MR experiences without being in the same physical space. The app is free and accessible on Meta Quest headsets as well as on mobile and desktop, making it broadly available to a wide range of users.

In language-learning contexts, the platform holds notable pedagogical potential. Teachers can set up rooms, allowing them to control who enters the space and design focused learning activities, such as workstations for individual tasks or pair-work activities. It may also support collaborative tasks in which pairs or groups can meet virtually to work together remotely, such as role-playing a scene and practicing conversation skills. Figure 6 illustrates a key feature that can enable these pedagogical potentials. Neither user is in the same physical location, even though they share the same space in the MR environment. The app makes this possible by rendering each user's avatar movements and actions in a shared space through a feature called co-location. Thanks to this feature, each user can interact with the digital objects overlaid in their personal physical environment. The availability of co-location, alongside a game library, makes Horizon Worlds a pioneering application that can support language-learning tasks and provide informal language learning.

**Figure 6**  
*Horizon Worlds Mixed Reality*



#### *App 5. Cryptic Cabinet*

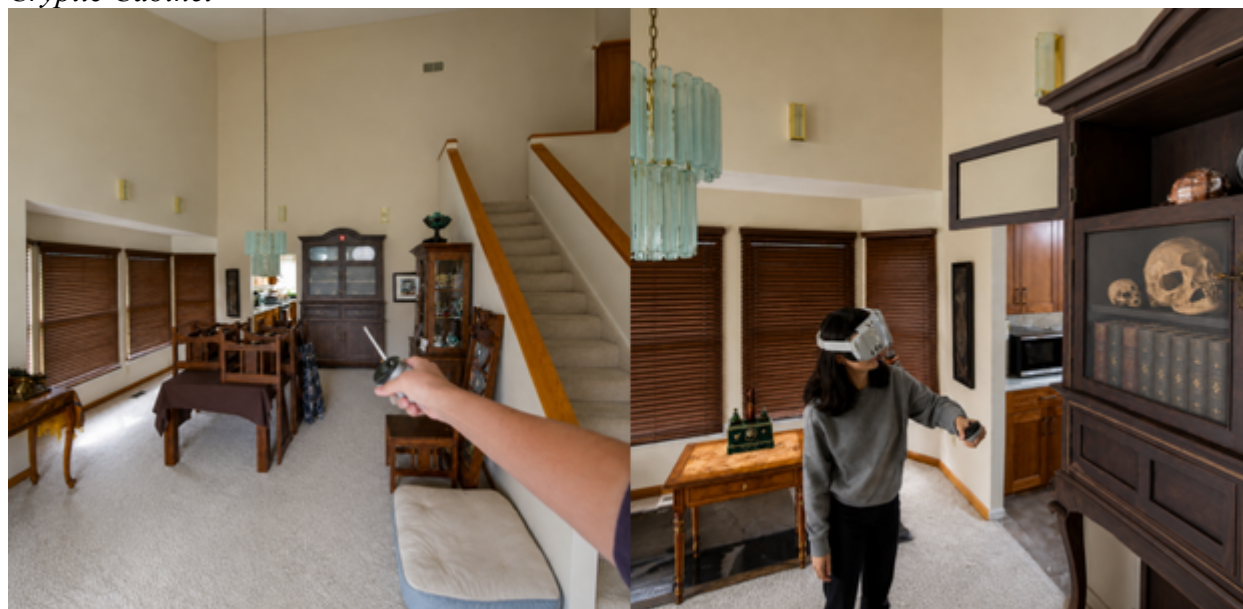
- price: [Free on the Meta store](#)
- Game mode: Single user, Multiplayer
- Scale: Roomscale
- Suggested focus: Collaborative escape task for language practice

Cryptic Cabinet is a free MR escape room app that turns any room into a unique gameplay environment by adding environmental puzzles to the player's physical space. As shown in Figure 7 below, virtual objects, such as the cabinet, are placed directly in the real room and blend with the physical surroundings. While Cryptic Cabinet is not a language-learning app, our experience with it suggests that educational designers could adapt the escape-room format to create

purposeful, language-focused MR experiences in which communication is not just encouraged but critical to progress.

During our playtest, we noticed that solving the environmental puzzles required constant communication. To solve the environmental puzzles, we had to brainstorm, negotiate ideas, and talk through clues together, which may create rich opportunities for incidental and informal language use that feels natural in the game's context. Similarly, the game mirrors the principles of task-based language teaching, where learners use language to achieve a meaningful goal. To make progress in the game, we had to solve puzzles sequentially in collaboration. The need to communicate to progress made our language task-specific, and our interactions were purposeful.

**Figure 7**  
*Cryptic Cabinet*



#### *App 6. Zoe*

- Price: [Free on the Meta Store](#), [Subscription-based](#), Free Trial Available
- Game mode: Single user, Multiplayer
- Scale: Roomscale
- Suggested focus: World creation for task-based language practice

Zoe is a creation-focused tool that enables educators and students to build immersive learning experiences. It can be used for any learner group as it facilitates user-created content. The pricing varies by tool set, as the platform offers different product options with separate pricing for student and institutional licenses. A standout feature for language educators is Zoe's built-in studio, where teachers and students can design interactive MR scenes directly in the headset using a simple drag-and-drop interface. A language teacher could, for instance, build a virtual café, marketplace, or classroom scenario tailored to specific learning objectives. Scenes can be



further enriched with sounds, visual effects, and interactive behaviors, making the experience more engaging and contextually meaningful.

Figure 8 shows an example of an MR scene we created in Zoe, where a wolf model from Zoe's asset library was placed in a real environment alongside a custom text label. These elements were made possible by Zoe's built-in asset library and Sketchfab, a 3D model website. Their addition to the scene was simply a drag-and-drop. The label's placeholder text was replaced with the corresponding word, suggesting that teachers and students can create MR scenes with relevant objects without having to build everything from scratch. Whether it is for vocabulary learning, pronunciation, or listening comprehension, Zoe packs all the necessary features into a user-friendly toolkit.

**Figure 8**  
*Zoe*



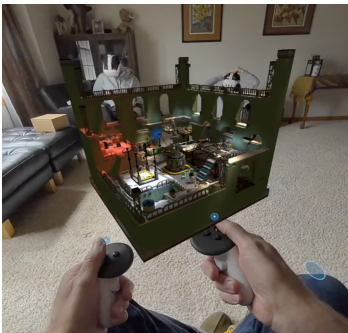
## Conclusion

The applications we reviewed reflect the current state of MR as an emerging medium. It is largely driven by entertainment and socialization rather than pedagogy. Of the apps we examined, only three, Noun Town, Spatial Lingo, and Wordomi, were categorized as specifically for language learning. Even though the others were not designed for the same purpose, each one revealed meaningful implications about what MR-based language learning could look like. Our experience with the apps suggests that the building blocks for effective MR language learning already exist. They just have not yet been put together with language learners in mind. As MR devices become affordable, the gap between what is commercially available and what language educators need is likely to attract more attention. The features we observed across these apps,

object recognition, speech recognition, and adaptive artificial intelligence, offer a blueprint for developers and educational designers.

## Honorable Mentions

There are a number of other MR apps that we believe have potential for language practice that we didn't have sufficient space to discuss in this article. We've included a few of them below with a word or two of description, an image, and a link to the app.

| App                                                                                                                                                                                                                                                                                                           | Description                                                                                                                                                                                                                                                                   | Image                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| <p>Bricktales by Lego</p> <ul style="list-style-type: none"><li>• Price: <a href="#">\$29.99 on Meta Store</a></li><li>• Game mode: Single user</li><li>• Scale: Roomscale</li><li>• Suggested focus: Bring narrative into play</li></ul>                                                                     | <p>A single-player puzzle-adventure game that brings LEGO dioramas into the player's physical space through MR, allowing them to follow a story and build brick by brick on their own desk or table. As mentioned on the store page, the game targets a general audience.</p> |                              |
| <p>ENGAGE</p> <ul style="list-style-type: none"><li>• Price: <a href="#">Free trial for a month</a>, then €10.00 in-app monthly subscription</li><li>• Game mode: Multiplayer</li><li>• Scale: Sitting, Roomscale</li><li>• Suggested focus: Organizing events, collaborative work, and discussions</li></ul> | <p>A multiplayer platform that offers immersive experiences in virtual reality and mixed reality powered by generative AI technology. Users can create their own environments or use existing ones. The platform targets users aged 13 and above.</p>                         |  <p>(Meta Store, n.d.)</p> |

### Game Night

- Price: [\\$14.99 on Meta Store](#)
- Game mode: Multiplayer
- Scale: Sitting, Roomscale
- Suggested focus: Informal language

A mixed-reality experience that converts users' spaces into a playground by bringing out collaborative/cooperative/competitive games. The platform targets a general audience (Meta Store, n.d.).



(Meta Store, n.d.)

---

## Acknowledgements

We sincerely thank Eda Yildirim for her support during the playtesting process, insightful feedback, and careful proofreading suggestions, all of which greatly improved the quality of this project.

---

cite as: Durmaz, O., & Sadler, R. (2026). Interacting with language in mixed reality: Insights from six applications. *CALICO Infobytes*. Retrieved from <https://calico.org/infobytes>

---

## References

Meta. (n.d.). *Game Night*. Meta Horizon Store. <https://www.meta.com/experiences/game-night/8603854472983065/>

Meta. (n.d.). *ENGAGE*. Meta Horizon Store. <https://www.meta.com/experiences/engage/3092079454190601/>

Meta. (n.d.). *Spatial Lingo: Language practice*. Meta Horizon Store. <https://www.meta.com/experiences/spatial-lingo-language-practice/24846121391731831/>