



Gender and academic discipline influences on EFL learners' perceptions of video-based instruction

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Abstract

This study, based on responses from 176 intermediate and advanced EFL learners in Chile, explores the perceptions of educational videos in English as a Foreign Language (EFL) learning among students from different gender groups and academic disciplines, specifically Social Sciences, Humanities, STEM, and Health Sciences. Using an experimental survey-based design, the research examines how male and female learners, as well as students from various academic fields, perceive video-based instruction across five key dimensions: cognitive processing, affective response, contextual learning, perceived relevance, and usefulness. Cognitive Load Theory (CLT) is applied to provide a framework for optimizing video-based EFL instruction by managing cognitive load and enhancing learner engagement across diverse groups. The findings indicate that females tend to rate videos higher in Affective Response and Perceived Usefulness, while men show lower ratings in Perceived Relevance and Cognitive Processing, with consistent scores overall. Faculty-based differences were also evident: Social Sciences and Humanities students rated videos higher in terms of affective response, contextual learning, and perceived relevance. These results highlight the importance of tailoring video content to meet the diverse needs of learners based on gender and academic discipline. The study suggests that educators should integrate both interactive and structured materials to enhance learning outcomes for all students.

Keywords: EFL learning, educational videos, Cognitive Load Theory, gender differences, academic disciplines

Introduction

The use of videos in English as a Foreign Language (EFL) classrooms has become increasingly prominent due to their effectiveness in enhancing various language skills and fostering cultural awareness. Videos provide authentic language exposure, helping learners improve listening comprehension and pronunciation through dynamic visual and auditory stimuli that reflect real-life contexts, making learning more engaging and meaningful (Hadijah, 2016; Solijonova, 2024). Research indicates that intermediate and advanced learners experience significant improvements in listening skills with video-based instruction (H.-S. Kim, 2015), and the integration of films enhances cultural understanding, offering a comprehensive learning experience (Solijonova, 2024). Intensive exposure to authentic video materials has been shown to result in statistically significant gains in listening, reading, writing, and speaking skills (Mekheimer, 2016). However, to maximize the educational potential of videos, educators must carefully select appropriate content and implement effective pedagogical strategies (Hadijah & Shalawati, 2021; Solijonova, 2024). The multimedia aspect of videos also enhances students' communicative competence and motivation by providing multiple modes of input, such as visual and auditory elements, which support deeper engagement and varied learning strategies (Gilakjani, 2012; Jeong, 2018; Kirschner, 2017). Video creation projects, in particular, have proven to be effective in improving cultural understanding, language proficiency, and learner autonomy, especially for lower proficiency students, while also fostering confidence and technological skills (Huang, 2015; Yeh & Fu, 2023). Overall, the incorporation of video-based learning in EFL curricula meets diverse learner needs and enhances both linguistic and intercultural competence (Huang, 2015; Yeh & Fu, 2023).

Research on gender differences in language learning reveals complex patterns in motivation, learning preferences, and engagement with video content. Female learners generally demonstrate higher intrinsic motivation, perform better in comprehension and vocabulary retention, and employ a wider range of strategies, particularly memory strategies (Iwaniec, 2015; Lin, 2011; Oga-Baldwin & Fryer, 2020; Jahedizadeh et al., 2025). They tend to prefer interactive learning experiences and invest more cognitive resources, especially in topics of personal interest (Schrader et al., 2021). In contrast, male learners often prefer structured, task-oriented content and exhibit more extrinsic motivation (Thao et al., 2023). However, some studies suggest that gender does not significantly affect language learning outcomes, with factors such as motivation, self-efficacy, and individual learning contexts playing more crucial roles (Kheder & Rouabhia, 2023). Additionally, critics argue that focusing solely on gender overlooks the broader context of learners' identities and the influence of stereotypes, which have historically framed languages as a feminine domain (Schmenk, 2004). Despite these complexities, the role of gender in shaping language learning experiences should not be ignored, as it can inform the design of more inclusive and effective learning materials (Okio, 2023).

Research shows that students from different academic disciplines have distinct learning preferences and perceptions of educational tools, including the use of video in language learning. Learners in Social Sciences and Humanities typically favor narrative-driven approaches that foster critical thinking and engagement with broader social and cultural themes (Entwistle & Tait, 1995). On the other hand, STEM and Health Sciences students tend to prefer structured, task-oriented learning focused on problem-solving and technical skills (Miner & Stefaniak, 2018; Nagy & Bernschütz, 2022). The effectiveness of video as a learning tool varies across these disciplines, with factors such as content type, usage method, and supporting activities influencing students' perceived learning outcomes and enjoyment (Fee & Budde-Sung, 2014; White et al., 2000). To optimize student learning from educational videos, instructors must consider factors like cognitive load, engagement, and active learning principles (Brame, 2016).

Furthermore, digital video production has been shown to enhance language learning, critical multiliteracies, and transformative learning experiences, making video an invaluable tool in diverse educational contexts (Goulah, 2007). By tailoring video-based learning to meet the specific needs of different academic disciplines, educators can significantly improve learning outcomes.

Educational videos have the potential to significantly enhance language learning when designed effectively. Several key factors influence their impact, including cognitive processing, affective response, contextual learning, and perceived relevance (Brame, 2016; White et al., 2000). Videos can improve comprehension, retention, and motivation by providing authentic language contexts that mirror real-life communication (Choi & Johnson, 2005; Kamenická, 2021). Learners often value videos for delivering orientation, background information, and essential skill development in areas such as listening, speaking, and pronunciation (White et al., 2000). However, engagement with video resources varies across student groups, with some struggling to consistently utilize these tools (French et al., 2023). Factors such as educational background, motivation, and country of origin can all play a role in influencing student engagement and learning outcomes (Deng et al., 2017). To maximize the effectiveness of educational videos, it is essential to consider cognitive load, incorporate emotionally engaging stimuli, and align video content with the learners' goals and preferences (Mayer et al., 2014). By addressing these factors, videos can be optimized to better meet the diverse needs of language learners and improve overall learning outcomes.

Learner perception plays a pivotal role in determining the effectiveness of educational materials in language learning. Positive perceptions of instructional resources can significantly boost motivation and engagement, which, in turn, lead to improved learning outcomes (Lim, 2002; Sun, 2010). In English as a Foreign Language (EFL) contexts, learners' attitudes towards materials such as videos, textbooks, and interactive software greatly influence their willingness to engage with the content (Wesely, 2012). When multimedia resources align with learners' goals, they can enhance cognitive processing and retention, making the learning process more effective (Alshraideh & Doniazad, 2021; Ding, 2018). However, certain challenges remain, such as difficulties learners face with complex pragmatic features in language instruction (H. Kim, 2016). Additionally, the broader learning environment—comprising physical, teaching, learning, and motivational dimensions—also shapes how learners perceive educational materials (Dabeel, 2023). Understanding these perceptions is crucial for developing effective EFL learning environments that not only motivate students but also drive successful outcomes, particularly in settings like Saudi Arabian universities, where cultural and educational contexts further influence learner engagement.

In the Chilean higher education context, gender dynamics in learning environments are shaped by deeply embedded sociocultural values. Research suggests that female students in Chile tend to outperform their male counterparts in language-related subjects, which may stem from gendered expectations around communication and diligence (Espinoza & Strasser, 2020). Moreover, EFL is often perceived as more aligned with female-coded disciplines like education and humanities, whereas male students are overrepresented in STEM fields and may approach language learning as a utilitarian tool rather than a communicative skill. In terms of instructional modality, Chilean institutions increasingly integrate digital and multimedia resources in language education, yet disparities in access, familiarity, and engagement with these tools remain, particularly across regions and institutional types (Castro et al., 2024).

Given the growing importance of videos in English as a Foreign Language (EFL) learning and the varying effects of gender and academic discipline on learning outcomes, it is crucial to understand how different learner groups perceive educational videos. Research shows that

gender and disciplinary background influence cognitive processing, emotional engagement, and perceived relevance, all of which are essential to the success of video-based instruction. By identifying how male and female learners, as well as students from Social Sciences, Humanities, STEM, and Health Sciences, perceive educational videos, educators can tailor video-based learning to optimize outcomes and meet diverse learner needs.

Thus, the research objectives are as follows:

1. To determine the perception of male and female learners with respect to Cognitive Processing, Affective Response, Contextual Learning, Perceived Relevance, and Usefulness of video for EFL learning.
2. To determine the perception of Social Sciences and Humanities students and STEM and Health Sciences students with respect to the same dimensions.
3. To determine the general perception of videos for EFL learning with respect to gender and faculty of study.

Theoretical Framework

Cognitive Load Theory (CLT), developed by Sweller, provides a framework for optimizing learning by managing intrinsic, extraneous, and germane cognitive load (Sweller, 2011). In language education, CLT informs instructional design by minimizing extraneous load, which distracts from learning, and promoting germane load, which supports deep cognitive engagement and knowledge construction (Kanokpermpoon, 2013). Recent advancements in CLT have led to new instructional designs and procedures aimed at enhancing learning effectiveness across various contexts (Paas et al., 2003). To further validate CLT, researchers have developed instruments to measure cognitive load, providing empirical evidence for the theory's relevance in educational settings (Klepsch & Seufert, 2020). CLT has also been integrated with human-computer interaction concepts, especially in e-learning environments, where managing cognitive load is crucial for the design of multimedia instructional materials such as video-based learning tools (Hollender et al., 2010). In fields like health professional education, CLT has guided the creation of instructional strategies to optimize learning outcomes by balancing different types of cognitive load (Van Merriënboer & Sweller, 2010). Studies on video lectures have further explored how viewing strategies impact cognitive load management, demonstrating the theory's practical application in modern educational technologies (Costley et al., 2020). Additionally, CLT's historical development and its relation to other psychological and educational theories have been widely examined, providing a comprehensive understanding of its impact on instructional design (Moreno & Park, 2010). As such, CLT remains an essential framework for guiding effective learning design across diverse educational contexts.

Literature Review

Videos play an essential role in enhancing language skills and fostering cultural awareness in English as a Foreign Language (EFL) learning by providing authentic language input and cultural contexts. Films and documentaries are especially effective in developing language skills, with English-subtitled videos significantly enhancing speaking, listening, and vocabulary (Oktapiani et al., 2024). Additionally, videos help reduce foreign language listening anxiety, with these effects becoming more pronounced as language proficiency improves (Polat & Erişti, 2019). Learners generally hold positive attitudes toward video-based learning, dedicating 1–2 hours to educational content both in and outside the classroom (Hadijah & Shalawati, 2021).

These positive perceptions underscore the importance of videos in EFL learning environments, not only for language development but also for increasing student motivation and engagement. However, to fully maximize the benefits of videos, educators must carefully select relevant and engaging materials while implementing effective pedagogical strategies (Solijonova, 2024). Overall, video-based instruction offers a comprehensive approach to language learning by combining linguistic and cultural exposure with active engagement.

Complex patterns in gender differences in language learning have been revealed by research. Higher intrinsic motivation and the utilization of a broader range of strategies, such as memory and social techniques, are often demonstrated by female learners to enhance their language acquisition (Iwaniec, 2015; Oxford et al., 1988). Male learners, however, tend to prefer structured, task-oriented content, relying more on extrinsic motivation (Dong et al., 2023). The role of gender in determining language learning outcomes remains debated, with some studies suggesting that factors like motivation, self-efficacy, and learning contexts are more influential than gender alone (Kheder & Rouabhia, 2023). Critics argue that focusing solely on gender reinforces stereotypes and overlooks broader aspects of learner identities (Schmenk, 2004). Interestingly, while learner gender may influence interest and engagement, speaker gender in instructional videos does not significantly affect learning outcomes (Schrader et al., 2021). Future research should explore the interplay between gender, motivation, and ability to develop more effective language learning strategies (Okio, 2023).

Disciplinary differences significantly shape learners' preferences for educational tools, particularly in video-based instruction (Yu et al., 2023). Students from Social Sciences and Humanities tend to favor narrative-driven approaches that foster critical thinking, reflection, and engagement with broader social and cultural themes (Entwistle & Tait, 1995). These learners often prefer videos that present rich, contextualized content, allowing them to explore complex ideas through storytelling (Parpala et al., 2010). In contrast, STEM and Health Sciences students typically prefer task-oriented learning, focusing on structured content that emphasizes problem-solving and technical skills (Nagy & Bernschütz, 2022). For these students, videos that offer clear, concise instructions and practical demonstrations are more effective. The type of content, how videos are used, and the inclusion of supporting activities such as quizzes or discussions influence students' perceived learning outcomes and enjoyment (Fee & Budde-Sung, 2014). Tailoring video-based instruction to disciplinary preferences enhances engagement and learning effectiveness, highlighting the need for discipline-specific approaches (White et al., 2000).

Research highlights those disciplinary differences significantly shape students' preferences for educational tools, particularly in video-based instruction. Social Sciences and Humanities students typically favor narrative-driven content that fosters critical thinking, while STEM and Health Sciences students prefer task-oriented videos with clear, concise instructions (Buzzard et al., 2011; Rongbut Sri et al., 2023). Tailoring video content to align with these disciplinary preferences enhances both engagement and learning effectiveness (Liccardi & White, 2005). Key factors like video length, content type, and supporting activities, such as quizzes, influence perceived learning outcomes and enjoyment (Hajhashemi et al., 2018). Effective instructional video design should incorporate principles like segmentation, signaling, and review quizzes to reduce cognitive load and optimize learning (Ibrahim et al., 2014). Moreover, aligning video content with students' learning preferences and disciplinary specializations correlates positively with improved learning outcomes, underscoring the importance of discipline-specific approaches in video-based instruction (Ibrahim et al., 2014).

Learner perception plays a critical role in determining the effectiveness of instructional videos in educational settings. Positive perceptions, driven by factors such as relevance, clarity, and alignment with learners' goals, boost motivation and engagement, leading to better learning outcomes (Miner & Stefaniak, 2018; Yan Ding, 2018). Well-designed videos that are organized, comprehensible, interesting, and practical are more likely to be positively received by learners (Deng & Gao, 2023). Effective instructional videos should account for cognitive load, student engagement, and active learning principles to enhance comprehension (Brame, 2016). Additionally, supplementary resources like presentation slides, reading materials, and post-video assessments further support video-based learning (Deng & Gao, 2023). However, challenges such as complex content or technical difficulties can negatively impact learner perception and hinder understanding (Galatsopoulou et al., 2022). To maximize video effectiveness, instructional design must align with learner perceptions and proactively address potential challenges (Fyfield et al., 2022).

While much research highlights notable gender-based differences in language learning, some studies present contradictory findings, complicating the overall narrative. For instance, studies have frequently observed that female learners exhibit higher intrinsic motivation and adopt a wider range of strategies, including memory and social techniques, to enhance their language acquisition (Li et al., 2024; Božinović & Sindik, 2011). However, other researchers have argued that these differences are not significant and are instead mediated by factors such as individual motivation, self-efficacy, and learning context rather than gender alone (Lăpădat & Lăpădat, 2023; Aprianto et al., 2024). Additionally, the assumption that women prefer interactive, emotionally engaging content while men gravitate toward structured, task-oriented materials has been challenged by studies suggesting substantial variability within each gender group, driven by personal interests and cultural influences rather than inherent gender traits (Siegal, 1996). These contradictory findings underscore the risk of reinforcing stereotypes and call for a more nuanced examination of how intersecting factors such as identity, cultural background, and learning preferences contribute to language acquisition outcomes (McKinney & Norton, 2025). This complexity highlights the need for research designs that move beyond binary gender comparisons to explore the broader context of learner diversity.

While extensive research highlights the effectiveness of videos in enhancing EFL learners' linguistic and cultural competencies, there is a notable gap in understanding how gender and academic discipline influence learner perceptions of video-based instruction across key dimensions such as cognitive processing, affective response, contextual learning, perceived relevance, and usefulness. Prior studies focus predominantly on general learner outcomes, leaving a need for deeper exploration into how these factors differ between male and female learners and among students from STEM, Health Sciences, Social Sciences, and Humanities disciplines. Understanding these nuanced differences is essential to tailoring video-based EFL instruction for diverse learner groups.

Research Questions

1. How do male and female learners perceive the cognitive processing, affective response, contextual learning, perceived relevance, and usefulness of video-based instruction in EFL learning?
2. What are the differences in perceptions of video-based instruction between students from Social Sciences and Humanities and those from STEM and Health Sciences across these same dimensions?
3. What are the overall perceptions of video-based instruction for EFL learning with respect to gender and academic discipline?

Methods

Research Design

The survey-based design was chosen for this study as it provides a systematic approach to exploring the perceptions of video-based instruction among EFL learners across gender and academic disciplines. This method enables the collection of both quantitative and qualitative data on subjective constructs such as learner perceptions, motivation, and engagement, facilitating a comprehensive analysis of differences across demographic groups (Banerjee, 2019). By integrating an experimental survey-based approach, the study allows for controlled exposure to educational videos, enabling the systematic comparison of learner responses across key dimensions—Cognitive Processing, Affective Response, Contextual Learning, Perceived Relevance, and Usefulness (French et al., 2023). This approach aligns with Cognitive Load Theory (CLT), which emphasizes managing intrinsic, extraneous, and germane cognitive load to optimize engagement and outcomes in multimedia learning environments (Brame, 2016). Additionally, qualitative questions provide nuanced insights into participants' subjective experiences, offering rich data to complement quantitative findings. The survey-based design supports the study's objective of understanding gender- and discipline-specific variations while ensuring robust, reliable data collection suitable for evaluating multimedia educational tools.

Research Context

At our university, English as a Foreign Language (EFL) is a critical course for native Spanish-speaking students, who are required to reach an intermediate level of English proficiency before graduation, as outlined by the CEFR. The Foreign Language Department offers English courses at various levels—basic, pre-intermediate, and intermediate—and students undergo a diagnostic test during their first year to determine their English proficiency and placement into the appropriate course. Students with advanced proficiency, as determined by this test, are exempt from the program. To enhance learning outcomes, the language faculty has integrated a video-based, communicative learning approach into the curriculum. The content production team, consisting of instructional designers, multimedia developers, theater directors, actors, and a project manager, collaboratively creates high-quality videos. Two types of videos are used: Introductory videos, which present key grammar and language concepts through tasks like reading, speaking, listening, and writing, and Recap videos, which help students reflect on and reinforce what they have learned. These videos, focused on real-life applications of English, support teaching grammar and functional English while promoting active learning, where students engage in listening, writing, and group activities to deepen their understanding of the material.

Participants

The study involved a total of 176 intermediate and advanced EFL learners from various academic disciplines. While the sample offers a diverse range of gender and faculty representation, it is important to note that it is not statistically representative of the entire EFL learner population in southern region of Chile. Therefore, the findings should be interpreted as exploratory rather than generalizable to all contexts. Participants were strategically selected to represent two main disciplinary groups: STEM and Health Sciences (66.5%) and Social Sciences and Humanities (33.5%). The inclusion of these disciplines ensured a diverse representation of academic fields with differing learning preferences and approaches to video-based instruction. The STEM and Health Sciences group comprised students from medicine, engineering, dentistry, and agricultural science, while the Social Sciences and Humanities group included students from education, law, and business administration programs. This categorization was central to

the study's aim of analyzing disciplinary differences in learner perceptions. Additionally, participants were categorized by gender, with 34.48% men and 65.52% women, and age, with 90.5% aged 25 years or younger, 4% aged 26 to 30, and 5.7% aged 30 years or above. Participants were randomly assigned to one of the two disciplinary categories, and further analysis was conducted based on gender to ensure balanced representation and to address the study's objectives of exploring gender- and discipline-specific variations in video-based EFL learning.

Research Instrument

The primary data collection tool for this study is a structured survey consisting of both quantitative Likert-scale items and open-ended qualitative questions. The survey is specifically designed to measure learners' perceptions of video-based instruction across five key dimensions: Cognitive Processing (Choi & Johnson, 2005), Affective Response (Saadé et al., 2007), Contextual Learning (Yang & Luo, 2017), Perceived Relevance (Lee & Ryu, 2013), and Usefulness (Miner & Stefaniak, 2018). The survey items are adapted from validated instruments used in previous multimedia learning research (Kashner et al., 2018; Coll García, 2001) to ensure the reliability and validity of the constructs being measured. Key factors such as multimedia self-efficacy, perceived richness of presentation, learner control, and system responsiveness are also considered (Lee & Ryu, 2013). Additionally, the open-ended questions include prompts such as "What is your opinion about the CODI-video?" to gather further qualitative insights into learner perceptions. The survey is divided into three parts: the first part probes the demographic profile of participants, the second part investigates the five key dimensions, and the third part explores participants' general perceptions about the video. This instrument allows for a comprehensive evaluation of how video-based instruction affects retention, motivation, and overall learning experiences in comparison to text-based methods.

Data Collection and Analysis

Data for this study were retrospectively collected through an anonymous online survey. All research ethics guidelines were strictly followed, including explaining the objective of the study to participants, informing them of their right to decline participation, and ensuring respondent confidentiality to minimize any potential risks.

The collected data were analyzed using SPSS v25.0. First, the demographic distribution of students across different faculties within the university was examined to identify the proportions of students in STEM, Health Sciences, Social Sciences, and Humanities. The overall mean scores for the five key dimensions—Cognitive Processing, Affective Response, Contextual Learning, Perceived Relevance, and Usefulness—were assessed. To ensure the reliability of the instrument, Cronbach's alpha was calculated for all survey items. For the qualitative data, a thematic analysis was conducted using Atlas.ti, which provided detailed insights into how different demographic groups perceived the video-based instruction in general.

Results

The bar chart (Figure 1) presents a comparison of the average scores across five dimensions for male and female respondents. Across all dimensions, women tend to rate the CODI videos more positively than men, particularly in terms of Affective Response and Perceived Relevance & Usefulness. In contrast, men show relatively consistent scores across the dimensions but tend to rate the Perceived Relevance and Cognitive Processing dimensions lower compared to women. This suggests that while both genders appreciate the educational value of CODI videos, women find them more engaging and aligned with their learning needs, which could enhance their overall learning experience with the videos.

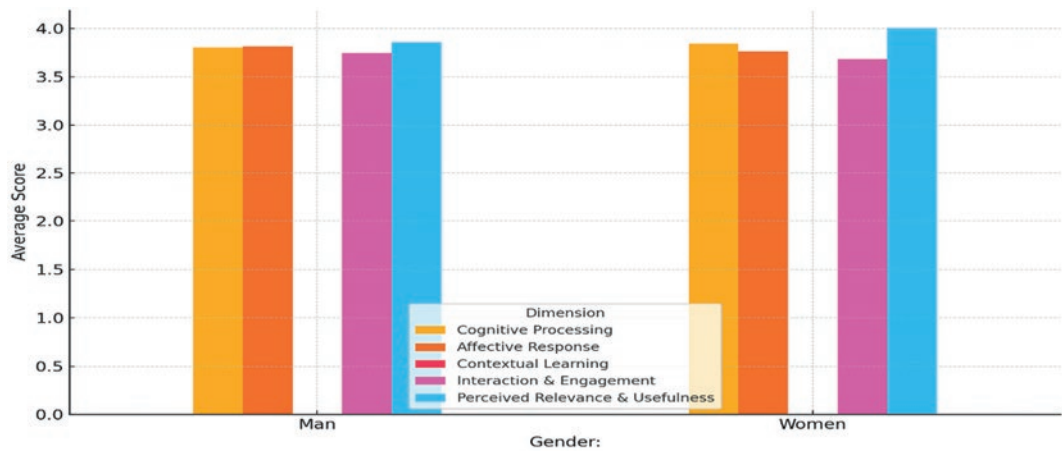


Figure 1. Gender comparison of average scores across learning dimensions for the videos

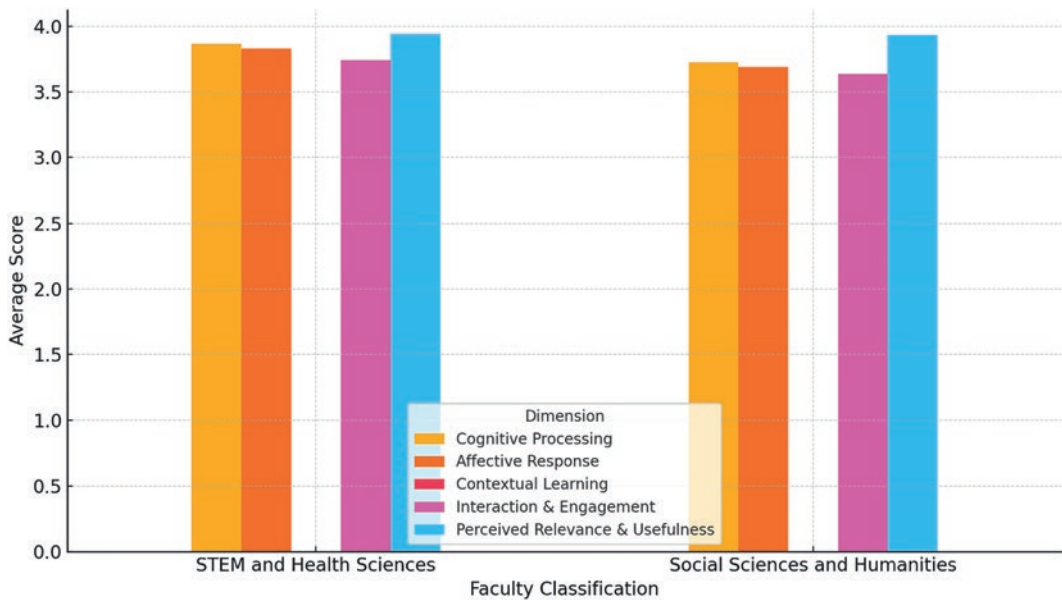


Figure 2. Average scores by academic discipline: Perceived value of the videos across five dimensions

Figure 2 compares the average scores of each dimension across two groups: Social Sciences and Humanities and STEM and Health Sciences. Firstly, in terms of Cognitive Processing, both groups scored similarly, although STEM and Health Sciences show a slightly higher average. However, when it comes to Affective Response, Social Sciences and Humanities students rated

this dimension higher, indicating that they may find the videos more emotionally engaging. Similarly, for Contextual Learning, Social Sciences and Humanities students rated this aspect significantly higher, likely due to a stronger connection with the cultural content. On the other hand, Interaction & Engagement saw both groups scoring relatively close, with Social Sciences and Humanities slightly ahead. Finally, regarding Perceived Relevance & Usefulness, Social Sciences and Humanities students gave higher ratings, possibly finding the videos more useful for their course work. In summary, this analysis highlights how different fields of study perceive the CODI videos differently, with Social Sciences and Humanities students rating the videos higher in areas like engagement, emotional response, and relevance.

Inferential Analysis

Independent samples t-tests were conducted to compare male and female learners' perceptions across five key dimensions of the videos: listening, attention, motivation, task achievement, and relevance (Table 1). While female students reported slightly higher mean scores across all dimensions—particularly in listening ($M = 4.29$) and relevance ($M = 4.21$)—none of the differences were statistically significant ($p > .05$). These results suggest that although women showed more positive tendencies in their perceptions, gender did not significantly influence learners' evaluations of video-based instruction in this sample.

The T-tests (Table 2) were also used to compare perceptions between students from Social Sciences and STEM-related disciplines. STEM students reported higher mean scores across all dimensions, especially in attention ($M = 3.86$) and relevance ($M = 4.22$), compared to their Social Sciences counterparts. However, similar to the gender comparison, none of these differences reached statistical significance ($p > .05$). This indicates that while disciplinary background may influence subtle variations in perception, the impact was not strong enough to be deemed statistically significant in this study.

To determine the general perception of videos for EFL learning with respect to gender and faculty of study, the following findings are presented as follows:

Gender-Based Perceptions:

- **Male Respondents:**
 - **Positive Feedback on Learning:** A majority of male respondents (33) emphasized the educational value of the CODI videos, considering them beneficial for learning.
 - **Challenges with Pronunciation:** A few male participants (5) reported difficulties in understanding pronunciation and accents in the videos.
 - **Need for Improvement:** A small number (2) expressed suggestions for improving the videos.
 - **Other:** 24 responses were neutral or did not fit into specific thematic categories.
- **Female Respondents:**
 - **Clarity and Explanation:** Many female respondents (13) appreciated the videos for their clarity and ease of understanding.
 - **Engagement and Enjoyment:** Some females (4) found the videos fun and engaging.
 - **Constructive Criticism on Modulation:** A few female respondents (3) provided feedback on difficulties with modulation and delivery.
 - **Other:** 61 responses were neutral or diverse, without fitting into specific categories.

Table 1 Gender-based t-test results

Variable	Female Mean	Male Mean	Shapiro p (F)	Shapiro p (M)	T-test p	Significant (p < .05)
Listening	4.29	4.11	0.0	0.0	0.1979	No
Attention	3.79	3.76	0.0	0.0	0.8179	No
Motivation	3.72	3.66	0.0	0.0	0.7195	No
Task Achievement	3.9	3.71	0.0	0.0	0.2609	No
Relevance	4.21	4.09	0.0	0.0	0.4365	No

Table 2 Discipline-based t-test results

Variable	SS Mean	STEM Mean	Shapiro p (SS)	Shapiro p (STEM)	T-test p	Significant (p < .05)
Listening	4.15	4.25	0.0	0.0	0.4558	No
Attention	3.62	3.86	0.0	0.0	0.1461	No
Motivation	3.53	3.77	0.0	0.0	0.1612	No
TaskAchievement	3.73	3.88	0.0	0.0	0.3924	No
Relevance	4.04	4.22	0.0	0.0	0.2679	No

Faculty-Based Perceptions:

- Social Sciences and Humanities:
 - Clarity and Explanation: Many respondents (11) highlighted the clarity and helpfulness of the videos.
 - Need for Improvement: A few students (3) suggested areas for improvement.
 - Content Relevance: One student mentioned the relevance of the video content to their coursework.
 - Other: 36 responses were neutral or diverse.
- STEM and Health Sciences:
 - Clarity and Explanation: Similar to Social Sciences students, many STEM students (18) found the videos clear and helpful.
 - Challenges with Pronunciation: A significant number (14) reported difficulties with pronunciation and accents.
 - Positive Feedback on Learning: Some students (6) highlighted the learning value of the videos.
 - Engagement and Enjoyment: A few respondents (2) noted the videos were fun and engaging.
 - Other: 54 responses did not fit into specific categories, reflecting neutral or diverse opinions.

Overall, male respondents primarily provided positive feedback on the learning benefits of the videos; however, they also reported challenges with pronunciation and offered some suggestions for improvement. In contrast, female respondents emphasized the clarity and helpfulness of the videos, while some mentioned engagement, and a few provided constructive criticism regarding modulation. Meanwhile, Social Sciences and Humanities students appreciated the clarity and relevance of the videos, though they offered minor suggestions for improvement. On the other hand, STEM and Health Sciences students valued the clarity of the videos but frequently noted challenges with pronunciation, while they provided more positive feedback on the educational aspects of the videos.

Discussion

The results of this study reveal clear gender-based differences in the perception of CODI videos for EFL learning, particularly in the dimensions of Affective Response and Perceived Relevance & Usefulness. Research suggests that women tend to favor interactive and engaging formats, which may explain their higher ratings of the CODI videos (Iwaniec, 2015; Oga-Baldwin & Fryer, 2020). Women are more likely to connect emotionally with multimedia content, especially when it is culturally or contextually relevant, aligning with their higher emotional engagement and positive perception of the videos' usefulness for learning and real-world applications (Solijonova, 2024). Chilean cultural relevance in the videos may also resonate more with female students, enhancing their learning experience. In contrast, men often prefer analytical or text-based learning formats and may engage less emotionally in educational settings (Thao et al., 2023). Their lower scores in Cognitive Processing and Affective Response may reflect a preference for traditional, structured content, as supported by research showing that men prioritize practicality and efficiency in learning materials (Kheder & Rouabhia, 2023). While both genders acknowledge the educational value of the videos, women experience a stronger emotional and cultural connection, leading to a more positive overall perception (Šolcová, I. P., & Lačev, 2017). Blending interactive content with structured learning tools may help address these gender-based differences.

The results of this study highlight distinct differences between Social Sciences and Humanities students and STEM and Health Sciences students in their perception of video-based instruction across several dimensions. In terms of Cognitive Processing, STEM students tend to value the structured and analytical nature of videos, aligning with their problem-solving and logical learning style (Brame, 2016). In contrast, Social Sciences and Humanities students, who typically emphasize critical thinking and discussion, may find videos less conducive to the deeper analysis or debates required in their disciplines, resulting in lower scores in this dimension. Regarding Affective Response, Social Sciences and Humanities students are more emotionally engaged by the videos, likely due to their emphasis on emotional intelligence, cultural awareness, and empathy in learning, which aligns with previous findings highlighting the role of videos in promoting cultural understanding (Gilakjani, 2012). STEM students, focused more on factual accuracy and technical details, exhibit lower emotional engagement (Martinez-Borreguero et al., 2019). For Contextual Learning, Social Sciences and Humanities students rated the videos higher, likely because they see greater value in the cultural and societal contexts presented, resonating with their focus on real-world issues (Solijonova, 2024). In contrast, STEM students may prioritize technical content over cultural context, resulting in lower scores in this area. In terms of Interaction & Engagement, Social Sciences and Humanities students, being more accustomed to collaborative and discussion-based learning, exhibit higher engagement. Finally, Perceived Relevance & Usefulness was rated higher by Social Sciences and Humanities students, as videos may be more relevant to exploring abstract concepts in their

fields, while STEM students, who rely more on textbooks and practical applications, perceive videos as less integral to their academic success.

The findings from this study reveal significant differences in the perceptions of video-based instruction based on gender and academic discipline, which align with previous research on learning preferences and content relevance in English as a Foreign Language (EFL) classrooms. Male respondents reported challenges with pronunciation, likely due to varying English proficiency levels, particularly among STEM students, who may require greater clarity for technical language (Nagy & Bernschütz, 2022). In contrast, female respondents placed greater emphasis on clarity and engagement, suggesting a preference for interactive and visually appealing content, consistent with research showing that women often favor engaging, multimedia formats (Iwaniec, 2015; Schrader et al., 2021). This gender-based difference may reflect distinct learning preferences, with males prioritizing cognitive aspects such as factual accuracy and females appreciating presentation and interaction (Schrader et al., 2021). Moreover, Social Sciences and Humanities students found the videos more relevant and engaging due to the qualitative nature of their studies, which often involve diverse language interpretations and cultural awareness (Entwistle & Tait, 1995). On the other hand, STEM students focused on pronunciation challenges, likely because technical disciplines require precise language use (Nagy & Bernschütz, 2022). These findings underscore the importance of tailoring video-based instruction to the specific needs of different learner groups—both in terms of gender and academic discipline—to enhance its effectiveness in EFL learning contexts.

Based on the findings of this study, several recommendations can be made for teachers, students, and policymakers in higher education to enhance the effectiveness of video-based instruction in EFL learning. Teachers should recognize the diverse learning preferences of male and female students, as well as students from different academic disciplines, by incorporating both interactive, emotionally engaging content and structured, analytical materials to cater to a broad range of learning styles (Loori, 2005; Yoestara & Mutia Ismail, 2022). Videos that combine visual storytelling with clear, technical explanations can bridge the gap between the preferences of Social Sciences and STEM students (Valencia et al., 2023). Providing subtitles or supplementary resources to address pronunciation challenges, particularly for STEM students, would further improve comprehension and engagement (Abduljawad, 2024). For students, it is important to recognize and use resources that align with their learning styles, with female students benefiting from interactive discussions based on video content, while male students might focus on analytical exercises to reinforce what they have learned (Seo, 2022). Policymakers should promote the development of flexible, multimedia-based curricula that include inclusive content tailored to both gender-based and discipline-specific learning preferences. Investment in culturally relevant videos that integrate both linguistic and technical accuracy will ensure accessibility and applicability to a broad range of students (Rongbutrsri et al., 2023). Moreover, policies that emphasize teacher training in multimedia instruction will further enhance educators' ability to deliver effective video-based learning experiences (Jamal et al., n.d.).

Cognitive Load Theory (CLT), developed by Sweller, is essential for achieving the three research objectives of this study, as it offers a framework to optimize multimedia learning by managing intrinsic, extraneous, and germane cognitive load (Sweller, 2011). This is particularly important in video-based EFL instruction, where rich multimedia content can overwhelm learners if not designed carefully. For the first objective, focused on gender differences, CLT helps tailor video content to meet the cognitive needs of male and female learners. Male students, who prefer structured and analytical content, benefit from videos that reduce extraneous load by presenting clear, logical information, while female students, who show higher

emotional engagement, benefit from videos that incorporate emotionally engaging elements and balance germane load (Loori, 2005). In terms of the second objective, which examines discipline-specific differences, CLT highlights the importance of aligning video content with the cognitive demands of STEM and Social Sciences students. STEM students, who deal with technical material, need videos that minimize extraneous load for clear, precise communication, while Social Sciences students benefit from narrative-driven content that balances intrinsic and germane load, supporting critical thinking and deeper cognitive engagement (Valencia et al., 2023). Lastly, for the third objective, CLT emphasizes designing videos that manage cognitive load to ensure accessibility and engagement for all learners, regardless of gender or academic background (Rongbutsri et al., 2023). CLT thus underpins the study's aim to create effective, inclusive video-based learning experiences in EFL settings by optimizing cognitive processing and engagement.

The three research objectives of this study contribute to knowledge and help bridge gaps in current research in several significant ways. The first objective explores the nuanced role of gender in EFL video-based instruction, addressing the limited empirical research on how specific dimensions such as cognitive processing and affective response differ between male and female learners. By offering a more detailed understanding of these differences, this study aids educators in designing inclusive and engaging video content that caters to the distinct cognitive and affective needs of both genders (Iwaniec, 2015; Oga-Baldwin & Fryer, 2020). The second objective examines how students from Social Sciences and Humanities, as well as STEM and Health Sciences, perceive video-based instruction, filling a gap in understanding how disciplinary backgrounds influence engagement with instructional materials. STEM students tend to prefer structured, task-oriented learning, while Social Sciences students favor narrative-driven approaches (Nagy & Bernschütz, 2022). This provides practical insights into tailoring video content to meet the cognitive preferences of different academic disciplines. The third objective integrates gender and academic discipline, offering a holistic view of how these variables interact to shape learners' perceptions of videos. This contributes to the development of a framework for creating content that is both gender-responsive and aligned with disciplinary learning preferences, an area previously underexplored in EFL contexts (Brame, 2016; Solijonova, 2024). Together, these objectives inform the design of more inclusive and effective educational materials.

The findings of this study highlight the importance of managing cognitive load to optimize learner engagement and comprehension, particularly when designing video-based EFL instruction for diverse learner groups. Cognitive Load Theory (CLT) underscores the necessity of balancing intrinsic, extraneous, and germane cognitive load to enhance the effectiveness of instructional materials. This is particularly relevant for tailoring videos to meet the distinct needs of gender and disciplinary groups observed in this study. For instance, the higher emotional engagement reported by female learners aligns with the need to incorporate culturally relevant and emotionally engaging elements into videos to sustain motivation and improve learning outcomes. Similarly, the preference of STEM students for structured, task-oriented content highlights the importance of linguistic precision and technical clarity in video design. These findings suggest that adopting a "one-size-fits-all" approach is insufficient; instead, EFL video content must be customized to reflect learners' cultural, disciplinary, and cognitive needs. Furthermore, investing in culturally relevant videos that combine linguistic and technical accuracy can enhance accessibility and applicability, particularly in diverse educational contexts. Finally, teacher training in multimedia instruction is essential to equip educators with the skills to effectively design and deliver video-based learning experiences, ensuring that the potential of this medium is fully realized for diverse student populations.

While this study applied Cognitive Load Theory (CLT) as a guiding framework, further nuance can be drawn by distinguishing between intrinsic and extraneous cognitive load (Skulmowski, 2023). Intrinsic load refers to the inherent complexity of the material, which may be processed differently by STEM students—accustomed to dense, technical content—compared to Social Sciences students, who may find narrative-based and contextual content more accessible. Similarly, extraneous load, which arises from poor instructional design or distractions in multimedia materials, may affect male and female students differently. For instance, if video pacing, pronunciation, or delivery is suboptimal, it may contribute to higher extraneous load for certain learner groups. This may explain why male learners in this study showed slightly lower ratings for cognitive processing and relevance. Prior research indicates that design elements such as clarity, segmentation, and signaling can help reduce extraneous load and enhance learning outcomes across diverse learner populations (Bolkan, 2016). Future research could investigate how optimizing video design might reduce cognitive barriers and improve engagement, particularly for learners less familiar with video-based instruction.

The inclusion of inferential statistical analysis in this study enriches the understanding of group-based differences in learners' perceptions of video-based EFL instruction. Although female learners exhibited consistently higher mean scores across dimensions such as affective response and perceived relevance, and STEM students scored higher than their Social Sciences counterparts in areas like attention and usefulness, independent samples t-tests revealed that none of these differences were statistically significant. This suggests that while gender and academic discipline influence learner tendencies, these variations may not be strong enough to generalize beyond the sample. The lack of statistically significant differences emphasizes the importance of considering individual learning preferences over general demographic assumptions. Nonetheless, these findings support the relevance of tailoring instructional video content to meet diverse cognitive and emotional learning needs, particularly when supported by frameworks such as Cognitive Load Theory (CLT), which encourages designing materials that align with learners' capacities and backgrounds.

These findings should be interpreted in light of the Chilean higher education context, where cultural and institutional factors shape how students engage with language learning. Female learners' more positive responses to video content may reflect established trends in Chile where women are more engaged in communication-focused disciplines, while men dominate fields with less emphasis on language development. Furthermore, the variation in regional and institutional adoption of multimedia tools may influence students' familiarity with video-based instruction, potentially affecting their perceptions. Recognizing these contextual layers is crucial for understanding how gender and academic discipline interact with instructional design in Chilean EFL classrooms.

Conclusion

This study reveals distinct gender-based and disciplinary differences in how students perceive video-based instruction in English as a Foreign Language (EFL) learning. Female learners tended to rate the videos more positively in terms of affective response and perceived usefulness, showing a preference for engaging and interactive formats. In contrast, male learners rated videos lower on cognitive processing and perceived relevance, although their scores remained consistent across dimensions. Disciplinary variations were also notable, with Social Sciences and Humanities students rating the videos higher in affective response, contextual learning, and perceived relevance, likely due to their connection to cultural and narrative-driven content. STEM and Health Sciences students, while valuing the structured content of the videos, reported challenges with pronunciation and a preference for technical clarity.

The findings of this study have significant implications for educators and instructional designers in EFL video-based learning. It highlights the need for gender-responsive educational materials, as female learners engage more with affective aspects of video content, while male learners prefer structured, task-oriented content. This suggests that educators should balance emotional engagement with technical clarity in video design to cater to both genders. Additionally, the differences between Social Sciences and Humanities students and those from STEM and Health Sciences indicate that video content must be tailored to specific academic disciplines. Social Sciences students benefit from narrative-driven, culturally relevant videos, whereas STEM students require content that emphasizes clarity and technical precision. The study's application of Cognitive Load Theory (CLT) further emphasizes the importance of managing cognitive load to optimize engagement and comprehension across diverse learner groups. By integrating interactive elements with structured learning approaches, educators can create more effective learning experiences that address both cognitive and emotional needs. Overall, the study suggests that EFL video content should be customized based on gender and disciplinary factors, rather than adopting a one-size-fits-all approach, to enhance learning outcomes for all students.

Readers should interpret the findings with caution due to two key limitations. First, the sample size was limited to a specific geographical region and student demographic, which may reduce the generalizability of the findings to broader contexts. In other words, the sample is not statistically representative of the entire population of EFL learners, which limits the generalizability of the findings to broader contexts. Second, the study relied on self-reported perceptions, which can introduce bias and may not fully capture the complexity of learners' experiences with video-based instruction.

Future research should aim to expand the sample size to include a more diverse population across various geographical regions and academic institutions, allowing for greater generalizability of findings. Additionally, future studies should systematically examine specific factors such as learners' proficiency levels, cultural backgrounds, and the role of different types of video content (e.g., narrative-driven, technical, or interactive) in shaping learner perceptions and outcomes. Investigating how these variables interact with gender and academic discipline is crucial for identifying nuanced patterns in engagement and learning effectiveness. This focused inquiry can inform the development of instructional strategies that are both evidence-based and tailored to diverse learner needs. Practical applications of this research include designing video content that integrates culturally relevant narratives with technical precision, ensuring balanced engagement and clarity. Such targeted approaches can cater to the distinct preferences of male and female learners, as well as those from Social Sciences, Humanities, STEM, and Health Sciences disciplines, thereby enhancing EFL outcomes for a broad spectrum of learners.

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