

The Technology Paradigm: Assessing Video Collaboration Technology for Intercultural Learning in COIL and Virtual Exchange

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Collaborative Online International Learning (COIL) and Virtual Exchange (VE) initiatives provide accessible pathways for intercultural engagement in higher education. While existing literature affirms their pedagogical value, significant technological barriers persist—particularly in multimedia production and journalism. This case study examines a VE between journalism and film courses in the southeastern United States and in Barranquilla, Colombia, focusing on asynchronous collaboration through video storytelling. Following this experience, the study evaluates Adobe Frame.io as a potential platform for overcoming the challenges of collaborative video production in VE contexts. Using a convergent parallel mixed methods approach, data were collected from 21 students across five courses in a U.S. journalism program piloting Frame.io. Results indicate high levels of self-efficacy ($M = 4.43$) and usability ($M = 4.57$) on a 5-point Likert scale. Thematic analysis of open-ended responses highlighted the platform's strengths in facilitating precise feedback, supporting peer learning, and streamlining workflow. Students cited timestamped annotations, intuitive interface, and feedback clarity as key advantages. Challenges included limited instructor use and occasional mobile access issues. The findings suggest that Frame.io holds promise as a user-friendly, professional-grade tool for enhancing student engagement and reducing digital friction in video-based COIL and VE projects. This study contributes to research addressing the intersection of pedagogy and technology in collaborative, international learning, and it supports the advancement of theoretical and practical models for multimedia virtual exchange design.

Keywords: Virtual exchange, COIL, instructional technology, self-efficacy, video technology, journalism, collaboration, intercultural communication, online course design.

INTRODUCTION

International collaboration in higher education is increasingly facilitated through virtual exchange (VE) or Collaborative Online International Learning (COIL). Though often used interchangeably in academic literature, the terms differ in emphasis, structure and implementation. COIL, a pedagogical model developed by the SUNY COIL Center (SUNY Online, n.d.), emphasizes deep, interdependent collaboration between students and instructors from international institutions (Vahed, 2024). In contrast, virtual exchange is a broader concept encompassing technology-enabled interactions among participants from different cultural or geographic backgrounds, often in more limited or informal online learning formats (EVOLVE-Erasmus, n.d.). Examples may include a single course module, discussion-based activities, or peer-to-peer exchanges (Hackett, Dawson, Janssen, & van Tartwijk, 2024). While COIL is typically embedded in formal curricula, VE can occur across both formal and informal educational contexts and vary widely in format and depth. O'Dowd (2018) traces the evolution of VE from early telecollaboration to structured, institutionally supported programs, emphasizing the pivotal role of thoughtfully integrated technology in fostering meaningful cross-cultural communication. Regardless of nomenclature, both COIL and VE rely on technology, which can hinder rather than support international partnerships if used ineffectively (Vahed, 2022). COIL and virtual exchange meet at the intersection of intercultural understanding, collaboration, and accessibility: Global learning without the financial and logistical barriers of study abroad (Rubin & Guth, 2022; Zhang & Pearlman, 2018). Both approaches have consistently been shown to develop cultural competencies providing benefits to students and faculty alike (Fowler, Pearlman, LeSavoy, & Hemphill, 2014). However, the dual role of technology presents unique challenges central to the current study which highlights the critical need for careful identification, selection, and integration of technology to maximize its pedagogical potential (Rubin, 2015; Vahed, 2024). This study investigates a particular technology, the video collaboration platform Adobe Frame.io, in the context of an ongoing pilot project at a U. S. university. The study evaluates Frame.io's usability and impact on student self-efficacy to explore its potential for integrating in a COIL or virtual exchange learning context where such technology typically creates barriers. In doing so, the research aims to address a key gap in the literature: the application of video-intensive technologies in COIL and virtual exchange.

LITERATURE REVIEW

As virtual exchange and COIL programs expand across disciplines, technology has emerged as both a critical enabler and a persistent challenge. This literature review examines existing research on the role of technology in COIL and VE, highlighting the importance of thoughtful tool selection, systematic instructional design, technical accessibility, and support. The review identifies persistent barriers ranging from digital inequity to platform complexity. This supports the need for further investigation into how educators should identify, integrate, and deploy technology, particularly in media-rich, video-based courses which have proven uniquely difficult to execute in virtual, cross-cultural collaborations. The challenges faced in communications, video storytelling, journalism and related fields that demand core competencies around video production is a relatively underexplored area in current scholarship.

Regardless of discipline, technology is a critical component of virtual exchanges. Faculty from partnering institutions explore, discuss, and decide upon relevant technology tools, module design and learning experiences to share in an individual module or short portion of a course (Xu & Lin, 2023). Effective pre-planning and design are essential,

incorporating clear learning goals, materials, collaboration strategies, communication, assessment, and the selection of appropriate technology tools to achieve these goals. The literature highlights significant challenges, ranging from basic issues like time zone differences and incompatible platforms to the use of complex, hard-to-navigate systems (Vahed, 2022).

A comprehensive review by Fukkink et al. (2024) analyzed COIL and VE projects from 2013 to 2022, using the TPACK (Technological Pedagogical Content Knowledge) framework. The study found that approximately 62% of COIL projects reported positive intercultural learning outcomes, particularly in cognitive (90%) and behavioral domains (73%). However, the research identified barriers such as insufficient technological training among students and faculty, cultural sensitivity gaps, and challenges in managing virtual collaborations. The study emphasized the need for intentional course design, instructor training to address professional ethnocentrism, as well as institutional support for complex projects, particularly in disciplines requiring the use of technology (Fukkink et al., 2024).

As online learning and collaboration technologies evolve, research increasingly highlights both their potential and their challenges. Much of the case study literature on virtual exchange focuses on collaborative research and online discussions. Saini and Abraham (2019) examined pre-service teacher training using Facebook across multiple countries, while Jenssen et al. (2024) explored a U.S.–Norway COIL project in transcultural nursing that used platforms like Canvas, Zoom, and Google Docs to facilitate cross-cultural dialogue. Vahed (2022) reviewed several virtual collaborations from 2014–2019, identifying the emergence of virtual learning communities but also noted negative aspects such as internet accessibility issues, platform complexity, security concerns, and data privacy risks. Vahed (2024) described additional, specific incompatibilities with technology leading to “endless difficulties to upload videos” (p. 18) partly because of inadequate training and preparation at the institutional and instructional level. Such findings emphasize the need for user-friendly, secure, and policy-compliant technologies in VE settings. Zhang and Pearlman (2018) discussed several technological, institutional and contextual hurdles related to technology in virtual exchanges including platform compatibility, connectivity and uneven levels of digital literacy which created steep learning curves for students and faculty.

The integration of digital tools in VE programs can present significant challenges for students, particularly in regions with limited access to technology (Szobonya & Roche, 2023). In a study examining the experiences of South African students participating in a COIL program, researchers found that technology-related barriers hindered engagement and reduced student confidence (Naicker, Singh, & van Genugten, 2022). Unfamiliarity with essential tools emerged as a major obstacle. Many students lacked prior experience with platforms like Skype, resulting in a steep learning curve that reduced the impact of their interactions. As one student noted, using Skype for the first time made navigation difficult, leading to a preference for more familiar tools like WhatsApp and email. The research revealed that while some students adapted, unfamiliarity reduced the efficiency and effectiveness of their interactions. Such findings further highlight the importance of considering the features of the technology being used (Simon & Santana Fierro, 2022), and of considering familiarity and ease of adoption to mitigate the challenges associated with a steep learning curve.

Guth and Rubin (2022) caution that digital inequities, language dominance, and power imbalances can emerge when technologies are poorly selected or integrated. Although widely recommended platforms like Moodle, Zoom, WhatsApp, and Padlet support collaboration in COIL and VE, the literature rarely addresses dedicated video production tools. This omission may reflect the scarcity of accessible, pedagogically appropriate editing platforms. For instance, tools like Adobe Premiere Pro demand substantial

expertise, while beginner-oriented platforms like WeVideo, though accessible, may lack the necessary robustness for higher education contexts (Simon & Santana Fierro, 2022; Teacher's Tech, n.d.).

Research suggests that self-efficacy significantly influences how students respond to and engage with complex technologies in learning environments. Bandura (1997) describes self-efficacy as a “central and pervasive mechanism of personal agency” (p. 2), underscoring its importance in shaping individuals' actions and perseverance. More recent studies highlight the relevance of self-efficacy in addressing the challenges inherent in online education, particularly when complex technologies create barriers to student progress and obstacles to achieving academic success (Palvia et al., 2018; Stone, 2019). Karim and Hasan (2023) investigated the role of self-efficacy in online higher education, including digital literacy and use of technology. Their survey-based study found that user-friendly technologies boost student confidence, promote positive attitudes toward course tools, and enhance engagement and outcomes. In addition, Getenet et al. (2024) examined perceptions of digital self-efficacy among more than a hundred Australian students, concluding that their perceived efficacy was crucial in fostering student engagement and success in online learning environments.

In summary, research consistently shows that COIL and VE programs enhance intercultural competence and communication skills (Fowler et al., 2014; Rubin & Guth, 2022). However, other research such as Vahed (2022) identifies technology as both a necessity and a barrier. Clearly, even straightforward platforms can create disproportionate challenges when layered across cultures, time zones, and varying levels of digital literacy. This phenomenon—often described in a commercial context as digital or technology friction—refers to any unnecessary effort, confusion, or inefficiency experienced by users while navigating digital tools (Survicate, 2025; Tomalin, 2023). Similarly, in an educational context, it is necessary to find ways to reduce such friction particularly in media-rich learning settings. Therefore, further case-study research is needed to explore how technology can support online learning and cross-border collaboration, aiding in the selection and application of appropriate tools that reduce digital friction. While COIL and VE have been shown to be effective for collaborative writing, language study and project-based learning, their use in video-based projects remains underexplored.

STUDY CONTEXT

While existing studies highlight the potential of the COIL or virtual exchange frameworks to foster meaningful cross-cultural interactions, challenges such as technological barriers persist (Vahed, 2022; Zhang & Pearlman, 2018). This case study examines a 2021–2022 virtual exchange program between an online video storytelling course in the United States and a hybrid film course in Colombia, aiming to address the barriers encountered in that exchange. In addition to this retrospective analysis, additional research explores Adobe's Frame.io as a collaborative video platform that may mitigate certain challenges and enhance future virtual exchanges. Situating this project within the broader COIL/VE literature, the study contributes to understanding how the careful selection, piloting, and integration of complex technology can enhance virtual exchanges in diverse educational contexts. Phase one of the study analyzes the previous virtual exchange that was constrained by the absence of effective video collaboration technology, while phase two evaluates an ongoing pilot project in an on-campus course setting to assess the potential suitability of a relatively new video collaboration platform for use in COIL and virtual exchange environments.

PHASE 1: VIRTUAL EXCHANGE SYNOPSIS

In 2022, two iterations of a VE were conducted between a video storytelling course in the United States, and a film production course in northern Colombia. Held during the spring and fall semesters, these exchanges involved collaboration between two professors who spent several months co-developing shared online learning modules. The project aimed to enhance intercultural and academic engagement by using video storytelling as the central medium and global environmental issues as the thematic focus.

INSTRUCTIONAL DESIGN AND IMPLEMENTATION. The instructional design followed a constructivist model, emphasizing authentic, self-directed learning experiences. Although technological limitations prevented direct collaboration on video production, the courses were thematically aligned around environmental issues and storytelling theory. Each student independently produced a video project, while instructional activities fostered cross-cultural interaction and mutual understanding. The VE modules were delivered through the U. S. institution's online learning system (Canvas), using a dedicated course shell accessible to students from both institutions. Students participated in activities such as discussion forums and collaborative analysis of environmentally themed videos. Implementing the exchange required multi-level institutional support, including providing temporary logins for Colombian students and managing access to the online learning system. Both iterations of the exchange involved 40 students (23 in the U. S. and 17 in Colombia). Interactive activities included an "icebreaker" module using Padlet, a colorful online pinboard frequently recommended in COIL literature for informal and creative student introductions (Rubin & Guth, 2022; SUNY Online, n.d.; Szobonya & Roche, 2023). Students were divided into small groups to schedule their own synchronous video meetings, sharing cultural experiences and discussing project themes. Canvas discussion forums served as the central space for analyzing videos on narrative structure, storytelling techniques, and thematic impact, aligning with the storytelling theory covered in both courses. The VE also featured a well-received reflection and peer review module. Students recorded reflections on Flipgrid—a now-defunct but once popular video messaging tool for online courses (Warner, 2024)—and shared insights on their exchange experiences for feedback. Each student produced a short, individual video project for their course, and the exchange concluded with asynchronous peer reviews. Course evaluations and anecdotal feedback highlighted peer review as the most valuable aspect of the exchange.

CHALLENGES AND MODIFICATIONS. Challenges emerged quickly in the first iteration of the virtual exchange, particularly with technology and logistics, prompting adjustments in the second version. For example, Flipgrid integration with Canvas was problematic, leading to login issues, platform inconsistencies across devices (PC vs. Mac), and confusion around video accessibility. Coordination difficulties emerged as well. Students struggled to arrange and execute synchronous meetings via Zoom or other platforms, requiring significant professor interventions. Navigational issues led to concerns, particularly among the U. S. students who had to toggle between their main course and the VE-specific Canvas shell, leading to confusion about assignments and deadlines.

In the second iteration, instructors simplified the module design based on feedback from the first exchange. Zoom meetings were reduced from three to one, and discussion tasks were streamlined to reduce platform switching and other technological friction. While both iterations fostered strong student engagement and intercultural learning, the experience

prompted instructors to consider how future exchanges might support truly collaborative video production through more streamlined and effective technology.

STUDENT FEEDBACK. Although not formally measured in 2022, course evaluations and anecdotal feedback guided improvements in the second iteration. This input highlighted areas needing careful planning, especially for more complex projects involving team video production. Comments were generally positive, with students noting gains in storytelling skills and intercultural collaboration. One U.S. student remarked:

"I certainly learned a lot of valuable information about video production; however, I think my favorite lessons had to do with storytelling and using it as a tool to reach and engage with audiences. Additionally, I think the VE module provided a wonderful opportunity to collaborate with students from another country/culture and this was an enriching experience to have throughout the course."

However, additional comments directly addressed continued challenges despite the relatively straightforward, discussion-based design. Issues included the asynchronous format, technological barriers, and mismatched expectations between groups. The American-based students—many of them working professionals—struggled to coordinate meetings across time zones. One student commented:

"I would reconsider the exchange student element of the course due to scheduling conflicts. This course is already very involved and time-consuming, so for students who work full time on top of having graduate-level classes, going back and forth with students in a different time zone who may not have the same desire/drive to complete the assignment and receive full credit can be frustrating."

The technical aspects of the course, particularly navigating multiple platforms, were also identified as obstacles. As one student stated:

"This is the most challenging course in the program, in my opinion. The technical aspects were especially challenging in an online environment."

In contrast, students in the Colombian film program expressed a desire for more synchronous interaction with their counterparts and greater involvement from the partnering professor. Though all participating students were fluent in English, some expressed frustration with working in a second language. These contrasting preferences highlight the importance of tailoring virtual exchange structures to meet the needs of diverse student populations while addressing logistical challenges such as time zone differences and technological limitations.

PHASE 2: EVALUATING TECHNOLOGY

This phase of the study builds upon the researcher's prior VE course design experience to evaluate the use of Frame.io, a video collaboration platform, in an ongoing pilot project in a traditional, on-campus learning environment. Survey-based research with U.S. students enrolled in the pilot courses offers a means to assess the platform's usability, pedagogical value, and its ability to reduce digital friction. A mixed methods approach was employed to gain a more comprehensive understanding of the platform's impact, with quantitative survey data capturing patterns in usability and self-efficacy, and qualitative

responses providing deeper insight into students' experiences and the instructional context. This combination allowed for both breadth and depth in evaluating the pedagogical effectiveness of Frame.io. This analysis may help determine Frame.io's suitability for video-intensive virtual exchange courses where the reduction of complexity and friction around technology would be crucial to success. This phase of the research further defines how the intentional selection and integration of technology may support student engagement, bolster self-efficacy, promote collaboration, and potentially enhance pedagogical effectiveness in media-rich learning contexts.

RESEARCH PROBLEM

Virtual exchange is considered to be an effective tool for fostering intercultural competencies, engagement, and collaborative learning across diverse educational contexts. However, the reliance on technology to facilitate these exchanges introduces significant challenges that can undermine the learning experience, particularly in disciplines that include journalism, film or other forms of video storytelling. While numerous studies highlight the benefits of virtual exchange for intercultural learning, there is a noticeable gap in the literature regarding the integration of collaborative video production technology. This absence is particularly problematic given the growing emphasis on multimedia storytelling as an educational tool. Existing research fails to identify or evaluate video collaboration platforms that are user-friendly, easily integrated into learning management systems, and capable of supporting seamless asynchronous or synchronous participation across geographic and technological divides. For educators and academics wishing to implement collaborative video projects in virtual exchanges, the lack of guidance on effective tools and strategies presents a major obstacle. The problem, therefore, lies in balancing the pedagogical goals of virtual exchange with the selection and implementation of technology that enhances, rather than detracts from the learning experience.

IDENTIFYING A SUITABLE SOLUTION

As the search for effective video collaboration technology continues, the researcher has identified Adobe's Frame.io as a platform that may offer significant promise as a video collaboration tool for COIL and VE programs. Designed to streamline video production, this cloud-based platform may be well-suited for both professional and educational collaborative projects (Frame.io, n.d.). Frame.io allows users to upload, organize, and share video content while offering tools for real-time feedback, including timestamped comments and annotations directly on video timelines (Adobe, n.d.). These features are designed to simplify the review and approval process, making collaboration efficient and seamless in professional and educational settings (Jared, n.d.). Currently being piloted at an institution in the northeastern United States, Frame.io has demonstrated its potential to address the technological challenges associated with video collaboration in educational settings. By providing an accessible and professional-grade experience, the platform enables students to share work with peers and instructors, receive actionable feedback, and peer review. Although the current pilot involves in-person learning, these features align with the needs of virtual exchange programs which aim to foster intercultural collaboration, self-directed learning, and critical analysis. As such, the researcher posits that Frame.io represents a promising candidate for integrating collaborative video production into VE initiatives, bridging the gap between pedagogy and technology.

RESEARCH OBJECTIVE

The purpose of this study is to evaluate the effectiveness and usability of Frame.io in the context of video-intensive courses and its potential applicability in future COIL and virtual exchange settings. By examining student perceptions and experiences using the platform, the study aims to identify key technological challenges, assess the technology's role in supporting engagement and self-efficacy, and will offer recommendations for the integration of collaborative video tools in globally networked learning environments. The research is guided by the following questions:

1. What are the primary technological challenges faced in video courses involving video production and storytelling using video?
2. How usable and pedagogically effective is Adobe Frame.io for supporting skill development, student engagement, and self-efficacy in video intensive courses?
3. What recommendations can be derived for the selection and integration of video collaboration tools to enhance learning outcomes and intercultural engagement in the additional context of a COIL or virtual exchange course design?

MATERIALS AND METHODS

The study aims to evaluate both the usability of Frame.io and the self-efficacy perceptions of students accessing the platform in video journalism courses during a department-wide pilot program. The researcher utilized a convergent parallel mixed methods design which involves collecting and analyzing quantitative and qualitative data simultaneously to gain a deeper and more integrated interpretation of the results (Creswell & Plano Clark, 2018). This design is particularly effective when a single data type would be insufficient to fully address the research questions and is suitable for this study in which descriptive, deeper responses enhance and contextualize the survey findings. Following a comprehensive guide to constructing self-efficacy scales (Bandura, 2006), survey items were phrased to reflect students' confidence in their abilities, with care taken to ensure self-efficacy measures were tailored to functionality relevant to a specific task while using Frame.io.

PARTICIPANTS

Participants included U. S. graduate and undergraduate students enrolled in five separate video and broadcast journalism courses whose professors were participating in a Frame.io pilot project. Results were anonymous; however, the survey was sent to a larger number of graduate ($n=36$) than undergraduate students ($n=24$) based on course enrollment.

DATA COLLECTION

SURVEY INSTRUMENTS. The anonymized survey consisted of 12 Likert scale questions with six aimed at platform usability and six aimed at student perceptions of self-efficacy. In accordance with a mixed methods convergent parallel model, an additional set of four open-ended questions were included. They were specifically designed to solicit deeper, descriptive data for thematic analysis.

QUANTITATIVE COMPONENT. Constructed according to guidance from the foundational work of Bandura (1977, 1997, 2006), the Likert scale component of the survey was designed to measure platform usability and student self-efficacy on a 5-point

scale using ranges tailored to each question such as “strongly disagree” to “strongly agree” or “not confident at all” to “extremely confident.” For example:

- How easy do you find it to navigate and use Frame.io video collaboration software in your classes? (Response range from “extremely difficult” to “extremely easy.”)
- How confident are you in your ability to collaborate with peers on video projects using Frame.io? (Response range from “not confident at all” to “extremely confident.”)

QUALITATIVE COMPONENT. Four open-ended questions solicited detailed feedback on user experience, challenges faced, and suggestions for improvement as listed below:

1. To what extent has using Frame.io helped you develop problem-solving skills related to video production (e.g., incorporating feedback, recognizing areas for improvement, learning from the work of your peers)?
2. How confident are you in your ability to apply instructor feedback to your video projects after receiving feedback through Frame.io particularly compared with other forms of feedback?
3. Based on your experience, what recommendations would you offer to instructors to maximize the benefits of using Frame.io effectively?
4. Use the space below to elaborate on any survey response and add any additional feedback about your experience with Frame.io in your course(s).

An additional, multiple-selection question was included to help clarify how various instructors integrated Frame.io into their courses. The question asked students to define the range of platform usage experienced, with options ranging from simply accessing video content for analysis or discussion, to more complex applications such as uploading video assignments for professor or peer feedback.

DATA COLLECTION PROCEDURE. Surveys were administered between the fall and spring semesters (December, 2024 through January, 2025), after course completion as recommended by the university’s Institutional Review Board. An anonymized Qualtrics survey was emailed to 60 students, ensuring anonymity and voluntary participation. The 21 completed surveys represent a 35% response rate. Both graduate (n=36) and undergraduate (n=24) students were included across five courses participating in the Frame.io pilot program. Quantitative and qualitative data were collected concurrently to facilitate integration during analysis.

DATA ANALYSIS

QUANTITATIVE ANALYSIS. Descriptive statistics, including means and standard deviations, were calculated for each Likert scale item to assess central tendencies and variability to measure and define current technological challenges in video-based courses (RQ 1). Overall self-efficacy and usability scores were computed by averaging relevant items, providing a composite measure of student confidence in using Frame.io to evaluate the platform’s impact on engagement, self-efficacy (whether it is both easy and satisfying to use) in order to further assess the platform’s suitability as a video collaboration tool that could enhance learning outcomes and intercultural engagement (RQ 2-3).

QUALITATIVE ANALYSIS. The researcher conducted an inductive thematic analysis following Braun and Clarke’s (2006) six-step framework to identify emergent themes within the open-ended responses, particularly with respect to student self-efficacy perceptions, and to define future best practices in a virtual exchange learning context (RQ

2-3). NVivo software facilitated the coding process and organization, enabling the identification of recurring themes and patterns within student responses, and highlighting key trends related to their experiences with Frame.io. This process involved:

- Familiarization: Reading and re-reading responses to become immersed in the data.
- Coding: Generating initial codes to represent significant features of the data.
- Theme Development: Collating codes into potential themes that capture patterns across responses.
- Reviewing Themes: Refining themes to ensure they accurately reflect the data.
- Defining and Naming Themes: Clearly defining each theme and assigning descriptive names.

DATA INTEGRATION. Following separate analyses, quantitative and qualitative findings were integrated to provide a holistic interpretation. This involved comparing statistical trends with thematic insights to understand how usability and self-efficacy perceptions align and diverge. The integration aimed to leverage the strengths of both data types, offering generalizability through quantitative results and depth through qualitative context.

ETHICAL CONSIDERATIONS

The study received approval from the researcher's Institutional Review Board (IRB). Informed consent was obtained from all participants, ensuring awareness of the study's purpose, procedures, and their right to withdraw at any time without penalty. Surveys were limited to periods after course completion and between semesters to avoid any perceived pressure on students to participate.

RESULTS

QUANTITATIVE

The mean score for the self-efficacy focused Likert-scale responses was 4.43 (SD = 0.40), indicating a high level of student confidence when using Frame.io. The Likert-scale questions which assessed ease of use, overall satisfaction, and skill improvement, produced a mean score of 4.57 (SD = 0.27). Results suggest that students found the platform to be accessible, easy to use, and beneficial to their learning process. As shown in Figure 1, the overall combined mean score was 4.48 (SD = 0.36), reflecting consistently high ratings for both self-efficacy and usability, with relatively low variability in responses, suggesting consistent perceptions across participants. These scores indicate that students felt highly confident in their technical, collaborative, and problem-solving skills while also finding Frame.io to be user-friendly.

A closer analysis of the self-efficacy-focused Likert scale responses revealed high levels of confidence across three task categories as shown in Figure 2. Students reported the highest confidence in their ability to handle the technical aspects of Frame.io with a mean score of 4.82 (SD = 0.87) indicating a strong and consistent sense of competency using the platform's functions. Similarly high levels of confidence were observed in students' ability to apply instructor feedback received through Frame.io's markup features (M = 4.41, SD = 0.92). Responses related to peer collaboration were generally positive

but showed greater variability, indicating a mix of experiences in this area (M = 4.06, SD = 1.24).

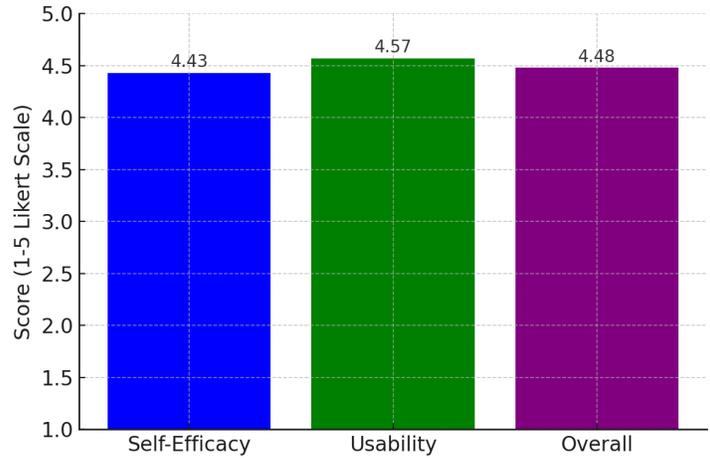


Figure 1. Mean Scores for Student Self-efficacy, Platform Usability, and Overall Mean Score (n=21)

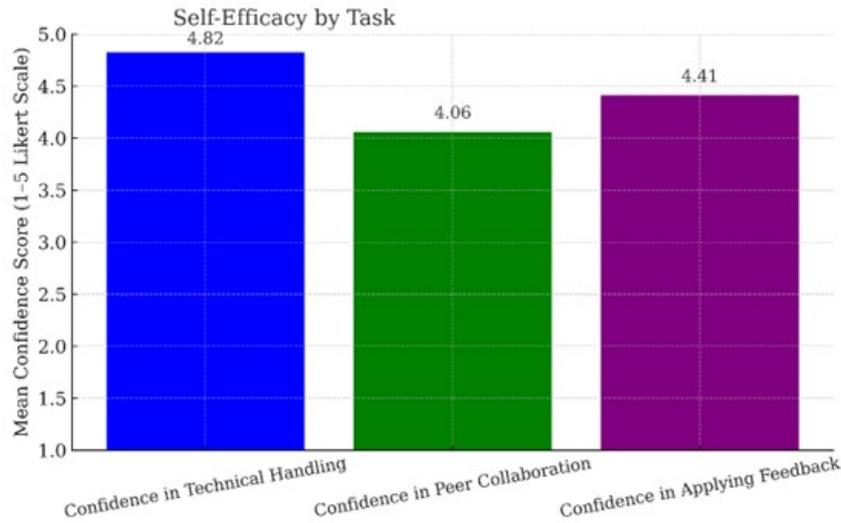


Figure 2. Likert Scale Results Specific to Self-efficacy (n=21)

QUALITATIVE RESULTS: MAJOR THEMES

While the Likert-scale responses provided a quantitative overview of students’ perceptions of self-efficacy and usability, open-ended, descriptive questions offered deeper insight into their experiences. Thematic analysis of the qualitative data revealed several patterns that contextualize the numerical findings, including the following key themes.

INCORPORATING FEEDBACK. Participants overwhelmingly indicated that Frame.io provided a valuable, easy-to-use mechanism for receiving and conveying detailed, clear, and timely feedback, which significantly aided their ability to refine their work. Many

respondents noted that the platform allowed them to pinpoint specific areas for improvement, ensuring precise corrections and minimizing repeated mistakes. For example, one respondent highlighted how Frame.io enabled instructors to provide comments at precise moments in a video, facilitating immediate problem-solving and effective revisions. Additionally, some participants emphasized the advantage of comparing feedback across different projects, helping them track their progress over time.

RECOGNIZING AREAS FOR IMPROVEMENT. The ability to self-identify strengths and weaknesses also emerged as a recurring theme. Respondents described how Frame.io assisted in recognizing mistakes and addressing them proactively. Several participants acknowledged that the platform enabled them to identify potential problem areas even before receiving formal instructor feedback, suggesting that Frame.io fosters independent problem-solving skills. Others highlighted the usefulness of timestamped comments and direct mark-ups, which made areas of improvement visually apparent and actionable. For instance, respondent 19 emphasized the learning value of recognizing not only personal mistakes but also those of peers:

"I learn from my mistakes and some mistakes my peers may make so I can remain proactive on those issues."

Respondent 1 stated that using Frame.io helped refine problem-solving skills by integrating feedback early:

"While using Frame.io, I feel I have developed problem-solving skills. I have incorporated feedback not only on my videos to catch areas of improvement on my own work before the professor commented."

Similarly, respondent 15 highlighted how comments at specific timestamps helped clarify and simplify feedback:

"Frame.io has been incredibly helpful for my growth as a journalist. Being able to see exactly where in a package my professor liked something about my piece or thought some aspect could be stronger helps me identify my strengths and weaknesses."

Respondents repeatedly emphasized the value of peer learning through Frame.io. The ability to access peer feedback and watch colleagues' projects was cited as instrumental in improving their own work. Some participants mentioned that viewing instructor feedback on peer videos provided valuable insights into common pitfalls and successful strategies. Others described how they used the platform to assess both their own and their colleagues' work, further reinforcing their learning experience. For example, respondent 9 commented that the ability to "watch my peers' work, and their feedback" was helpful beyond what the professor provided.

Frame.io's commenting system was recognized as an intuitive and effective tool for providing feedback. Participants praised its ability to allow both instructors and students to add comments directly onto video frames, with several mentioning the benefit of annotations and tagging specific moments in footage. This functionality was perceived as superior to traditional feedback methods, such as descriptive written feedback, oral feedback, comments on documents or within the course learning management system, because of its immediate accessibility and clarity. Several students emphasized how the platform allowed them to fully comprehend instructor critiques without requiring additional clarification. Respondent 18 wrote:

"The aforementioned illustration and frame-tagging elements helped me to better understand what was meant by each comment from my professor. I did not have to go to them after class or in my free time to

ask questions about what they meant, as it was abundantly clear through their use of Frame.io features."

Moreover, students expressed that seeing feedback in direct relation to their video made it easier to integrate changes effectively. Respondent 16 shared:

"Having that specific feedback from my professor in Frame.io was so beneficial for me to make the exact changes that were needed to improve the quality of my final package version."

TIME-SAVING FEATURES. Participants frequently highlighted Frame.io's efficiency in uploading, reviewing, and processing feedback. Many noted that its timestamp function facilitated a faster review process, while others emphasized the benefit of receiving real-time notifications when feedback was provided. Some respondents appreciated that Frame.io eliminated the need for email exchanges or additional clarification requests, streamlining the editing workflow.

IMPROVING INTEGRATION. Participants provided several recommendations for maximizing the benefits of Frame.io in instructional settings. Key suggestions included:

- Encouraging more peer-to-peer critiques to expand learning opportunities.
- Improving mobile accessibility by addressing difficulties in viewing comments on mobile devices.
- Allowing folders for individual projects to streamline content management.
- Increasing instructor interaction and feedback frequency to optimize student learning outcomes.

For example, respondent 19 suggested a more personalized organization system:

"Making it more personalized for each student so making folders to keep track of a student's work instead of just uploading it as a class helps with the organization aspect."

Respondent 10 highlighted the need for more frequent feedback:

"I would say faster feedback would be highly beneficial. My instructor only used it to critique two newscasts, which was not helpful for the class because not everyone was getting feedback."

DIFFERING PERSPECTIVES. Despite the predominantly positive feedback, some participants expressed neutral or negative perspectives on the effectiveness of Frame.io. They indicated that its contribution to enhancing problem-solving skills was limited because of the way it was implemented within their course. For instance, respondent 20 noted that their engagement with the platform was limited "because our section operated with it at a surface level." Such results have implications for instructional design and student-centered approaches to technology. Educators should consider not only the features of digital tools but also how they are integrated. Structured peer reviews, timely instructor responses, and better-organized content are all actionable recommendations that could help optimize the learning environment. Two respondents expressed a preference for in-person feedback and discussions over digital tools, emphasizing that direct interaction with instructors was more conducive to their learning style. The small but noteworthy variations in responses suggest that students have different preferences and needs. Combining multiple methods and using various feedback systems may contribute to self-efficacy and improve learning success. This highlights the need for further research exploring how Frame.io is used across different courses and instructional contexts, with the aim of generating more comprehensive and nuanced insights—areas the researcher intends to investigate in future studies.

VARIATIONS AMONG COURSES. The results revealed diverse applications of the platform across various video journalism courses. Respondents described implementation as primarily for feedback. Students regularly reported uploading video assignments for instructor critique and for peer-to-peer reviews. Additionally, students described Frame.io as a tool for discussion and analysis, allowing them to access and review newscasts, video packages, and other examples of journalistic work. The platform also supported team-based assignments, facilitating collaborative editing and project development. Some course applications leveraged Frame.io for posting student live performances, enabling participants to receive immediate, precise feedback on practical exercises. Beyond feedback and collaboration, students described Frame.io as a resource repository where their instructors posted raw video for coursework. Lastly, students indicated that their instructors utilized the platform to enhance technical skill development, providing opportunities to refine techniques such as shot composition, color correction, and interview framing. These findings highlight the versatility of Frame.io in video production education, demonstrating its role in fostering both technical proficiency and collaborative learning. However, additional research would further define best practices for using the platform and help assess its transferability to a COIL or VE learning environment.

DISCUSSION

Students using Frame.io in video production coursework reported high levels of self-efficacy and usability. Qualitative and quantitative analysis revealed that participants found Frame.io invaluable for receiving detailed and timely feedback, recognizing areas for improvement, and learning from peers. The results of this study suggest that Frame.io is a valuable tool for fostering problem-solving skills, enhancing the application of instructor feedback and facilitating peer learning in media focused courses. The platform's detailed, timely, and structured commenting system contributed to student confidence and the ability to efficiently refine their work. While some limitations were noted (such as preference for in-person feedback and mobile usability concerns), respondents consistently described their experience with Frame.io as empowering and effective. They reported feeling confident in their technical abilities and collaborative workflows. They often emphasized the platform's intuitive design. Many credited Frame.io with enhancing their learning by making feedback more accessible and actionable, particularly valuing its timestamped comments which allowed for targeted revisions and clearer guidance. Students frequently highlighted the ability to observe and learn from peer feedback, suggesting that the tool supported individual growth and fostered a stronger sense of shared learning. Results indicate that students felt highly confident while also finding Frame.io to be user-friendly.

TECHNOLOGICAL CHALLENGES IN VIDEO-INTENSIVE COURSES

The first research question explored primary technological challenges encountered in video-based courses focused on storytelling and production, recognizing that such challenges have posed barriers to course design, particularly in video intensive disciplines. As revealed in a comprehensive literature review, barriers include file management issues, platform compatibility issues, bandwidth limitations when accessing large video files, and difficulty collaborating with peers across disparate or difficult to use platforms (Rubin & Guth, 2022; Vahed, 2022). Students and instructors alike attributed these challenges to workflow disruption, delayed feedback and uneven access to collaborative learning contexts (Jenssen et al., 2024). Additionally, the learning curve associated with unfamiliar production tools has been cited as a barrier to creativity and confidence, particularly among

students new to video editing and digital learning environments (Saini & Abraham, 2019; Zhang & Pearlman, 2018). These challenges are compounded in virtual exchange or COIL settings, where technological disparities between institutions and limited digital infrastructure can further complicate collaboration. Therefore, continued evaluation of the usability and impact of tools like Frame.io will help further distinguish existing and emerging platforms that offer a more seamless, pedagogically supportive experience from those that introduce unnecessary friction.

PERCEIVED USABILITY AND PEDAGOGICAL EFFECTIVENESS OF FRAME.IO

The second research question investigated how Frame.io, as a cloud-based collaboration tool, supported skill development, engagement, and student self-efficacy. Responses from both quantitative measures and qualitative student reflections suggest that the platform was not only highly usable but also pedagogically effective in fostering core competencies. Students described Frame.io as intuitive and easy to access. Its timestamped comment functionality enabled precise, actionable feedback that supported iterative improvement in editing, storytelling, and production processes. Students also reported feeling increased confidence in their ability to contribute meaningfully to team projects and to manage their workflow independently. These experiences were reflected in strong usability and self-efficacy scores, reinforcing the potential of Frame.io as a tool that can bridge instructional goals with meaningful student outcomes in video-intensive environments.

RECOMMENDATIONS FOR COIL AND VIRTUAL EXCHANGE COURSE DESIGN

The third research question addressed the broader implications of these findings for future COIL and virtual exchange (VE) contexts. While COIL and VE models are well established in text-based and project-based learning, their application in media-rich environments such as video storytelling remains underexplored. This study suggests that the careful selection of collaborative tools like Frame.io can mitigate the digital friction commonly reported in such courses. For example, the ability to centralize feedback and revision cycles reduces reliance on email or messaging apps, which are often inefficient for visual work. Moreover, because Frame.io supports asynchronous collaboration and allows students to engage with content in context, it holds promise for bridging the cultural and institutional differences that often characterize virtual exchange initiatives. Based on the data, instructors designing such courses should prioritize tools that are platform-agnostic, bandwidth-efficient, and capable of supporting both technical and interpersonal learning objectives. Equally important is the role of instructional design: How instructors integrate and scaffold the use of these tools significantly influences student engagement and skill development.

PRACTICAL IMPLICATIONS

The findings of this study offer several practical implications for educators designing video-intensive courses. To maximize success, instructors should tailor their implementation strategies to the specific pedagogical needs of each course, an area identified in this research as ripe for further study. The mainly positive feedback on Frame.io suggests that its features are especially valuable in supporting iterative learning

and peer interaction. To optimize the benefits of such technologies, instructors and institutions should carefully evaluate virtual platforms for usability, simplicity, and accessibility whether involving in-person learning or in online contexts such as COIL or virtual exchange. Educators should account for institutional disparities in internet access, training, and technical support. Selecting tools that are platform-agnostic, low-bandwidth friendly, and easy to navigate is essential to creating equitable learning environments. Institutions should consider investing not only in access to such platforms, but also in professional development that empowers faculty to use them pedagogically— not just logistically— to ensure that technology enhances rather than obstructs intercultural collaboration and learning.

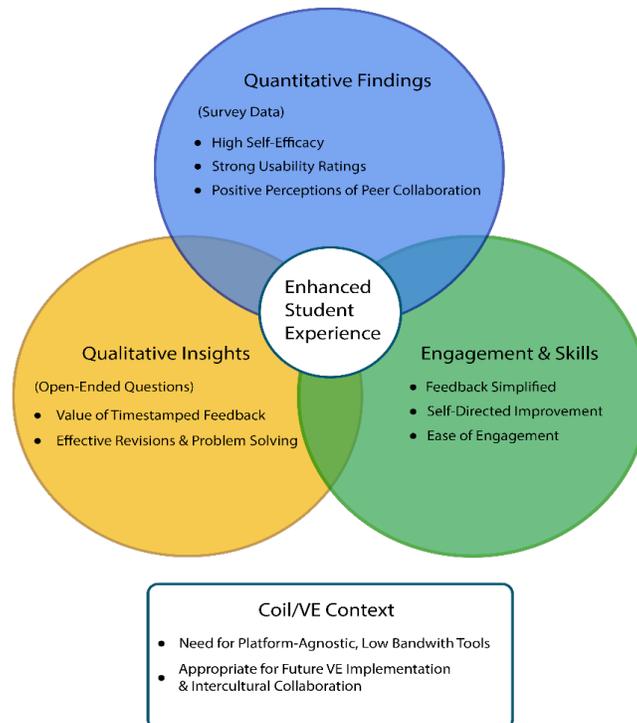


Figure 3. Key Takeaways

LIMITATIONS AND FUTURE RESEARCH

The researcher recognizes the limitations of this study. Some 60 students were surveyed with slightly more than one-third providing responses—a response rate of 35%. The small size of the sample ($n = 21$) threatens validity. Clearly, students who did not participate may hold different views on the platform. Additional surveys in subsequent semesters should be conducted to increase the scope of the data. In addition, though students described how Frame.io was used in their particular class, instructors were not surveyed. Future research should investigate how instructors specifically utilize Frame.io across different courses, because instructional strategies may significantly influence student experiences, perceptions, and learning outcomes. A future survey of faculty members to examine their use of Frame.io could offer a more comprehensive

understanding of correlations between instructional practices, student perceptions, and academic performance. The usability of Frame.io and the self-efficacy of students using the platform were quantified in an on-campus pilot program, yet the researcher aims to test its suitability in a virtual learning context. Overall, this study provides an initial, promising demonstration of Frame.io as a versatile tool in video production education, enhancing technical proficiency, fostering collaboration, and supporting effective feedback mechanisms in face-to-face learning contexts. Its suitability for use in online pedagogy warrants additional investigation. A future case study of a VE using Frame.io would help develop a framework for implementing such collaborative video production technology in virtual exchange environments, ensuring accessibility, inclusivity, and minimizing technical barriers.

CONCLUSION

COIL and virtual exchange initiatives have become essential components of higher education, fostering intercultural competence and global collaboration without requiring physical mobility or the funds to study abroad. However, these programs often face significant challenges, particularly with the necessary technological tools. As demonstrated in the existing literature, disparities in access to technology (Rubin & Guth, 2022; Vahed, 2022), communication barriers (Fowler et al., 2014; Jenssen et al., 2024), resource disparities, and uneven levels of digital proficiency (Saini & Abraham, 2019; Zhang & Pearlman, 2018) can impede collaboration between international partners, especially in complex tasks such as video production and storytelling. The integration of Frame.io with its user-friendly interface, precise feedback capabilities, and centralized workflow management offers a potential solution to these challenges. This research demonstrates that Frame.io enhances self-efficacy and usability in journalism and video production courses by providing students with precise feedback, opportunities for collaboration, and efficient project management. Its adaptability positions it as a promising tool for COIL and VE environments, where video production resources are often limited because of the scarcity of viable collaborative platforms. Findings indicate that Frame.io could facilitate more seamless and effective multimedia collaborations in global higher education settings. Given the limited body of literature on video production tools in virtual exchange, future studies should explore the implementation of Frame.io in COIL and VE to assess its impact on intercultural experiences and student learning outcomes.

DECLARATION OF INTEREST STATEMENT

The researcher declares no conflict of interests.

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