

**More Effective Learning When Storytelling and Visuals  
Align with the Learner's Culture**

Kris Watterson

Boise State University

EDTECH 603 - Fall 2024

### **Abstract**

Storytelling and visualization are uniquely human phenomena that aid in learning and retaining content. While cultures and languages can sometimes be a barrier to effective communication, visuals can supersede language by providing another layer of meaning in communication. For example, one who visits another country with limited local language skills may be able to communicate visually by showing an image of a commonly understood item such as food, water, or a toilet. While storytelling relies on the vehicle of language and cultural context to convey meaning, stories become even more powerful when combined with visuals. Additionally, stories with visuals—such as instructional videos—that are aligned to the audience's language and culture can solidify information in memory and aid in the retention of content. While the use of storytelling and visuals are generally common amongst various cultures, to be effective educational tools they must be aligned with the culture of the intended learner. As demonstrated by the examples cited in this paper, learners connect to content when they identify with the characters or personas used in the content, relate to the content or characters through their own lived experience, and are emotionally invested in the outcome of the story. This connection not only relies on storytelling aligning through culture and language, but also a visual connection. This paper aims to demonstrate the important role that both storytelling and visuals play in learning retention on a global scale. While storytelling and visuals are known to improve knowledge transfer, each example cited herein demonstrates how using storytelling with visuals through various methods help connect the content with the culture and experiences of the study participants. These examples show that for storytelling and visuals to be effective in learning and retention, they must be aligned with the culture of the intended audience.

*Keywords:* storytelling, visuals, digital storytelling, videos, global cultures

### **Introduction: The Importance of Story**

Information is much easier to remember when packaged in a story (AminAfshar, 2017). Learners relate and connect to each other empathetically through the stories they share (GuramatunhuCooper & Headrick, 2022). Because stories are memorable and improve learning retention, everyday details may be forgotten with time, but a single story can be remembered even years later (Greene, 2020). Storytelling is connected to constructivism because stories take place in the mind and build upon existing knowledge and experiences while connecting to new ideas as the listener relates to the storyteller's experiences. Even individual perceptions of reality and the sense of identity are tied socially to the stories people tell others and themselves (Merriam, 1998). Storytellers and listeners are co-creators in the shared experience (AminAfshar, 2017; GuramatunhuCooper & Headrick, 2022). This co-created, shared experience between storyteller and listener is possible because humans have *mirror neurons* in their brains. "Mirror neurons are defined by the property that they fire during both the execution and the observation of a specific action" (Keysers & Gazzola, 2010, p. R353). So as individuals listen to narrative, the mirror neurons allow them to imagine themselves in the narrator's experience. The human brain is so amazing that it simulates the experience within the mind (Keysers & Gazzola, 2010). This is why flight simulators are effective as low-risk teaching tools. Pilots can practice flying, gain experience and understanding of plane operations, without even leaving the ground (Greene, 2020). This ability to simulate within the mind is important, as noted by Kromka and Goodboy (2019), because when instructors incorporate personal stories, learners not only connect better with the instructor, but they also retain the information longer. The learners feel they are getting to know the instructor as a person, begin to trust them more, and feel more comfortable sharing and responding in class (Kromka & Goodboy, 2019). As Rance Greene states, "...if you connect with your learners, you can train them to do anything" (Greene, 2020, p. 11). Additionally, students need to build trust in a group before they feel comfortable sharing their own experiences. They need to feel safe and that they will not be cast out based on what they share (GuramatunhuCooper & Headrick, 2022). Further, as Butcher (2006) suggests, adults learn from each other and the experiences of individuals in the group through shared stories and discussion. This relates to adult learning theory in that, "[Adults] have an extensive depth of experience, which serves as a critical component in the foundation of their self-identity" (Kenner & Weinerman, 2011, p. 88). All these facts point to the impact of storytelling. However, once visuals are added to a story by means of an instructional video or presentation, it becomes a dual-coding method wherein the aural and visual aspects are each encoded separately in the brain thereby doubling the opportunity to be recalled (AminAfshar, 2017).

It is no secret that storytelling and visuals combine to form a power punch for retention in adult learning. While the use of storytelling and visuals are generally common among various cultures, to be effective as educational tools, instructional designers must align the stories and visuals with the culture of the intended learner. The following examples demonstrate this by sharing projects or studies that incorporate both stories and visuals in various ways. The common thread woven throughout is how learners connect with the content through stories and visuals that are aligned with the relative culture and unique needs of the learner.

### **Multimedia and Dual Code Theory**

Instructional videos are a versatile and effective learning delivery tool that incorporates both story and visuals. These videos typically rely on multimedia theory as the foundation for

learning. *Multimedia theory* purports that students learn better from text and images than from text alone (Ramlatchan, M., 2019). Further, a key factor in multimedia theory is *dual code theory* which holds that because information is received through two channels (aural and visual), the information is thus coded twice in two separate areas of the brain (Ramlatchan, M., 2019). Dual coding is a factor in learning retention because, as the theory suggests, if information is coded twice in the brain—stored in separate areas, respectively—it has twice the opportunity for recall. In other words, the content becomes easier to remember.

Dual coding and multimedia theories are two foundational concepts upon which the learning aspect is based for the following studies. Of the examples below, Thorn and Grossman use videos, while Jarrah et al. and AminAfshar and Mojavezi use methods other than video while still adhere to the dual coding or multimedia theory framework by including an aural/audio component and a visual component. Each example project may take a different form or focus depending on the need of the project and/or the learner audience, but the raw components are still present: story, visuals, grounding in multimedia theory, and alignment to the learner's culture and needs.

### Examples

#### 1. Saudi Education Reform Through Storytelling and Gamification

Jarrah et al. (2024) reviewed current literature to establish a use case for storytelling and gamification as necessary devices to drive Saudi Arabia toward educational modernization. Jarrah et al. noted the need for change from traditional education modalities in Saudi Arabia. Looking to transform Saudi Arabia into a knowledge-based society by 2030, he proposed to integrate storytelling and gamification into education to meet Saudi Arabia's need for new skills and moving forward in a global knowledge economy. While gamification is a part of the study, the focus is integrating storytelling as a method to modernize Saudi education. Gamification is simply the flavor that the visual and multimedia aspect took. As noted previously, storytelling and visuals go together in multimedia delivery of educational content. In this instance, storytelling joined gamification for a multimedia delivery. Jarrah and team analyzed data from 500 individuals to discover narrative-based gamified experiences improved student "interest, motivation, and knowledge retention" (Jarrah et al., 2024, p. 1). This not only points a way forward as Saudi Arabia is undergoing broad educational reform but could also be a method to achieving Saudi Vision 2030—the national goal of becoming a knowledge-based society by that time (Jarrah et al., 2024). This study echoed the effectiveness of storytelling and visuals as it aligns with the specific needs of the Saudi reform project.

#### 2. Iranian Multimedia Vocabulary Study

AminAfshar and Mojavezi (2017) evaluated visual storytelling to prove its impact on learning retention. Drawing on the dual-code and multimedia model, AminAfshar and Mojavezi selected 50 Iranian female secondary students—all native Persian speakers—and divided equally into control and experimental groups. The experimental group participated in English vocabulary lessons including storytelling elements along with aural and visual components. The control group was taught English vocabulary aurally only. While there was no significant difference between the use of aural or visual storytelling techniques (meaning no matter whether the story was conveyed aurally or visually), storytelling was still effective. There was a significant difference between the results of the initial posttest and the second posttest of the control group showing retention had diminished when content was provided aurally alone. Additionally, there

was a significant difference between the results of the two groups proving that visual storytelling improves retention. As to the cultural alignment aspect, in the study AminAfshar and Mojavezi ensured all participants spoke the same language, were of the same gender and age, and all came from similar educational backgrounds so there would be no skewed results based on a learner's misunderstanding of context (AminAfshar & Mojavezi, 2017). They were truly able to evaluate visual storytelling alone.

### **3. Neonatal Nurse Training in Rural India**

This study is perhaps the best example of aligning culture with storytelling and visuals in multimedia-based educational delivery. Thorn (2023) describes the results of multimedia storytelling used in nursing education in rural India as part of a blended learning approach. There was a major need for training to improve infant mortality rates in rural India. The goal was to improve birth rates among the rural population where unsanitary conditions and easily avoidable mistakes resulted in loss of life. The video-based training offered the perfect solution. Videos portrayed illustrated characters and a comic-style storyline. The videos were followed by live instructor-led simulations in a physical training space with participants. The study involved developing superhero characters (which represented the nurses and midwives participating in the training) and a villain (which represented the challenges the nurses faced such as spreading germs, etc.). The superhero character carried a pouch (representing a toolbox) containing conceptual tools that could help her fight the perils of the villain. Tools included a notebook, empathy goggles, curiosity antenna, learning lens, facilitator spray, and an energy scanner – these were not actual, physical tools but mindsets with which to tackle the problems and challenges the nurses may encounter while assisting a birth. The devices of the villain were named “bugs” and included things like fear, chaos, skipping steps, getting upset, flustered or frustrated, or allowing ego or defensiveness to block the correct process. The characters were developed to resemble the cultural look and attire of the nurses participating and their names also aligned with the culture, i.e., Super Divya and Professor Agni (the villain). This study not only demonstrated that visuals and storytelling connected with the learners but that cultural awareness of the audience can deepen that connection (Thorn, 2023). Several rounds of revisions were done as the illustrator adjusted the look to match the cultural attire, skin tones, hair styles, and more to become more closely representative of the nursing audience learner persona. A *learner persona* is a fictional representation of the average learner or member of the intended audience for a training or learning program. Because “personas facilitate user-centered design” they are often used to ensure the training aligns to the audience and takes their needs into consideration (Zagallo, et al., 2019, p. 18:ar62, 1). This example has it all: story-based training, comic-style visuals, videos and multimedia delivery, and cultural alignment by using learner personas upon which they based the illustrated characters. As a result, nurses easily connected to the training and were able to improve mortality rates.

### **4. The Gambia: Rural Video-Based Skill Training**

Along similar lines to the previous study of providing video training in rural areas, Grossman (2019) denotes the high importance of cultural understanding and visuals in training. Grossman aimed to create skill-based training videos in the Gambia, West Africa. While not focused as much on storytelling specifically, the visuals provided through video instruction made the skills easily absorbed by the audience of villagers. Multimedia and dual code theories are also at work due to the use of video-based skill demonstrations.

In this study, researchers wanted to help rural villagers in the Gambia gain skills that could help them earn a living, improve their status in the community, and improve the community itself. These skills ranged from learning how to compost, make honey or jam, tie dye, and more. To do this, researchers developed a program that not only included creating the skill videos, but also engaged the villagers in the development process themselves. The researchers called this “participatory video” which meant that the participants (the end users, i.e., the villagers) were also collaborators in the project from the start (Grossman, 2019, p. 304). The villagers helped researchers select relevant topics, were trained to operate the camera for filming the videos and were also on-camera demonstrating the skills. This led to an immediate connection for the end user because not only did they identify with the culture, face, and language of the person on the screen, but the skills being demonstrated had cultural significance to the village and the needs of the learner (Grossman, 2019).

Visuals and cultural alignment were major factors in this project’s success because participants were able to see the tasks being done, could watch as many times as needed to fully learn the skill, and saw the cultural context of their community members on the video speaking the same language. All of which it much easier for the information to be conveyed and retained.

### Discussion

These four studies demonstrate multimedia and dual coding theories in action as they each utilize a form of storytelling, visuals, and multimedia delivery. Ultimately, each study demonstrates the ability to connect to the learner audience through cultural alignment and the specific needs of the learner.

The best examples of cultural alignment are Thorn’s (2023) Indian nurse training and Grossman’s (2019) skill videos in the Gambia. These two studies demonstrate a strong connection between the content and the intended audience, involving the intended audience through collaboration, and the use of learner personas. These steps are best practices when it comes to aligning multimedia story and visual elements to the learner audience culture.

The learner personas in the Indian nursing study allowed researchers to closely align the character’s visual appearance with the culture and traditional saree dress of the nurses. At first the characters and other illustrated designs appeared more Western in nature. It was important to accurately depict the culture of the nurse participants because that provides immediate buy-in to the training. Imagine if the researchers chose to use a character not of the same learner persona—as a random example, a male plumber—the learners would be confused and the fact that they would be fixated on the reasoning behind the character choice would then become a barrier to learning. Having a character that aligns with the learner persona makes it easier for the learner to immediately relate because they can see themselves on the screen. It is almost as if the training is saying, “pretend this is you,” to the learner. In this case, the researchers did a great job of constructing this character by including participants and stakeholders early on, going through a revision process, and including cultural elements to which the learners could relate such as *sarees* (the dress), *bhindis* (a traditional and/or religious dot on the forehead), and *bangles* (bracelets representative of marriage and/or good fortune). They even used photographs of actual nurse participants as visual reference for the character designs (Thorn, 2023).

While the last study—the Gambia—did not necessarily include storytelling, it did include the multimedia aspect as well as cultural alignment. The key significance of the study was the way it leaned on the support of (and collaboration with) the learner audience to determine which skills to demonstrate in the videos. Further, they employed the learners (villagers) to help create

the content by teaching them videography skills and allowing them to demonstrate the skills on-camera as well. Similar to the Indian nursing study, this created intrinsic buy-in with the learner audience as they could easily see themselves represented on-screen and imagine themselves performing the tasks to learn the demonstrated skill—a mental simulation made possible by mirror neurons (Keysers & Gazzola, 2010). Participants were involved at every stage of the design and development of this project, so the result was something that connected to the learner audience in a real and meaningful way.

Jarrah et al. (2024) analyzed data to recognize the importance of storytelling and multimedia in education and learner motivation. Further, the study suggests storytelling and multimedia (specifically gamification) is a methodology on the current cutting edge and is their recommendation for the modernization efforts to bring Saudi Arabia into a new era of a knowledge-based economy. While Jarrah et al. may not delineate exact strategy for the mentioned educational reform, both Jarrah et al., and AminAfshar and Mojavezi (2017) demonstrate the validity of using storytelling and visuals as an effective learning strategy. Both articles point to the impact storytelling and multimedia can have on current learners and the future of education.

### **Implications for Instructional Designers**

As this brief paper indicates, multimedia learning designs utilizing storytelling and visuals that align with the culture and learner persona of the intended audience connect with the learners inherently, and through dual coding allow the content to be more memorable over time. Creating multimedia projects allows the content to be delivered in more than one modality which provides opportunity for the content to be coded in the brain multiple ways, thus increasing retention (Ramlatchan, 2019).

By looking for ways to incorporate visuals and stories that are culturally aligned to the learner persona, instructional designers can make a greater connection with their audience, thus making the learning more meaningful and memorable. Stories can be incorporated in many ways such as including case studies and scenarios which relate to real-world experiences the learner may face in the given topic for the learning. Additionally, scenarios could be fictional using a character based on the learner persona—as Thorn (2023) did in the Indian nurse study. The superhero was based on a learner persona, which was therefore believable and relatable to the audience, even though the character was fictitious.

Instructional design best practice recommends training be learner-centric in that it focuses on the learner, benefits the learner in a practical way, and meets the desired learning objectives. One way to ensure training connects with the learner is to use learner personas. Learner personas allow designers to create a fictional composite of the traits the average learner in the target audience would have (Zagallo, et al., 2019).

To create a learner persona, ATD (Alzate, V., 2021) recommends surveying stakeholders and potential members of the learner audience to define and compile common characteristics. These characteristics may not be unique to everyone but speak to an average across the group. Things like culture, age, gender, general demographics, educational experience or background, previous experience with the given topic, goals, and motivations, etc., would be ideal aspects to include in developing a learner persona (Alzate, 2021). Defining the learning audience by creating a representative persona allows instructional designers to create learner-centric training that connects and resonates with their learners. Further, basing characters on learner personas is a

great way to deepen the connection with the learning audience and make stories and visuals more meaningful.

### **Conclusion**

Storytelling has always been one of humanity's oldest forms of pedagogies because narrative helps break complex information into bite-sized, memorable packages (Kromka & Goodboy, 2019). While storytelling may be one of the oldest forms of knowledge delivery, multimedia such as videos, are certainly more modern but still rely on the trusted framework of storytelling. When visuals are combined with storytelling in the form of video or multimedia learning, it becomes an opportunity for executing dual-coding and multimedia theories which suggest the information is coded twice in the brain creating double opportunities for recall (Ramlatchan, 2019). Adding yet another layer of connection with the learner through cultural alignment by using learner personas makes the learning even more meaningful and memorable (Zagallo, et al., 2019). Combining all these things— story, visuals, multimedia (having both visual and aural content), cultural alignment through understanding the learner audience by utilizing learner personas—creates a powerful connection to the learner and a valuable learning experience.

### References

- Alzate, V. (2021, May 20). *How to develop learner personas for effective training*. ATD Home. <https://www.td.org/content/atd-blog/how-to-develop-learner-personas-for-effective-training>
- AminAfshar, M., & Mojavezi, A. (2017). The effect of aural and visual storytelling on vocabulary retention of Iranian EFL learners. *English Language Teaching*, 10(4), 92–99. DOI?
- Butcher, S. E. (2006). Narrative as a Teaching Strategy. *Journal of Correctional Education*, 57(3), 195–208. <https://libproxy.boisestate.edu/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ768576&site=ehost-live> DOI?
- Greene, R. (2020). *Instructional story design: Develop stories that train*. ATD Press.
- Grossman, H. M. (2019). Skill-based educational video creation in Gambia: A participatory video project review. *TechTrends*, 63(3), 304–310. <https://doi.org/10.1007/s11528-019-00393-3>
- GuramatunhuCooper, N. M., & Headrick, J. (2022). A reflective review of instructor and learner storytelling in leadership education. *Journal of Leadership Education*, 21(4), 24–36. <https://libproxy.boisestate.edu/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1365924&site=ehost-live> DOI?
- Jarrah, H. Y., Bilal, D. A., Halim, M., Helali, M. M., AlAli, R. M., Alfandi, A. A. A., & Khasawneh, M. A. S. (2024). The impact of storytelling and narrative variables on skill acquisition in gamified learning. *International Journal of Data and Network Science*, 8(2), 1161–1168. <https://doi.org/10.5267/j.ijdns.2023.11.018>
- Keysers, C., & Gazzola, V. (2010). Social neuroscience: Mirror neurons recorded in humans. *Current Biology*, 20(8), R353–R354. <https://doi.org/10.1016/j.cub.2010.03.013>
- Kromka, S. M., & Goodboy, A. K. (2019). Classroom storytelling: Using instructor narratives to increase student recall, affect, and attention. *Communication Education*, 68(1), 20–43. <https://doi.org/10.1080/03634523.2018.1529330>
- Ramlatchan, M. (2019). Multimedia learning theory and instructional message design. In M. Ramlatchan (Ed.), *Instructional Message Design: Theory, Research, and Practice 1*(10). Kindle Direct Publishing. [https://digitalcommons.odu.edu/instructional\\_message\\_design/10](https://digitalcommons.odu.edu/instructional_message_design/10)
- Thorn, K. (2023). Increasing retention and knowledge transfer through digital storytelling and the comics medium: A design case [Ed.D., The University of Memphis]. In *ProQuest Dissertations and Theses*. <https://www.proquest.com/central/docview/2836199330/abstract/CC19E30CECD24958PQ/3>

Zagallo, P., McCourt, J., Idsardi, R., Smith, M. K., Urban-Lurain, M., Andrews, T. C., Haudek, K., Knight, J. K., Merrill, J., Nehm, R., Prevost, L. B., & Lemons, P. P. (2019). Through the eyes of faculty: Using personas as a tool for learner-centered professional development. *CBE life sciences education*, 18(4), ar62.  
<https://doi.org.libproxy.boisestate.edu/10.1187/cbe.19-06-0114>