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Bringing Lessons to Life: Media-Driven Approaches in Online Learning

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Abstract

As online education becomes the norm rather than the exception, the challenge lies not in delivering content, but in ensuring that students remain actively engaged and retain learned content. This study examined the impact of media-driven instructional tools (such as interactive video-based microlearning, virtual simulations, and text-based interactive lessons) on student engagement, retention of knowledge, and perceived preparedness in online courses. Students enrolled in asynchronous undergraduate psychology courses at the University of Massachusetts Global (UMass Global) participated in the survey. Researchers analyzed both quantitative trends and qualitative insights to explore best practices for integrating interactive media in digital education. Results were overwhelmingly positive, indicating that interactive media significantly improves learner engagement and comprehension, particularly among students who prefer visual or hands-on learning approaches. Participants reported that media-enhanced learning experiences made course content more engaging, improved knowledge application, and supported assignment completion. The study was conducted in collaboration with a dedicated instructional media team, whose interdisciplinary development model supports high-quality, pedagogically aligned digital content. While students largely endorsed the benefits of interactive media, challenges such as device compatibility and varying learning preferences highlight the need for a flexible instructional design approach. Findings provide insights for educators and instructional designers seeking to utilize and optimize media in online education, with implications for improving course accessibility, engagement, and knowledge application across disciplines.

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Introduction

The shift to digital education from more traditional classroom environments has transformed higher learning by expanding access to educational content, but that same emergence of virtual education has also raised new challenges. Traditional text-heavy formats often rely on passive learning and may not support long-term retention or engage students with diverse learning styles. As technology continues to evolve, incorporating tools like artificial intelligence (AI), virtual simulations, and multimedia learning is essential to keep course design current, competitive, and effective.

Interactive instructional tools, such as video-based microlearning, scenario-based simulations, and text-based activities, have become increasingly popular for their ability to increase student engagement, comprehension, and critical thinking. Multimodal formats may also help students process information more effectively, particularly when content is relevant and applied (Davis & Frederick, 2020; Olufunke et al., 2022). Individual differences in learning preferences and technological fluency highlight the need for flexible, well-integrated course design. In response to this need, this study investigated how media-driven instructional tools increase engagement, learning effectiveness, and usability in asynchronous online psychology courses.

Literature Review

Interactive and Inclusive Course Design

The expansion of online education, particularly in the behavioral sciences, has significantly increased access and flexibility for students. However, this growth has also brought persistent challenges related to engagement, retention, and instructional effectiveness. In 2020, 75% of U.S. undergraduates were enrolled in at least one online course, up from 36% in 2019 (U.S. Department of Education, 2021).

Rather than serving as a temporary solution to a societal disruption, this post-pandemic rise in virtual learning reflects a lasting shift toward more accessible and flexible educational models. While research on lecture-capture technology indicates it can be as effective as face-to-face classes in supporting student learning (Bosshardt & Chiang, 2016), online learners continue to face higher dropout rates and lower academic performance compared to their in-person peers (Hart et al., 2018). To address these gaps, research has documented the intentional use of digital tools as a means of increasing student engagement, enhancing creativity, and improving learning outcomes (Wang & Li, 2024; Wang, DeBoer, & Sinha, 2023).

Interactive media also supports cultural responsiveness in online education. Although access has expanded, virtual instruction has often fallen short in promoting diversity and inclusion (Salmi, 2020). Scenario-based learning and culturally relevant case examples help engage students and expand their perspectives. While many learners benefit from live interaction, asynchronous tools such as microlearning and interactive assessments have also proven effective in enhancing motivation and comprehension (Fabriz et al., 2021; Fadhilah, Sutrisna, Muslimah, & Ihsan, 2021).

Instructional Strategies for Inclusion

Engagement improves when instructional media reflects students' real-world experiences. Scenario-based learning immerses students in problem-solving exercises that mirror challenges in their field, promoting deeper understanding and critical thinking (Clark, 2020). Microlearning, often delivered in short videos or text-based modules, helps students absorb complex material in manageable segments (Kapp & Defelice, 2019). Assignments and simulations that incorporate diverse backgrounds, along with interactive vignettes and role-playing exercises, further enhance relevance, motivation, and skill development.

Collaborative Development and Institutional Infrastructure

Center for Instructional Innovation and Media Development

At UMass Global, integrating interactive media into online learning is not just about adding videos or simulations. It's a coordinated process built on collaboration between faculty, instructional designers, and media developers. This process is supported by the Center for Instructional Innovation (CII), a dedicated team that brings together experts in course design, media production, academic technology, and learning systems. Since its creation in 2011, the CII has worked closely with faculty to create instructional materials that are engaging, accessible, and grounded in sound pedagogy. What sets this model apart is the level of sustained collaboration built into course development. Faculty contribute subject matter expertise. Instructional designers help shape how the material is taught by aligning it with learning outcomes and planning the structure of each lesson. Media developers bring in the tools (like animation, voiceover, and interactive platforms) to turn content into something students can engage with. This collaboration also supports long-term improvements in quality and consistency. With the CII involved in course development across programs, materials are designed to be reusable, scalable, and aligned with university-wide goals. Having an internal media team ensures that the final product is reflective of the shared values around inclusion, accessibility, and meaningful learning.

Roles and Responsibilities

Faculty. Faculty serve as subject matter experts, developing core content and ensuring conceptual accuracy. They help translate psychological theories into accessible instruction and review visual or interactive components to ensure alignment with course objectives and discipline standards.

Instructional Designers. Instructional designers oversee course structure and pedagogical integration of media. They coordinate development timelines, support collaboration, and ensure that instructional strategies build upon prior knowledge.

Media Developers. Media developers transform course concepts into interactive learning experiences. They specialize in video production, animation, voice-over scripting, and eLearning tools to create visually engaging and technically sound instructional materials. Their work ensures accessibility and supports multiple learning styles.

Collaborative Media in Practice

This collaborative model has led to projects that go beyond traditional course content. One example is a scenario-based video used in a cognitive psychology course. Faculty identified a need to help students connect theory to real-life decision-making. Instructional designers shaped the learning objectives and structure. Media developers brought the vision to life using animation and narration. The result was an engaging, relatable experience that helped students apply abstract concepts to everyday situations. A detailed description of this project is included later in the manuscript.

Diversification of Media

Educational media comes in a wide variety of forms, including text, audio, video, and interactive simulations. Each of these modalities has its own strengths and weaknesses, and it is important to use a mix of media to meet the needs of all learners. Additionally, using multiple modalities of media can help to keep students engaged and motivated, as they are more likely to stay interested in a topic if it is presented in a variety of ways. The following is an explanation of several media types that were evaluated by students in this study as well as descriptions of the media.

Recorded Lectures

In asynchronous online education, recorded lectures provide flexible alternatives to live synchronous classes, preserving the lecture experience when real-time meetings are not feasible (Yousef, Chatti, & Schroeder, & Wosnitza, 2014). These lectures can be delivered either as video recordings of the instructor on webcam with slide presentations or as audio-narrated slide decks, enabling students to access course content on their own schedule and from any location, while catering to diverse learning preferences. By integrating visual aids with spoken explanations, recorded lectures address multiple learning modalities (visual and auditory), allowing visual learners to associate imagery with narration and enabling all students to review material at their own pace (pausing and replaying as necessary) and revisit complex content (Yousef et al., 2014). Shorter, tightly focused videos are also associated with higher engagement in large-scale course settings (Guo, Kim, & Rubin, 2014). Empirical research indicates that recorded lectures foster effective study strategies and boost knowledge retention. For example, one study showed that allowing students to capture slide images during lecture playback reinforced auditory information processing and yielded memory benefits (Ditta et al., 2023).

Additionally, the availability of recorded content encourages thorough note-taking and sustained attention, further improving retention of course material (Wong & Lim, 2023). Furthermore, students often exhibit higher engagement with instructor-generated video lectures. In one study, learners found instructor-recorded videos more informative than slide decks alone, leading to a stronger sense of connection with the instructor and greater overall student satisfaction (Draus et al., 2014). Given these advantages for student learning, recorded lectures represent a key component of asynchronous online course design, enhancing student engagement, knowledge retention, and accessibility.

Topical Microlearning

Another content delivery strategy used in course design at UMass Global is to break larger topics down. Topical microlearning is a technology-supported learning approach that simplifies complex information into bite-sized, easily digestible units, each aligned with a specific learning objective and designed to build upon one another while supporting practical skill development (Sankaranarayanan et al., 2023). This is accomplished through video, text, graphics, or a combination of all three.

Video-Based Microlearning

Video is widely used across higher education as a core method of delivering content, particularly in flipped, blended, and online learning environments. Its effectiveness as a teaching tool increases when instructors thoughtfully address three key factors: managing the video's cognitive load, encouraging student engagement, and supporting active learning throughout the viewing experience (Brame, 2016). Rather than presenting a long lecture, video-based microlearning breaks information into distinct sections, allowing students to digest individual topics in short bursts. A white paper prepared by Carmichael, Reid, and Karpicke (2018) summarized prior research showing that brief, well-structured video segments are more likely to sustain student motivation and attentiveness, even though it was not peer-reviewed. One of the videos viewed by students in this study, titled "What is Cognitive Psychology," serves as an example of how video-based microlearning can enhance student understanding of key psychological concepts (see Figure 1). The video employs a combination of 2D animated characters, situational narrative comedy, and text overlays to structure the information effectively, and uses professionally written dialogue, music, and comedic timing to increase viewer engagement. The video presents a relatable experience of a woman searching for an item in a grocery store, and an employee (who is also an overly excited psychology student) asking if she needs help. Once the customer asks where the shortbread cookies are located, the employee asks her if she has tried using cognitive psychology as a means for locating her item.

Figure 1. Still Image from the Animated Microlearning Video "What is Cognitive Psychology?" Used to Introduce Core Concepts in the Cognitive Psychology Course

[*Note.* The video uses scenario-based storytelling and humor to enhance engagement and reinforce theoretical content through dual coding.]

Through comical dialogue, the video introduces cognitive psychology by defining it as the scientific study of mental processes, including perception, attention, memory, language, problem-solving, and decision-making. It provides historical context by referencing early cognitive psychologists and the cognitive revolution, emphasizing how the field developed in response to behaviorism's limitations in explaining internal mental functions. For example, the concept of framing is explained by the employee drawing attention to his flannel shirt and how he always wanted to be a lumberjack, but when he read a statistic that said five out of every one hundred lumberjacks die, he decided to work at a grocery store instead. Thomas was then told that 95% of lumberjacks do not die and thereby returned to the pursuit of his original dream. He goes on to explain that even though the statistics were identical, the framing of those statistics helped him make his decision. The video introduces students to cognitive psychology concepts without referencing the course name itself, making it usable outside of the course if necessary. It simultaneously introduces students to the major topics covered in the course and provides an explanation of how what they are learning connects to the real world. The video also supports the principle of dual coding (combining words and images), which has been shown to enhance learning by providing multiple pathways for information processing.

Text-Based Microlearning

The interactive text-based lesson is designed to scaffold student learning by presenting a clear outline of weekly topics (see Figure 2). As students click on each topic, they receive a comprehensive review of the content, broken into smaller sections. Unlike static textbook reading, these lessons integrate multimedia components, including embedded graphics, downloadable files, and other visualizations. For example, a historical timeline of psychological theories may include interactive elements that allow students to explore key figures and milestones in greater depth. Similarly, key theoretical concepts might be reinforced with embedded videos, infographics, or practice questions to encourage engagement and retention.

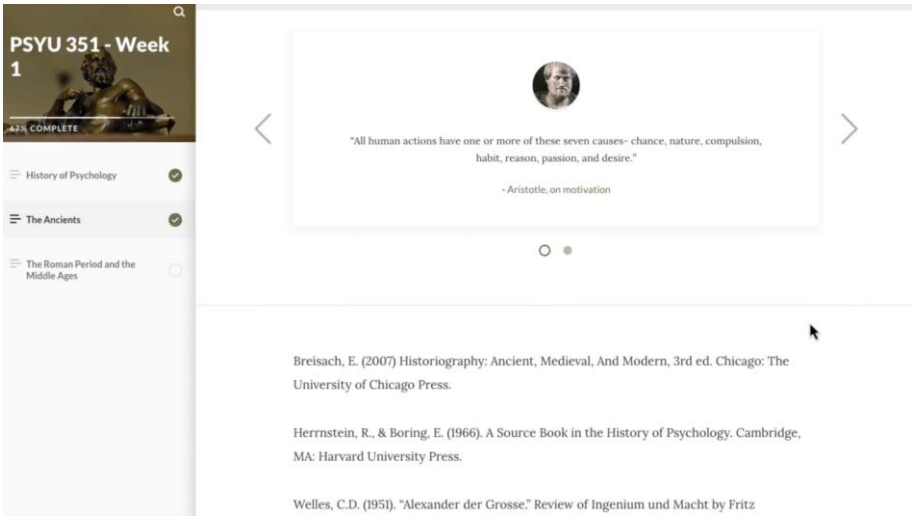

Figure 2. Screenshot of An Interactive Text-Based Lesson from PSYU 351 That Allows Students to Explore Weekly Content Through Collapsible Sections and Embedded Media

[*Note.* This microlearning format supports self-paced learning, spaced repetition, and active engagement with course material.]

A significant advantage of text-based microlearning is its adaptability to different learning styles. While video-based microlearning relies on auditory and visual elements, interactive text-based lessons allow students to control their engagement level, revisiting key points as needed. Furthermore, this format aligns with best practices in instructional design by incorporating spaced repetition and self-assessment opportunities (Nguyen, Rienties, & Richardson, 2021). Interactive text lessons that include built-in quizzes, reflection prompts, or case study applications reinforce learning and encourage students to apply their knowledge to real-world contexts.

Interactive Learning

Read and Do Formats

"Read-and-Do" formats are primarily text-driven, but include clickable elements like flashcards, branching simulations, and knowledge checks (Sitzmann, 2011). These features prompt students to engage with content as they progress, deepening comprehension and encouraging application of material in real time. The learner controls the pace, reinforcing autonomy while processing complex concepts.

"Hear-and-Do" formats center on recorded narration paired with on-screen text and interactive prompts. These lessons offer a guided experience that mirrors instructor presence, using feedback cues (e.g., voiceovers or sound effects) to reinforce understanding. This approach is especially beneficial for auditory learners, though accessibility features like synchronized captions remain critical. Both methods leverage multimodal engagement to improve comprehension, retention, and motivation. By incorporating Read-and-Do and Hear-and-Do experiences into course design, educators can offer flexible and inclusive learning opportunities that go beyond passive content delivery and support a wide range of learning styles.

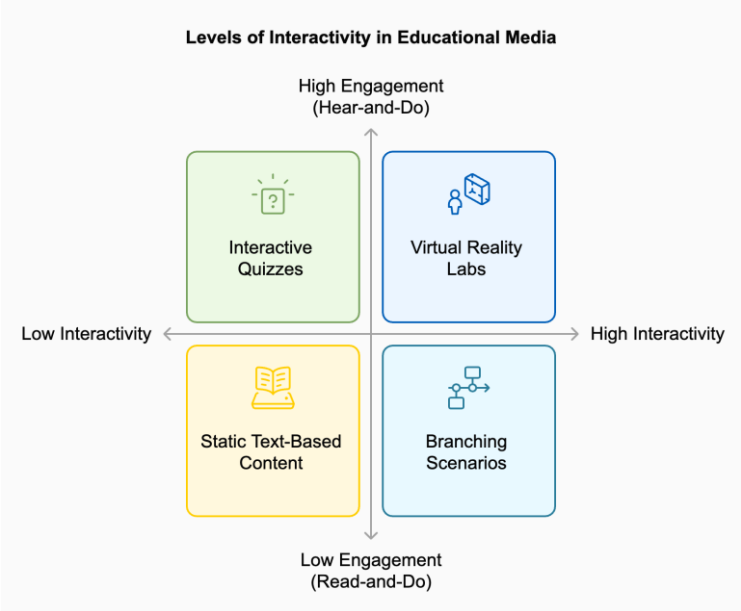

Figure 3. Overview of the "Read-and-Do" and "Hear-and-Do" Instructional Formats That Promote Active Participation Through Text and Audio-Guided Interaction

[*Note.* These formats are designed to meet diverse cognitive processing styles and increase engagement through multimodal learning.]

Figure 3 presents the “Read-and-Do” and “Hear-and-Do” instructional formats, which support varied cognitive preferences by promoting active learning. These formats reflect a spectrum of engagement styles commonly explored in eLearning, ranging from passive content consumption to highly participatory learning experiences (Ismail, 2024). Our instructional media is designed along this engagement continuum, from structured reading to multisensory, interactive activities that involve reading, listening, and physical interaction.

Virtual Brain Dissection

Most students who have taken a course on biopsychology or physiological psychology in a traditional classroom environment can likely agree that one of the major highlights in that course is the dissection of the brain. So, how can this applied learning experience translate to students in an online environment? The answer is: using interactive media. Through our collaboration model, the virtual brain dissection activity came to life (Good & Holtgrave, 2023).

A member of the media team utilized three-dimensional (3D) editing tools to place real-life magnetic resonance imaging (MRI) scans of a brain into our eLearning authoring tool. The goal of the activity was for students in the course to use virtual tools to ‘dissect’ the brain. The model, being based on a real scan, increases the overall realism of the assignment. The brain is fully rotatable and can rotate around various axes for students to access a variety of different brain structures for external structure identification. Students are then prompted to make dissection slices of the brain with a virtual scalpel.

The virtual scalpel is a mouse-based, drag-and-drop activity, allowing the student to move the scalpel to the appropriate position on the brain to make a slice or cut. After the student engages in the appropriate movement (or slice) with the virtual scalpel, different portions of the brain and internal structures are presented to the student who then labels each section of the brain through more drag-and-drop interaction. The student is also presented with a description of the area of the brain when they hover their mouse over the label (Good & Holtgrave, 2023).

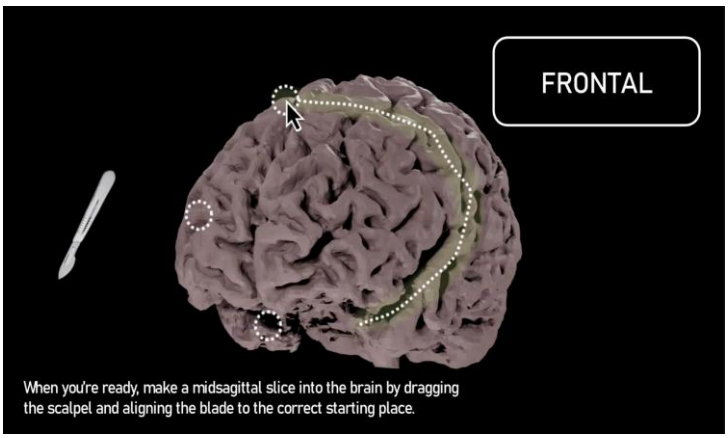

Figure 4. Screenshot from the Virtual Brain Dissection Activity, Which Allows Students to Rotate a 3D Brain, Make Dissection Cuts, and Label Internal Structures.

[*Note.* Developed using MRI scans and interactive design, the activity offers an applied neuroanatomy learning experience for online learners.]

This activity, illustrated in Figure 4, enhances neuroanatomy instruction in online environments by combining visual, interactive, and applied learning elements. It is designed to strengthen understanding of brain structure and function while appealing to diverse cognitive preferences. Students can manipulate brain images, engage in task-oriented interaction, and apply knowledge in a simulated environment, creating a more meaningful and memorable learning experience than passive content alone can offer. Understanding the role of interactive media in online education extends beyond technological advancement; it also requires consideration of cognitive and psychological factors that influence learning. While virtual simulations and interactive content can enhance conceptual understanding and engagement, their effectiveness may vary based on individual differences in cognitive preferences, learning styles, and personality traits.

School of Personality

One other assignment that has an interactive component is the School of Personality (see Figure 5). Through collaboration with CII media developers, an interactive School of Personality activity was developed to bring personality theories to life. In this virtual experience, students "visit" different theorists who have contributed to the study of personality, engaging in an interactive conversation with them. Each theorist, ranging from Freud and Jung to Bandura and Rogers, is represented in a way that allows students to pose questions and receive responses that reflect the theorist's perspective and theoretical contributions. The interactive dialogue is structured to simulate a real-time discussion, guiding students through key principles of each theory while prompting them to critically engage with the material.

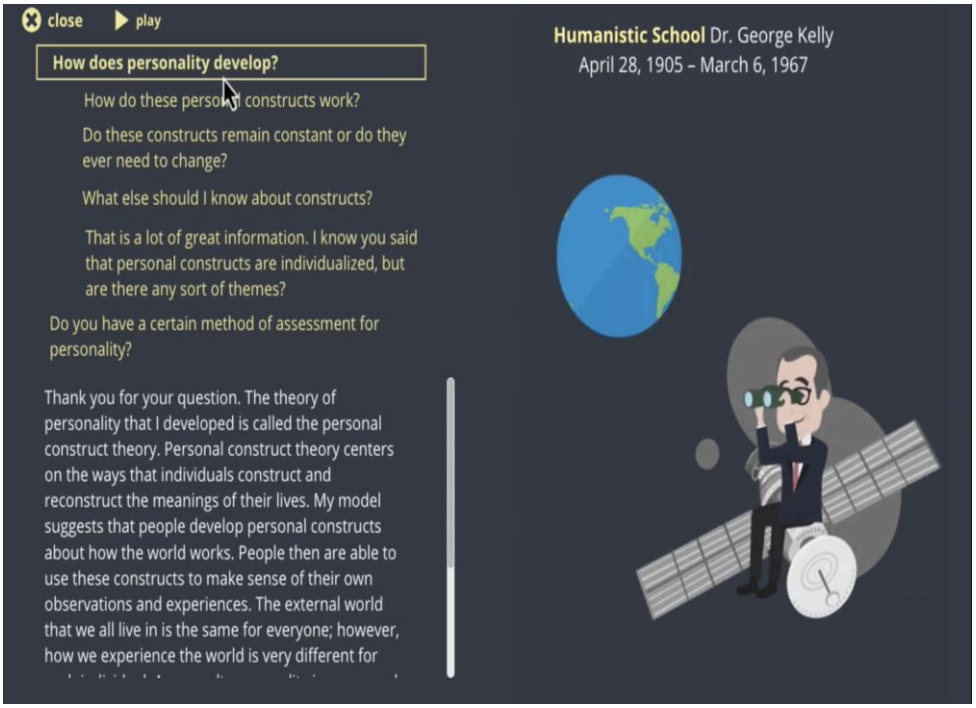

Figure 5. Scene from the "School of Personality" Activity Where Students Engage in Interactive Dialogue with Simulated Historical Theorists to Learn Personality Concepts

[*Note.* This scenario-based media encourages critical thinking and application by simulating interviews with key figures in personality psychology.]

This activity was designed to enhance students' comprehension of major personality theories and to promote engagement through active participation. By adopting the role of an interviewer, students interact directly with theorists, allowing them to examine various perspectives in a dynamic and immersive manner. This interactive approach strengthens the connection between theoretical concepts and their real-world applications, offering students a distinctive and enriched way to explore personality psychology within an online learning environment.

The discussion of personality theories highlights the importance of aligning instructional methods with individual differences in learning engagement and cognitive processing. Given that personality traits influence motivation, interaction with course materials, and information retention, understanding how students engage with interactive media becomes critical for optimizing digital learning environments. To explore these dynamics, the following methodology section outlines the methodological framework, including participant recruitment, survey design, and data analysis procedures used to assess the impact of interactive media on student engagement and knowledge retention.

Methodology

This study employed a mixed-methods approach to examine the role of interactive media in online learning environments. Data collection and analysis were guided by principles of convenience sampling, allowing researchers to gather insights from a diverse cohort of online learners enrolled in psychology courses at the University of Massachusetts Global. Both quantitative and qualitative methods were used to capture the breadth and depth of participants' experiences, preferences, and challenges with interactive media.

Participants

A total of 246 participants voluntarily responded to an anonymous online survey, with informed consent obtained at the outset of the study. Participants included students enrolled in various online undergraduate psychology courses. The sample consisted predominantly of nontraditional adult learners, reflecting the university's mission to serve diverse populations.

Survey Instrument

A 25-item structured survey was developed to gather both quantitative and qualitative data on students' experiences with interactive media in online psychology courses. The instrument included Likert-scale items assessing engagement, retention, media preferences, and perceived challenges, along with open-ended questions designed to capture individual perspectives in greater depth.

While the survey was not formally validated, it was reviewed by faculty and instructional designers to ensure clarity and alignment with the study's goals. As an exploratory tool, the instrument offers valuable preliminary insights but should be interpreted with the understanding that psychometric properties were not formally established.

Procedure

Survey Administration

The survey was administered electronically using SurveyMonkey and embedded within five asynchronous undergraduate psychology courses: Psychology of Learning, History and Systems, Physiological Psychology, Theories of Personality, and Cognitive Psychology. To ensure accurate recall, the survey link was posted in Blackboard during the week students engaged with course media. Participation was anonymous and voluntary, with no impact on students' grades or academic standing.

Participant Invitation and Survey Content

Students were invited through an assignment prompt that described the study's purpose, the voluntary nature of participation, and the estimated time commitment (10–15 minutes). The survey included both closed- and open-ended questions about students' experiences with interactive media. SurveyMonkey's required-response setting was enabled for essential items to minimize missing data. Incomplete responses were excluded from the analysis.

Participation Timeline and Sample

The survey remained open for eight weeks per course across the academic year (August 2023–July 2024). A total of 198 undergraduate student participants completed the survey. While demographic data were not collected, participants identified the device used to access course media (e.g., desktop, tablet, or mobile phone). The lack of demographic information is acknowledged as a limitation and may be addressed in future studies.

Data Management and Ethical Approval

Responses were stored on encrypted servers and archived in a secure cloud repository accessible only to the research team. IP addresses were used to prevent duplicate submissions, but no identifying metadata were retained. All procedures were approved by the university's Institutional Review Board.

Debriefing and Consent

Upon survey completion, students received a debriefing statement with contact information for the research team. Consent was implied by selecting "Yes" to begin the survey, confirming participants were 18 years or older and understood the purpose of the study.

Results

The following section presents findings from both the quantitative and qualitative components of the student media survey. Results are organized by domain: media accessibility and navigation, knowledge acquisition and retention, assignment preparedness and application, and overall engagement and feedback. Quantitative data are

summarized descriptively. Qualitative responses were thematically analyzed to provide context and depth. Of the 246 students who began the survey, 198 completed the survey in full and were included in the final analysis.

Media Access and Navigation

Students reported high rates of success in accessing and using the interactive media. Most completed the survey using a desktop or laptop (N = 216), while others used tablets or mobile devices. A large majority, 93.5%, either agreed or strongly agreed that the media was easy to navigate. Students described the platform as intuitive, with instructions that clearly supported independent use. One participant noted, “Each slide was guided to the next until completion, which made navigating easy.” Another wrote, “It pretty much only needs you to scroll and click, so it was very easy.”

A small number of students experienced technical difficulties, including browser issues or interface challenges on mobile devices. Some recommended providing device-specific tips or troubleshooting suggestions to improve usability. For example, one student shared, “It was a little awkward to use the mouse pad rather than a real mouse; I had to use two fingers.” Despite these occasional frustrations, the overwhelming response was that the media interface supported access and user-friendly navigation.

Knowledge Acquisition and Retention

Survey results reflected strong learning outcomes following the use of interactive media. More than 87% of students agreed or strongly agreed that their knowledge of course material improved. Students described the visual and interactive elements as key to understanding, particularly among those who identified as visual or kinesthetic learners. One participant commented, “Seeing the concepts applied in real-time helped solidify my understanding.” Another wrote, “I learned so much more through this interactive format than just reading.”

Retention of content was also positively rated. Nearly 86% of students agreed that the media helped them remember what they learned. Participants emphasized that engaging multiple modalities supported their recall of material. One respondent stated, “I was able to recall the information much better than when simply reading the textbook.” Another added, “The combination of narration and visuals made it easier to recall information when studying.” A few students acknowledged needing to review material outside of the media, but overall, the content strongly supported both initial understanding and long-term retention.

Assignment Preparedness and Application of Knowledge

Participants overwhelmingly reported that interactive media improved their ability to complete assignments. A total of 81.8% agreed or strongly agreed that the media made them feel prepared. Students credited the media with helping clarify complex topics and providing helpful examples. One student wrote, “The media assured me of the specific information I needed to complete my assignments.” Another noted, “The interactive features helped break down complex topics, making assignments much more approachable.” In addition to preparedness, students also

reported that the media enhanced their ability to apply course concepts. About 82% agreed or strongly agreed that interactive media improved their capacity to apply what they had learned. Students emphasized that hands-on, scenario-based media is especially valuable. One respondent said, “It clarified concepts and helped me see how they work in real life.” Another student remarked, “The interactive media helped me apply the material in assignments and discussions.” A small number of students noted they still needed to consult readings or instructors for more detailed support.

Student Preferences and Engagement

Students expressed high levels of satisfaction with the use of media in comparison to traditional course methods. More than 84% reported that the interactive media offered a more valuable learning experience. Students described it as more engaging and appreciated the ability to revisit content at their own pace. One student explained, “The ability to pause and replay sections allowed me to focus on areas where I needed more clarity.” Several participants preferred a blended approach that included both media and text-based materials. One student wrote, “Written content combined with interactive media is the most effective way to learn online.” Some students preferred text formats for efficiency and directness. As one respondent explained, “Written content is faster and more easily digestible than videos.” These findings reinforce the importance of offering multiple modalities to support different learning preferences.

There was also strong enthusiasm for incorporating more interactive media into future courses. More than 90% of students said they would prefer more media-based instruction. Common suggestions included additional videos, quizzes, simulations, and interactive case studies. One student commented, “Interactive elements make learning more enjoyable and keep my attention better than just reading text.” A few students expressed caution about overusing media or recommended keeping some content in more traditional formats.

Improving Engagement and Course Design

When asked what could improve their experience with the media, students suggested increased interactivity, shorter segments, and more real-world examples. One participant recommended, “Breaking up videos with knowledge checks or clickable prompts would make me feel like I’m actively learning, not just watching.” Other students suggested improving mobile compatibility and incorporating more personalized or informal narration. A small group mentioned time constraints or outside responsibilities as barriers to fully engaging with the content.

General Feedback and Future Directions

Overall student feedback emphasized the value of the media in making online courses more engaging, memorable, and accessible. Many students praised the use of video, animation, and interactive formats, and encouraged broader use across the psychology curriculum. Some students recommended enhancing visual design or expanding media topics. A few provided mixed reactions to humor or character use but generally appreciated the variety and tone.

Summary of Findings

Across quantitative and qualitative responses, students reported that interactive media contributed meaningfully to their learning. The majority described media as clear, accessible, and helpful in understanding and retaining content. Students felt more confident in completing assignments and applying knowledge when interactive elements were used. Feedback strongly supported continued investment in media-based tools and emphasized the value of flexible, well-designed instructional content that meets the needs of diverse online learners.

Discussion

Interpretation of Findings

Students consistently reported that interactive media improved their comprehension, supported engagement, and helped them feel prepared for assignments. These perceptions align with Mayer's (2021) multimedia learning theory and Sweller, Ayres, and Kalyuga's (2019) cognitive load theory, both of which emphasize that combining words and visuals reduces overload and fosters retention. The effectiveness of shorter videos in our findings illustrates Mayer's segmentation principle, which posits that breaking material into smaller chunks helps minimize cognitive strain. The integration of text and visuals also reflects dual coding theory, as students benefit from processing content through multiple channels.

Motivational frameworks also help interpret these findings. For example, self-determination theory (SDT) suggests that interactive media supported competence (through scaffolded and digestible material) and relatedness (through instructor-created videos that humanized course content). Similarly, the community of inquiry framework emphasizes social presence as critical in online learning. Students' reports of a "sense of connection" with instructors suggest that instructor-produced media enhanced social presence, which research links to persistence and satisfaction in online education.

Usability and Access Challenges

Although feedback was largely positive, students also reported challenges such as device compatibility issues, especially on mobile platforms, and difficulties navigating certain interactive tools. This is consistent with previous research that noted that technical barriers and unequal digital access influence perceptions of online learning (Fabriz et al., 2021; Olufunke et al., 2022). These challenges reinforce the importance of responsive design and institutional support.

In addition, while many students favored video and interactive media, a minority cautioned against overuse, recommending balance with traditional content, highlighting the importance of integrating media in a manner that is meaningful. From a cognitive load perspective, extraneous or overly complex features may overwhelm learners. The optimal design uses media selectively: leveraging its ability to enhance engagement while maintaining clarity and simplicity.

Implications for Design and Practice

The findings from this study highlight practical strategies for course design. Segmenting content into smaller units supported comprehension and aligns with microlearning research (Ibrahim, Callaghan, & El-Halwagy, 2022). Frequent knowledge checks through interactive quizzes and feedback echo retrieval practice literature, which demonstrates that low-stakes testing promotes retention. Shorter, spaced learning activities also reflect evidence from Nguyen, Rienties, and Richardson (2021), who found distributed practice more effective than massed study.

Students' varied preferences for videos, text, or interactive elements support Universal Design for Learning (UDL) principles, which emphasize offering multiple modalities to address diverse needs. Providing content in varied formats not only improves outcomes but also aligns with inclusive teaching practices. Moreover, scenario-based simulations and applied tasks helped students connect concepts to assignments, supporting transfer of learning. As Sitzmann's (2011) meta-analysis highlights, practice-based simulations enhance the ability to apply knowledge in new contexts (an outcome of high importance for higher education).

Limitations and Future Directions

While students overwhelmingly endorsed the value of interactive media, these results are based on self-reported perceptions within a single institution and discipline. Students' enthusiasm may partially reflect novelty effects or program-specific culture. Because results are based on self-reported perceptions, it remains uncertain whether these improvements translate into measurable learning outcomes such as grades or long-term retention. Future research should replicate this work in diverse contexts and include demographic data to evaluate whether perceptions differ across populations or disciplines.

Another direction involves measuring performance outcomes. Controlled studies comparing courses with and without media integration could determine whether perceived engagement gains translate into objective improvements in grades, retention, or transfer of learning. For example, a longitudinal study might test whether students in media-rich courses retain knowledge more effectively over time compared to peers in text-heavy courses.

Conclusion

Overall, the study suggests that instructional media is not an optional add-on but a central component of effective online learning. Post-pandemic, online learners increasingly expect rich, multimodal course designs; static text-only models risk appearing outdated. Media integration also enhances accessibility: captions assist ESL and auditory learners, interactive modules allow flexible pacing, and varied modalities support diverse learning needs. By situating media as integral to equity and effectiveness, this study supports its role in shaping the future of online education. These findings also reflect a broader shift since 2020, as online learners increasingly expect media-rich, multimodal course designs as the norm rather than the exception

References

Bosshardt, W., & Chiang, E. P. (2016). Target teaching lecture capture learning: Do students perform better compared to face-to-face classes? *Southern Economic Journal, 82*(3), 1021-1038.

Brame, C. J. (2016). Effective educational videos: Principles and guidelines for maximizing student learning from video content. *CBE - Life Sciences Education, 15*(es6), 1-6.

Carmichael, M., Reid, A. K., & Karpicke, J. D. (2018). *Assessing the impact of educational video on student engagement, critical thinking, and learning: The current state of play.* Sage Publishing. White paper.

Clark, R. C. (2020). *Scenario-based e-learning: Evidence-based guidelines for online workforce learning.* Wiley.

Davis, T., & Frederick, T. V. (2020). The impact of multimedia in course design on students' performance and online learning experience: A pilot study of an introductory educational computing course. *Online Learning, 24*(3), 147-162.

Ditta, A., Soares, J., & Storm, B. (2023). What Happens to Memory for Lecture Content When Students Take Photos of the Lecture Slides? *Journal of Applied Research in Memory and Cognition, 12(3), 421-430.*

Draus, P. J., Curran, M. J., & Trempus, M. S. (2014). The influence of instructor-generated video Content on student satisfaction with and engagement in asynchronous online classes. *Journal of Online Learning and Teaching, 10*(2), 240-254.

Fabriz, S., Mendzeritskaya, J., & Stehle, S. (2021). Impact of synchronous and asynchronous settings of online teaching and learning in higher education on students' learning experience during COVID-19. *Frontiers in Psychology, 12*, 1-16.

Fadhilah, M., Sutrisna, S., Muslimah, S. M., & Ihsan, M. T. (2021). An exploring methods in online learning: Synchronous and asynchronous. *Indonesian Journal of Research and Educational Review, 1,* 74-81.

Good, J., & Holtgrave, V. (2023). Application of the iDEAL Model of Learning to Instructional Design and Media in Online Learning. *European Journal of University of Lifelong Learning, 7*(1), 27-34.

Guo, P. J., Kim, J., & Rubin, R. (2014). How video production affects student engagement: An empirical study of MOOC videos. *Proceedings of the ACM Conference on Learning at Scale* (pp. 41–50).

Hart, C. M. D., Friedmann, E., & Hill, M. (2018). Online course-taking and student outcomes in California community colleges. *Education Finance and Policy, 13*(1), 42-71. https://doi.org/10.1162/EDFP_a_00218

Ibrahim, M., Callaghan, V., & El-Halwagy, S. (2022). Microlearning in education: A review of its design principles and effectiveness. *Journal of Computer-Assisted Learning, 38*(2), 1–18.

Ismail, A. M. A. (2024). Exploring the levels of eLearning interactivity: A review of research literature. *Journal of Ecohumanism, 3*(7), 2997–3024.

Kapp, K., & Defelice, R. (2019). *Microlearning: Short and sweet*. ATD Press.

Mayer, R. E. (2021). *Multimedia learning* (3rd ed.). Cambridge University Press.

Nguyen, Q., Rienties, B., & Richardson, J. T. E. (2021). Spaced learning versus massed learning in distance education: A meta-analysis. *Educational Psychology Review, 33*(4), 1479–1507.

Olufunke, O.-F. T., Harun, J. B., & Zakaria, M. A. Z. M. (2022). The benefits of implementing authentic-based multimedia learning in higher education institutions. *Open Journal of Social Sciences, 10,* 74-86. https://doi.org/10.4236/jss.2022.109006

Salmi, J. (2020). *COVID's lessons for global higher education: Coping with the present while building a more equitable future.* https://www.luminafoundation.org/wp-content/uploads/2020/11/covidslessons-for-global-higher-education.pdf

Sankaranarayanan, R., Leung, J., Abramenka-Lachheb, V., et al. (2023). Microlearning in diverse contexts: A bibliometric analysis. *TechTrends 67,* 260–276.

Sitzmann, T. (2011). A meta-analytic examination of the instructional effectiveness of computer-based simulation games. *Personnel Psychology, 64*(2), 489–528.

Sweller, J., Ayres, P., & Kalyuga, S. (2019). *Cognitive load theory* (2nd ed.). Springer.

U.S. Department of Education, National Center for Education Statistics. (2021). *Distance learning. Integrated Postsecondary Education Data System* (IPEDS). https://nces.ed.gov/fastfacts/display.asp?id=80

Wang, Y., & Li, H. (2024). Digital creativity in STEM education: The impact of digital tools and pedagogical learning models on the students' creative thinking skills development. *Interactive Learning Environments.*

Wang, H., DeBoer, J., & Sinha, T. (2023). Interactive learning in digital education: A systematic review. *Journal of Educational Technology & Society, 26*(1), 45–59.

Wong, S., & Lim, W. (2023). Take notes, note photos: Mind-wandering mediates the impact of note-taking strategies on video-recorded lecture learning performance. *Journal of Experimental Psychology: Applied, 29*(1), 124-135.

Yousef, A. M. F., Chatti, M. A., Schroeder, U., & Wosnitza, M. (2014). What drives a successful MOOC? An empirical examination of criteria for pedagogical effectiveness in MOOCs. *Computers & Education, 70,* 22–29.