

Analysis of Flipgrid

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Introduction

Flipgrid has become one of the most accessed educational technology tools in the United States (*Edtech Insights*, 2021). Recently acquired by Microsoft, the digital-video discussion platform has become ubiquitous in the increasingly tech-infused American classroom. It recently ranked as the 17th most accessed ed-tech tool in America and boasts a robust community of supporters amongst educational technology enthusiasts (*ibid*). Flipgrid's popularity is undeniable. What is less clear is whether it improves learning processes for teachers and students.

This paper will attempt to analyze whether or not Flipgrid improves learning experiences and outcomes for teachers and students. The analysis will be two-fold. First, this analysis will attempt to understand if Flipgrid is an effective tool for teachers. Flipgrid is commonly used as a formative assessment tool in K-12 classrooms, but do teachers actually learn what their students do and do not understand as a result of using Flipgrid? Or is Flipgrid leading teachers directly into the error of "activity-oriented learning design" in which activities are so fun and interesting for kids that learning outcomes get glossed over? Second, this analysis will attempt to assess whether or not Flipgrid actually lives up to its mission statement to make learning "fun, fulfilling, and empowering" for students (*Flipgrid*, 2021). Do students actually feel that Flipgrid does this? Or is Flipgrid yet another version of the "chocolate-covered broccoli" dilemma in educational technology in which designers have taken the same boring classroom activities and simply masked them under the guise of social media gamification? This analysis hopes to answer both of these questions in an effort to guide teachers and students on if, when, and how Flipgrid should be used in K-12 classrooms.

Positionality Statement

My positionality influenced the following paper. Before going further, I want to acknowledge my perspective as a former social studies and English teacher who regularly used Flipgrid in my classroom over the past seven years. Where this analysis will attempt to be objective in nature whenever possible, it will also be influenced by the experiences I have had with Flipgrid in my classrooms. It will, at times, include personal narratives, project descriptions, and photos from my classes related to the use of Flipgrid. Rather than a bias that detracts from my ability to analyze Flipgrid, I believe my aforementioned experiences to be a boon to my analysis of Flipgrid as a learning tool for K-12 teachers and students.

Description of the Learning Tool

Overview

Flipgrid is a video discussion tool. Teachers create topics or questions online, then students add videos in which they respond to those topics or questions. Students can watch their peers' answers once posted and give them feedback in the form of likes, Moji reactions, and/or typed comments. Teachers can create rubrics for videos to formally assess student responses. Posting and responding to videos make up the core of the learning experience.

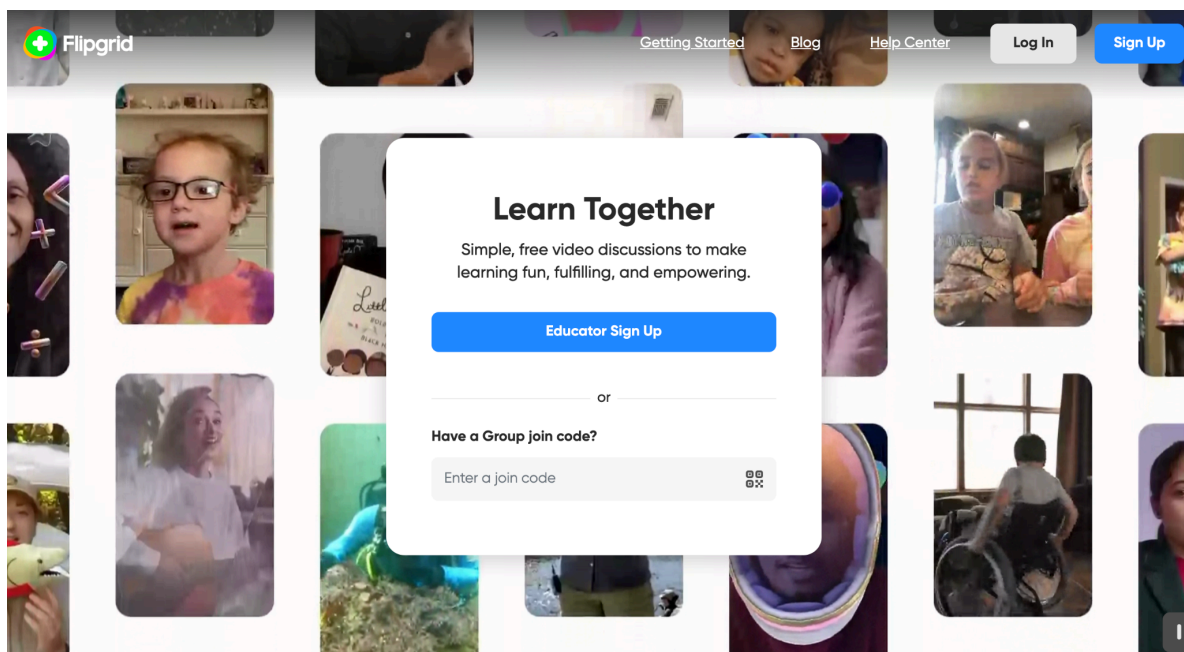


Figure 1: Flipgrid's Landing Page, which shows a scrolling patchwork of different use cases for Flipgrid

Flipgrid was originally designed by Dr. Charlie Miller, the former director of the Learning Technologies Media Lab at the University of Minnesota. Its original intended use was for traditional K-12 classrooms but has since broadened to be applicable for both formal and informal learning environments.

Flipgrid, in and of itself, does not aim to teach specific learning outcomes. It enables content or skills to be taught; it does not deliver specific content or skills. That said, the expressed goal of the tool is to “empower” students during the process of learning by centering their voices in the classroom (rather than just the teachers). Its popularity and effectiveness seems to lie in its ability to be customized to the needs of teachers.

Teachers can use Flipgrid to create assessment activities for students at all levels of Bloom's Taxonomy of learning outcomes in the cognitive domain and all dimensions of knowledge: Factual, conceptual, procedural, metacognitive (*Revised Blooms Taxonomy*, n.d.) . A history teacher could create an assessment of students' understanding of the Civil War by asking them to pretend to be Abraham Lincoln and act out a cabinet meeting. An instrumental music teacher could have students share trumpet performances on Flipgrid, then share that video board out with the local community to enjoy said performances. A guidance counselor could ask students to share a favorite memory from the first quarter, using Flipgrid as a medium for reflection. This seemingly infinite use case has surely contributed to Flipgrid's popularity.

Learners

Flipgrid makes it very clear, from the second one accesses their landing page, that it's an extremely versatile tool (see Figure 1). The current landing page background is a scrolling patchwork of videos. Anyone with a camera-enabled device and an internet connection can engage in a myriad of learning activities. In one video, two middle school girls seem to be explaining how to bake brownies while, in the video next to it, a scuba diver waves at the camera and draws attention to a piece of coral. In another video, a user shares ideas using American sign language while, below, a young boy talks about his favorite toys. In all of these instances, users are learning through their unique experiences by physically or verbally explaining something important to them.

Flipgrid is designed to allow teachers to creatively assess their students. Where Flipgrid can potentially be used by any teacher, this paper will be focusing on K-12 learners compiling school assignments, as this is the most common use case. That said, there is no one specific use case. Teachers can bend Flipgrid to whatever learning outcomes they desire. The designers of Flipgrid seem to understand that teachers want to create engaging activities for their students and need tools that allow them to do this. The designers also clearly understand that students enjoy the experience of social media, as many of Flipgrid's features harness the same levers of engagement that popular social media platforms like Instagram, Snapchat, or TikTok use. These levers make a more engaging learning experience for students because, again, the target learners are the students. Yet, hidden below that surface is the real target learner: The teacher.

Flipgrid clearly understands that teachers need better ways to formatively assess students. Most text-based alternatives (i.e. multiple-choice, matching, true-false, short answer questions) tend to be boring for students. Selected response style questions are also more challenging to construct in ways that allow teachers to see instances in which students only have partial knowledge of a topic (Lau et al., 2011). Rather, they are simply right or wrong. Using a video-based platform like Flipgrid avoids this issue by

enabling teachers to monitor verbal and nonverbal cues that better express a wider spectrum of student understanding.

The aforementioned text-based tasks also tend to be boring for students, which calls into question whether those students are truly motivated to put forth their best effort on these activities. If students aren't putting forth their best effort, are teachers really getting a true sense of what the students understand? By creating a social experience more akin to social media than a worksheet, Flipgrid may inherently motivate students to put in their best effort. All of this may add up to an experience that allows teachers better insights into their students' understanding. This, in turn, may allow teachers to make better decisions about what kinds of instructional decisions need to be made in their classrooms.

Context

The designers of Flipgrid intended the tool to be used by teachers and their students, as is evidenced by the giant "Educator Signup" headline one is greeted with upon clicking on the "Sign Up" button on the home page. Educators are then prompted to "Create a Topic" and "share the join code." Creating a topic creates a message board with a guiding prompt through which students can then post videos in response. The join code is a specific string that students type in to access their teachers' content.

Flipgrid can be used wherever it's most convenient for students and teachers. A teacher dashboard can be created, through which teachers can manage posted topics, see videos they haven't viewed yet, and see any new responses students have posted. Most teachers and students will use Flipgrid in the classroom, but it can also be easily taken anywhere using Flipgrid's mobile application. Flipgrid has a dedicated mobile app, and the join code that students use to find teacher prompts can be easily turned into a QR code that students scan with their phones to access prompts. So where the designers expect the classroom to be the primary place the tool is used, they also are clearly encouraging the users to leverage Flipgrid anywhere. That the current landing page of Flipgrid includes a scrolling patchwork of different people and activities being enacted in numerous different contexts supports the idea that the designers are encouraging, "anywhere, anytime" usage.

Content

For students, Flipgrid is a medium through which students can demonstrate a variety of learning outcomes. For teachers, it's a little more straightforward. Flipgrid attempts to create situations in which students are tasked with verbally or physically explaining or demonstrating a concept or skill. This likely makes it easier for teachers to assess

students' procedural and metacognitive knowledge when compared with text-based alternatives or in-person demonstrations. Again, Flipgrid enables assessments that measure the degree to which students understand a concept as opposed to only assessing information as right or wrong. Teachers can assess what students know or can do based on how fluid of a verbal or physical explanation a student gives. Teachers are also able to see to what degree students are inarticulate in their explanation, thereby getting a more nuanced understanding of student comprehension. They can also see if students are clearly dependent upon notes to explain concepts or if they are putting content into their own words and explaining concepts clearly.

The screenshot shows the 'Feedback' interface in Flipgrid. On the left, there are two sections: 'Basic Feedback' with the description 'Provide basic feedback on a Response based on student verbalization and clarity of expressed ideas.' and 'Custom Feedback' with the description 'Build and assign custom feedback rubrics based on the needs and qualifications of your classroom.' On the right, there is a text box with the instruction 'Provide basic feedback on a video based on student verbalization and clarity of expressed ideas.' Below this, there are two checkboxes: 'Ideas' and 'Performance', both of which are checked. At the bottom of the interface, there are three buttons: 'Delete Topic' on the left, 'Cancel' in the center, and 'Update Topic' on the right.

Figure 2: The 'old' Flipgrid rubric feature prior to August, 2021

Originally, Flipgrid allowed teachers to assign rubrics to videos to more formally measure video performance on questions such as these. The “basic” rubric provided by Flipgrid assessed in two Categories: Ideas and Performance. A screenshot of this process is provided in figure 2 above. That said, surprisingly, Flipgrid recently dropped the ability to add rubrics to videos in August of 2021. Flipgrid describes this decision as an effort, “To make Flipgrid easier to use and streamline functionality.” Educators can now only leave feedback through private video responses or text comments to students. Teachers could still create their own pencil and paper rubrics from which to assess student videos, but the days of doing this in-app seem to be gone. It seems that the designers of Flipgrid feel that video responses or comments from teachers serve as more effective feedback than a rubric.

Learning

Flipgrid makes use of many core mechanics of learning, which are researched backed, “interactions that drive different types of learning forward” (Schwartz et al., 2016, xiv). The most important mechanic at play is self-explanation. The old expression, “you know it if you can talk it,” could well have been the philosophy that inspired the creation of Flipgrid. Student videos center on recording their own explanation of content, which promotes the transfer of knowledge and enables students to apply their learning to new types of problems (Alevén & Koedinger, 2002).

Making this self-explanation all the more powerful is *choice*. Once teachers assign a discussion prompt, students can choose to approach that prompt however they like. Some students may simply record themselves answering the question. Others may hold up pictures to the camera or do a screen share to pull in visuals and explain how those address the discussion prompt. Others still might act out concepts that address the prompt, sing a song, pretend to be in character, etc. Combining the affordance of choice with the core mechanic of self-explanation can potentially create a richer teacher understanding of what students know.

Another core mechanic of learning inherent in this is that Flipgrid tends to be question-driven. Teachers often ask students to answer a question or complete a task using Flipgrid. These activities create, “a context of sustained inquiry, not just one-shot factual answers,” that allow for rich and ever-expanding discussions that, again, allow teachers a richer understanding of student knowledge or skill-level (Schwartz et al., 2016, p.207). That students can also watch and respond to other students’ videos creates an environment of listening and sharing that can deepen students’ understanding of discussion prompts. This can potentially create a more textured view of student understanding for teachers. That said, the public nature of student videos has the potential to lead students to plagiarize the content of others’ videos, thereby diminishing the learning process.

The designers of Flipgrid also believe that learning should be fun. They have attempted to achieve this through the excitement of social interaction. First of all, Flipgrid’s public sharing of videos, along with commenting and liking features similar to many major social media platforms, makes for a social experience. Where this type of gamified social interaction may seem like a surface-level effort to trick teenagers into engagement, social interaction has been shown to evoke moderate levels of social arousal that can improve academic & memory performance (Okita et al., 2008). In addition to this, because videos can be recorded anywhere a cell phone can go, the options are also endless as to when or what students are able to record. No longer bound to the classroom, students can use interactions and materials at home or in their community to bolster their explanations or make their videos more engaging. Students

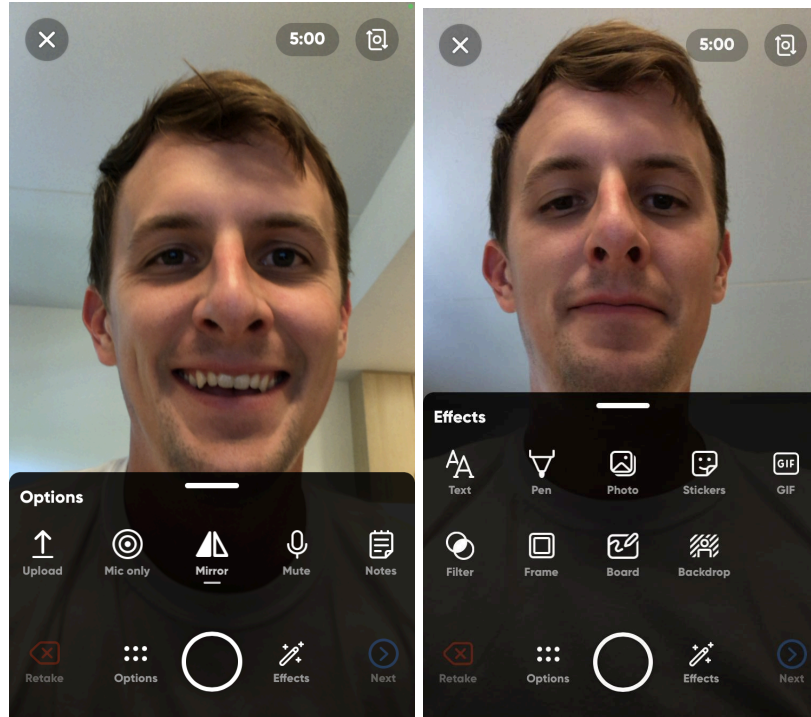
have to ability to edit their videos and cut them with videos from other platforms (i.e. Snapchat), which adds another layer of authorial control for students. Because Flipgrid discussion boards can be shared with community members, Flipgrid is uniquely able to create authentic audiences for student work that has also been shown to get kids more emotionally invested in their work (Dabrowski, 2018) (Chib et al., 2018).

There are also many other learning advantages for Flipgrid. First is its asynchronous nature. Students don't necessarily have to be in the same room at the same time as the teacher to display their understanding of content. This can be particularly helpful for students with attendance issues or for students learning remotely, as was the case for the overwhelming majority of students during the pandemic-ridden 2020-2021 school year. Along with this, feedback is baked into every layer of the Flipgrid process. Peers can comment on and like others' videos, which builds in several layers of feedback while also allowing for an authentic audience for student work. Again, authentic audiences have been shown to intrinsically motivate students, likely leading to more effort from students and improvements in the learning outcomes desired by teachers using Flipgrid (Dabrowski, 2018) (Chib et al., 2018).

In almost all of the situations described above, Flipgrid is using core mechanics of learning that have been shown to improve learning outcomes for students. It is less clear whether these core mechanics are also improving the learning outcomes for teachers. It may be the case that teachers are offered a much richer sense of what their students do or do not know as a result of students' enactments of the aforementioned mechanics of learning. It may also be the case that the unlimited scope afforded to students by digital video may, in fact, overwhelm or distract students in ways that are detrimental to teachers' ability to truly know what their students do or do not understand about a given lesson. This will be discussed in more depth in the Evaluation section of this paper.

Technology

Flipgrid relies on camera and microphone-enabled computers, tablets, and phones to create its learning experience. Because phones or tablets come to school and also go home with students, their usage enables a particularly powerful ability for students to incorporate their life outside of school into the classroom. In addition to expressing students' knowledge verbally and physically, Flipgrid has also recently added new technical functionality to video postings to further expand upon students' ability to explain themselves. Students now have the ability to upload videos from other apps (such as Snapchat, to use their filters), attach video notes, change to microphone only if they don't want to show their face, or mute themselves entirely and just physically act out a video (see Figures 3 & 4).



Figures 3 & 4: Flipgrid video editing features as seen in dedicated-mobile application

The recently added “More Options” feature for video uploads has opened another plethora of possibilities for students to fully explain themselves. Students can now add text over the top of their video, markup video with a digital pen, add their own photos to a video, add stickers, embed gifs, have a writing board with which they could walk their viewer through a given concept (particularly valuable for a math teacher), and many other features (see Figure 4).

As always, these additional features don’t just target the students as learners: They support the teachers. Students are enabled to express themselves however they see fit, and through that expression, teachers get a richer sense of what their students comprehend. That said, it may also be the case that, as students get bombarded with more and more options to express themselves, these tools ultimately become a distraction that interferes with students’ ability to accurately express themselves. This will be discussed in more detail in the evaluation section below.

Evaluation of the Learning Tool

Using relevant literature in the learning sciences alongside Bloom’s Taxonomy of learning outcomes in the cognitive domain, as well as some personal experience of the author, this section will evaluate the strengths and weaknesses of Flipgrid as a learning

tool for teachers and students. Generally, it will argue that Flipgrid is an effective tool for teachers and students with a few minor drawbacks that detract from the learning experience.

Originally devised in 1956 by educational psychologist Benjamin Bloom, Bloom's Taxonomy is a framework for classifying and understanding educational learning objectives by complexity and specificity (*Revised Bloom's Taxonomy*, n.d.). It breaks student knowledge into a spectrum ranging from concrete abilities (i.e. remembering or understanding facts about a topic) to more abstract ones (i.e. evaluating an argument or hypothesizing potential solutions to a problem). Remembering and understanding are important abilities for students to have when learning new content, but applying, analyzing, evaluating, and creating new knowledge tend to be more meaningful displays of knowledge in that these levels of thought encourage deeper understanding that alters long term memory and encourages the transfer of knowledge (Bjork, 2021; *Higher Order Thinking: Bloom's Taxonomy*, 2021).

Using this framework to assess the formative assessment potential of Flipgrid for teachers seems especially valuable, as being able to assess whether students have these higher-order thinking skills could lead to more impactful adjustments to curriculum by teachers. In measuring student perceptions of Flipgrid, this framework is particularly valuable because students tend to feel more engaged when they take part in more cognitively complex activities in school (Anderman & Patrick, 2012). A five-star rating system will be used in this evaluation alongside different criteria, which can be seen in Figure 5 below. Five stars will serve as an "Exemplary" rating, whereas one star will serve as an "Unacceptable" rating.

Criteria	★ Unacceptable	★★ - Acceptable	★★★ Above Average	★★★★ Excellent	★★★★★ Exemplary
Effective Use of Affordances	Tool does not use affordances offered by technology	Tool uses some affordances offered by technology, but	Tool uses all affordances offered by technology, but with several drawbacks. Several affordances could be used more effectively	Tool effectively uses all affordances offered by technology in inventive ways with only a few minor drawbacks	Tool effectively uses all affordances offered by technology in inventive ways with not major drawbacks
Understands the Challenges / Provides Benefits to the Learner	Tool doesn't understand the challenges of the learner and/or actively discourages learning	Tool understands the challenges of the learner and provides some benefits	Tool understands the challenges of the learner and provides several benefits	Tool understands the challenges of the learner and provides enough benefits to offset most of those challenges	Tool fundamentally erases the major challenges of the learner by providing new, inventive benefits to the learner
Reduces Risks to Target Learner	The tool actively increases risks to the target learner	The tool reduces some risks, but also introduces new ones	The tool reduces most of the risks to the target learner without introducing and new risks	The tool reduces almost all of the risks to the target learner, no new risks are created	All risks to the target learner are erased as a result of using this tool, no new risks are created

Figure 5 - A rubric for the 5 Star rating system used in this section.

A. Teacher As Learner: Strengths and Weaknesses

Effective Use of Affordances - ★★★★★

Flipgrid uses the video, audio, and tactile affordance of cell phones to create a powerful formative assessment tool by allowing for situated learning. Situated learning involves applying concepts learned in school to everyday experiences outside of school, thereby allowing teachers to better understand the student's point of view and to see how students are able to apply their knowledge within their larger community and daily lives (Clancey, 1995). In relation to Bloom's Taxonomy, this means not just remembering or understanding the material in class, but actually analyzing information in a real-life situation. Cell phones come to class and go home with students, so Flipgrid's dedicated mobile app is uniquely able to create anywhere, anytime learning experiences. These situated learning experiences have been shown to better allow students to transfer class content to life outside of school by, "relating class subject matter to the needs and concerns of learners," and "creating opportunities for learners to live subject matter in the context of real-world challenges" (Stein, 1998, p.2). For example, Flipgrid might amplify a science teacher's ability to relate in-class content about photosynthesis to a student's backyard garden by asking the student to make a video about photosynthesis in the student's back yard. Or, as was the case for this author, a social studies teacher might ask students to watch the State of the Union address and ask students to create reaction videos as they watch it at home with their parents (see Figure 6). These examples of situated learning allow teachers to assess students in more authentic environments and, again, at more cognitively rich levels within Bloom's Taxonomy. This thereby gives teachers a better understanding of what students are able to transfer from in-class activities to the real world.

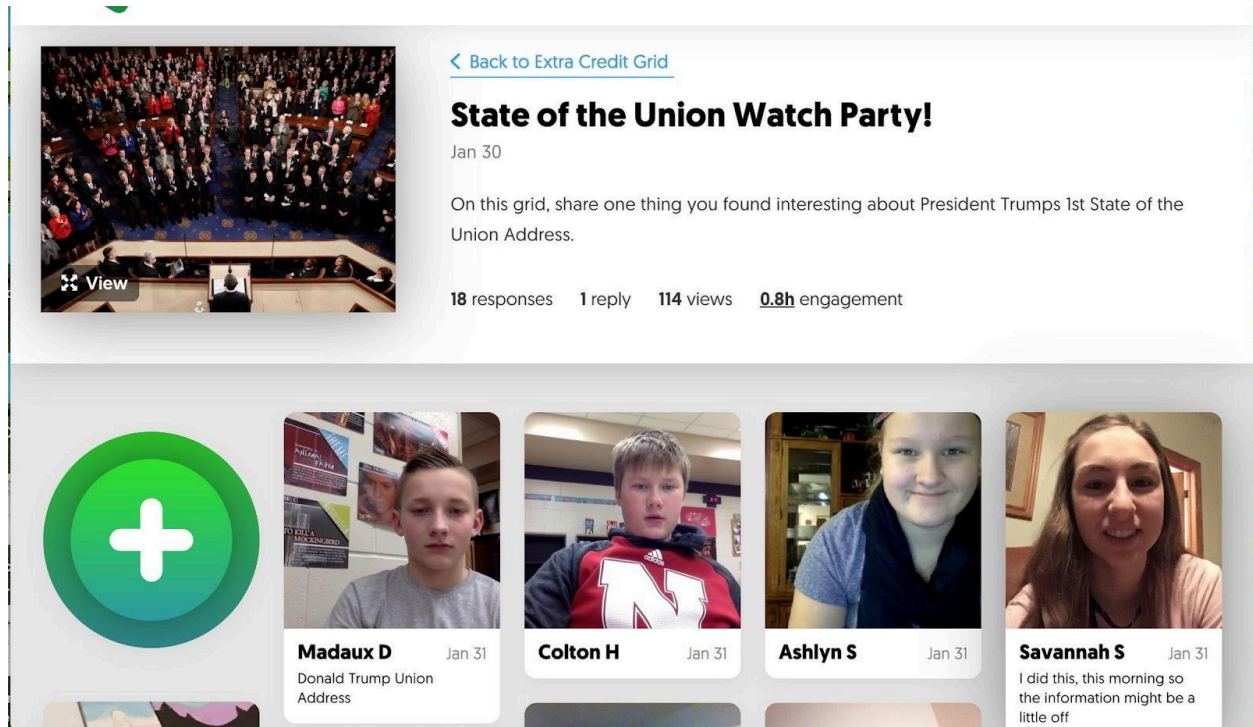
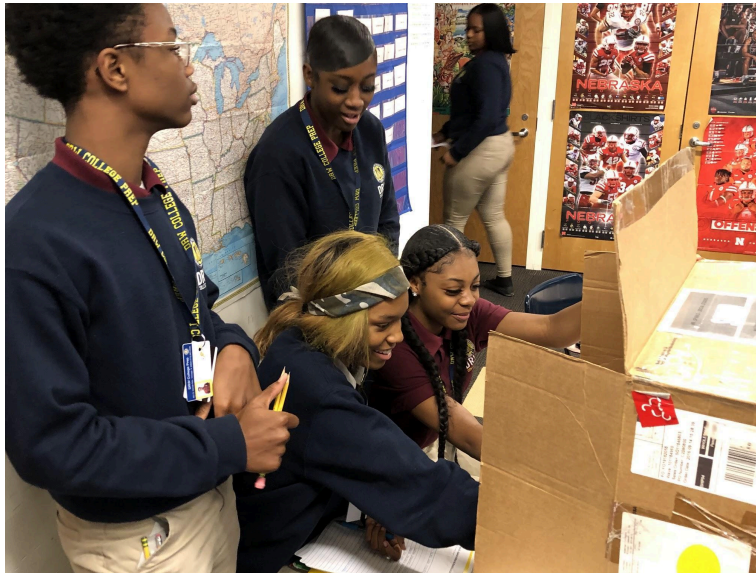


Figure 6 - 7th-grade History students create State of the Union watch party videos at home, an example of how Flipgrid can create situated learning experiences

In addition to situated learning, Flipgrid's asynchronous setup allows for more convenient communication between students, parents, and teachers. It can be difficult for these stakeholders to find time to meet and talk about class performance. Proof of this lies in the fact that, on average across the United States and across grade levels, schools see about a 57% attendance rate for parents at quarterly parent-teacher conferences (*Parent Attendance At School Events*). FlipGrid's asynchronous nature would allow for the rich visual-verbal and nonverbal cues that come with in-person meetings, yet without the scheduling and time constraints that make such in-person meetings difficult to arrange. The convenient communication afforded through Flipgrid's asynchronous nature would better enable teachers to gain insights from parents about student performance. Keeping in mind Bloom's Taxonomy, conversations with parents can reveal student self-perceptions, feelings, or motivations that access the metacognitive dimension of knowledge. These can sometimes be difficult to reveal in class, so in many ways, Flipgrid is enabling teachers to access more abstract knowledge dimensions that are more easily offered by conversations with parents. This, in turn, could result in more meaningful individualized instruction for students.

Even with all these positives, Flipgrid's use of audio and video does have drawbacks for teachers trying to assess their students' understanding. Flipgrid requires that students talk and interact with the camera on phones or computers. Having all students record

videos at the same time in class can lead to garbled recordings and a distraction for students due to the sheer volume created in the room. Teachers can create tools (i.e. recording boxes, classroom recording booths, etc) through which to block out these distractions. An example of these from my former social studies classroom can be seen in Figure 7 below, yet these means can bring with them their own drawbacks (such as space taken up in the classroom, clunky for students to carry, etc). That Flipgrid attempted to create recording pods through which teachers could address this noise concern speaks to this being a known issue with the software (*Flipgrid*, 2017). In addition to the issue of noisy recordings, having students record videos can lead to misbehavior in the classroom, as it creates an opportunity for students to try to “video bomb” other students as they record. These drawbacks can be addressed through classroom management strategies, but they do add another layer of planning for already overworked teachers.



Figures 7: Students at DRW College Prep record a Fligrid video in a “sound-box” to help block out noise distracting to teacher or student viewers

Understands the Challenges / Provides Benefits to the Learner -★★★★★

Teachers struggle to get students to articulate their understanding of class content; teachers especially struggle to assess students at higher levels of cognition (Airasian, 1999; William, 2011). Because of this, any tools that enable teachers to gain a richer sense of what their students do and do not understand are invaluable. Flipgrid provides a unique platform through which to leverage the video and audio affordances of the cell phones in most students’ pockets. Because students can customize video and audio submissions by adding text, digital pen markups, photos or stickers, embedded gifs,

writing on a digital whiteboard to walk their viewer through a given concept, and more, teachers consequently gain a more nuanced understanding of what their students do and do not understand. This also creates a more engaging learning environment for both teachers and students (Serembus, 2020). Text-based alternatives that teachers might otherwise employ to gain an understanding of what their students do or do not understand, such as multiple-choice, matching, true-false, or fill in the blank text-based questions can sometimes lead teachers to faulty understandings of student comprehension because of guessing and their inability to capture partial knowledge of a topic (Lau et al., 2011). The video format of Flipgrid is uniquely able to eliminate these issues. Teachers can use verbal and non-verbal cues to see if students are guessing or are only partially understanding a concept. This deeper level of understanding reflects a student's ability (or lack thereof) to access the Cognitive Process Dimensions of Applying, Analyzing, and Evaluating information on Bloom's Revised Taxonomy Model. Being able to see if students can process information at these levels likely leads to a more nuanced understanding of student comprehension for teachers, thereby leading to better curriculum choices (ie whether to move on from a topic, how much review will be needed, etc). Teachers are also able to do this much more efficiently than the alternative (i.e. one-on-one conversations with every student in the classroom).

Grading can be another challenge for teachers, as it is time-consuming and frustrating. Because videos are posted digitally, teachers can create "canned comments" in a separate document that can be quickly copy-pasted into the comment section for each student video to speed up the feedback process. Teachers can also post video responses, which can be a much quicker approach when compared with text-based alternatives or handwriting feedback on student work (see figure 8). This also helps avoid situations in which students misread teacher handwriting. Not only that, video-based feedback likely helps avoid situations in which students misread the tone of teacher comments, as video affords verbal and nonverbal cues. This use of video feedback and discussion between teacher and student has been found to increase group cohesion in classrooms (Clark et al., 2015). Given this increase in class cohesion, teachers are able to better communicate their care for students in video responses, thereby making students more likely to care about teacher feedback (Yeager et al., 2014). Students can also be leveraged to give feedback to peers, as teachers can allow students to make comments or suggestions through comments or video responses on one-anothers' videos. This all adds up to a major benefit for teachers: A faster, more effective grading process.

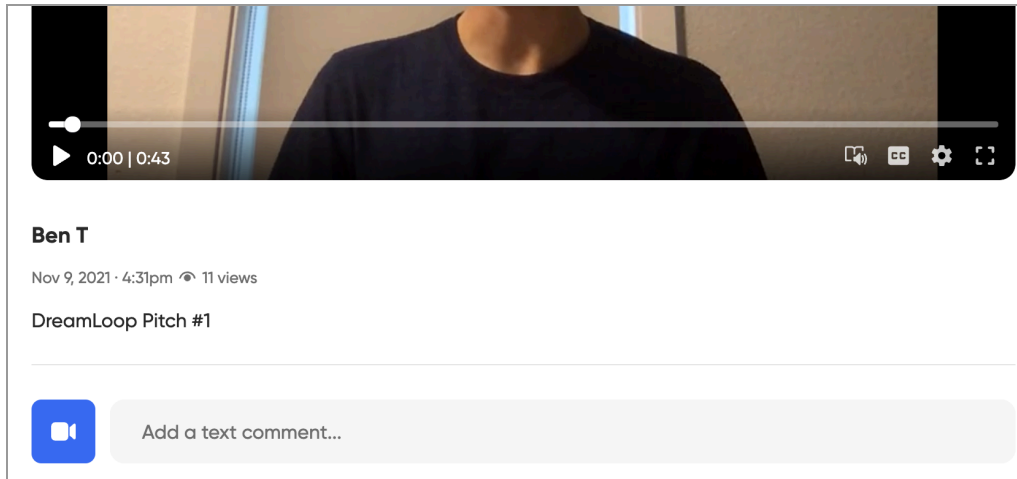


Figure 8: Using the blue-button above, teachers create video responses to students to provide detailed feedback more efficiently than typing or handwriting feedback

In addition to more meaningful formative assessment and feedback practices, Flipgrid's use of video helps address the challenge of relationship building in the classroom for teachers. Strong teacher and student relationships play a major role in the motivation of students and impact the academic outcomes of students (Yunus et al., 2011). Recent academic research focusing on the use of video discussion and feedback has shown that it can improve the classroom relationships of teachers and students (Moore, 2014; Romero-Hall & Vicentini, 2017). This provides a major benefit to teachers as learners, as a strengthened relationship between teacher and student might motivate students to create more meaningful work when compared with alternative activities in the classroom. In relation to Bloom's Taxonomy, this motivation might encourage students to attempt more cognitively challenging tasks (evaluating, analyzing, creating). This, in turn, would give a better sense of what students did or didn't understand in that it helps avoid situations in which students didn't put forth their best effort.

One last benefit to teachers as learners is that this software is free. This wasn't always the case but became so when Microsoft purchased Flipgrid in 2018. School districts and teachers operate on tight budgets and don't often have the funds to afford expensive add-on software for the classroom. Flipgrid being free and easily accessible to download for parents and students makes it an effective tool for teachers to leverage.

Tool Reduces Risks to Target Learner - ★★☆☆☆

As much as the aforementioned affordances and benefits make Flipgrid an effective tool for assessing student understanding, there are flaws to the asynchronous video medium

for teachers. For one thing, shy students are less likely to enjoy and engage with Flipgrid because of its public nature, which may thereby limit teachers' ability to understand these students' current level of understanding (Lowenthal & Moore, 2020). Flipgrid discussions may be a distraction for shy students that limits their ability to comfortably express themselves in the video, thereby leading teachers to make faulty assumptions about what these students understand. It may be that they fully understand the content, but are shy and want to minimize their video length to minimize their embarrassment.

Along these same lines, students reported a feeling of wanting to make videos perfect before submitting them. As one student put it, "I can be uneasy on video, and sometimes take multiple trials to submit something worthwhile" (Lowenthal & Moore, 2020). Given that a student may record a video multiple times to get it just right, it calls into question whether the content is well understood or just well performed. A teacher might actually learn more about student understanding by only giving students one chance at responding, as it would minimize the "performance effect" created by being able to re-record videos before submitting them. It seems likely that students are editing out any moments that might show their confusion, thereby potentially limiting a teacher's ability to see what could be valuable information about student confusion that could guide feedback moving forward.

The performance effect and the likely decrease in engagement for shy students create risks for teachers attempting to assess their students through Flipgrid. When weighing these risks in combination with the benefits previously listed, the experience still adds up to create an effective formative assessment tool for teachers.

A. Teacher As Learner - Summary

Overall, Flipgrid is an effective learning tool for teachers. Its ability to leverage the video, audio and tactile affordances of cellphones makes it easy for teachers to assess students' ability to analyze, evaluate, and create things based on their understanding of class content. By accessing these cognitively rich levels of thought on Bloom's Taxonomy, Flipgrid enables teachers to discover a more nuanced comprehension of their student's current level of understanding when compared with traditional classroom activities that elicit student understanding (i.e. hand raising, worksheets, quizzes, etc). Additionally, Flipgrid's asynchronous nature allows teachers and students (and even parents) to communicate in ways that are convenient to them, as well as in ways that allow for situated learning for students. This, as well as the increased social connection created through the video medium, were discussed in this section as strengths for teachers as learners.

B. Student As Learner: Strengths and weaknesses

Effective Use of Affordances ★★★★★

Many of the effective uses of affordances that applied in the teachers as learners section above apply here as well, especially the improved relationships between teacher-student relationships that have been seen in classes which use video feedback (Clark et al., 2015; (Yeager et al., 2014). There are a few additional benefits for students brought about through the medium of video.

First, because students are often asked to physically or verbally explain a concept or skill through Flipgrid, they are forced to actively construct their understanding (as opposed to passively clicking answers or filling out worksheets). Flipgrid asks students to *do something* with their knowledge. This active retrieval and rehearsal, encouraged through verbal and physical explanation, likely leads students to better self-evaluations (metacognition) of their own knowledge by avoiding the “illusions of competence” that might otherwise result from less cognitively challenging tasks on Bloom’s Taxonomy (Karpicke et al., 2009) Attempting more cognitively challenging tasks tends to be more engaging for students (Anderman & Patrick, 2012).

So is Flipgrid “fun” for students? Flipgrid’s public video sharing, commenting and liking features are similar to many social media platforms that kids love. This social experience gives kids immediate feedback, a research-backed way to motivate and engage students (Kulik & Kulik, 1988). These external rewards create a gamified social experience that evokes social arousal, which has also been shown to improve academic and memory performance (Okita et al., 2008). These two approaches likely contribute to some of the positive research findings around student perceptions of Flipgrid. In one study, 82 university students were surveyed on a 4 point Likert Scale survey based on their perceptions of Flipgrid (0 = strongly disagree, 4 = strongly agree). In response to, “I liked Using Flipgrid in this course,” these students responded at a 3.17 that, yes, they did like using Flipgrid (Lowenthal & Moore, 2020, p.32). This falls in line with a similar study of foreign language students at the university level, who responded at a 3.6 on a Likert Scale of 5 to the question, “I like Using Flipgrid in Language Learning” (Mango, 2019, p.1971). It seems logical to conclude that students wouldn’t rate a tool this high if they didn’t feel the experience was fun, but given that this was not explicitly asked on the surveys, it may be too big of a conclusion to jump to. The word fun was mentioned multiple times in this same study’s survey results, including, “I have not come across a more fun, interactive, user-friendly way to engage in...video discussions online” (Lowenthal & Moore, 2020, p.33). Both of the aforementioned studies were done at the

university level, with unclear ties to the experiences of K-12 students. This is a major gap in research that essentially leaves the, “is it fun for students?” question unanswered.

One thing that does show up in the existing research is that Flipgrid isn’t fun for shy students. As one researcher put it, “the most frequent theme that emerged about what they [students] disliked was their unease with recording themselves” (Lowenthal & Moore, 2020, p.32). It seems fair to say these students did not find the experience of Flipgrid to be “fun”.

Understands Challenges & Provides Benefits to Learners ★★★★★

Many students don’t like the experience of “school” (Willingham, 2009). There are a myriad of cognitive and social factors that lead to this, but one relevant reason is that students generally don’t enjoy, or even learn as much through, passive consumption of content (William, 2011). Rather, they must be tasked with actively applying their knowledge in order to build richer understandings of class content & to have a more engaging classroom experience (Wieman, 2019, p.51). Because Flipgrid often involves active physical and verbal processes, it seems like a great tool to counteract student distaste for, and comparative ineffectiveness of, passive learning. Through social media gamification, Flipgrid seems well suited to address the simple challenge of many students not enjoying school. Keeping in mind the aforementioned issues with shy students, Flipgrid does seem to create an engaging experience for students by addressing some of the challenges they face.

Another factor that seems to speak to an engaging experience is the fact that Flipgrid incorporates an authentic audience for student work. Authentic audience refers to the idea that student work should be shared with the community (not just the teacher) in an effort to motivate and engage students (Burns, 2016). In Flipgrid’s case, this is created through the public sharing of video with classmates (in which classmates become the authentic audience) or the ability for teachers to easily share a Flipgrid discussion board with the broader community (in which case parents and community members become the authentic audience). Authentic audiences have been proven to motivate and engage people during their work (Chib et al., 2018). This, again, seems to prove that Flipgrid is creating an engaging experience for students.

All of this being said, there is just too large of a gap in research on this topic to be able to definitively say whether students find Flipgrid engaging. When asked if they would use it again, a survey of university students found that 75% of students responded that they would; the general themes on why they said this included Flipgrid being, “easy to

use, a good alternative to text-based discussions,” and that it can, “help build community,” in the classroom (Lowenthal & Moore, 2020, p.33). Similarly, a majority of students in another study reported that they “enjoyed listening to / watching classmates’ Flipgrid videos” (Mango, 2019, p.1971). Where these results seem to support an engaging experience, both of these studies took place at the college level, which completely ignores the primary user base of Flipgrid: K-12 students. The research gap makes it difficult to definitively answer whether Flipgrid is engaging for students or not, but early research seems to suggest that it is.

Tool Reduces Risks to Target Learners ★★☆☆☆

All of the aforementioned benefits of Flipgrid for students hold for this section as well. Flipgrid really does seem to reduce the risk that students will disengage in an activity or that they will walk away from an activity with a false sense of understanding. That said, rather than reducing all risks, Flipgrid does seem to introduce some new ones. In this sense, the empowerment promise in FlipGrid’s mission statement seems to be the weakest of the three promises made to students.

Again, shy learners may be marginalized through the use of Flipgrid (Lowenthal & Moore, 2020). Another risk is the distracting nature of having many students record videos at one time in a classroom (see Figure 5). The social media gamification, which may be motivating to many students, may also be a distraction that leans so heavily on external rewards (likes, comments, views, etc) that it risks eliminating the intrinsic motivation students need to develop to become lifelong learners. This was reflected in the research, to a small degree, in some of the student perceptions of Flipgrid. For example, a common theme that developed among college students surveyed was that “they felt a need to make the video perfect, and some others pointed out that they struggled following conversation in Flipgrid” (Lowenthal & Moore, 2020, p.32). These themes run counter to the idea of Flipgrid creating a feeling of empowerment in learners. Rather, it speaks to creating a feeling of fear and discomfort in students.

In addition to the potential marginalization of shy students, students who don’t have ready access to technology might feel disenfranchised by teachers assigning work through Flipgrid. One would like to believe that teachers would not assign homework to students if the students didn’t have the means to complete the homework on their own, but this may not always be the case. Recent research on the media usage of teens shows that almost 90% of sixteen-year-olds in the United States own a personal cell phone and that the overwhelming majority of students have access to either a cell phone, tablet, or computer either at home or at school (*Common Sense Media*, 2019).

That said, if a student has to ask their parents to use their phone or a teacher to take home a computer from school to complete an assignment, it could potentially cause embarrassment, the exact opposite of empowerment

Even with issues surrounding access to technology and the potential marginalization of shy students, the ability for every student to make their voice heard by their teacher is powerful. Using Flipgrid, students can potentially have one-on-one, asynchronous conversations with their teachers that they may not otherwise be able to have given time constraints. This is a powerful affordance, one that balances the scales more towards empowerment than away from it.

B. Student As Learner - Summary

As a whole, Flipgrid also has more strengths than weaknesses for students as learners. The aforementioned ability for students to explain things physically, verbally, and in situated environments creates potentially engaging experiences for students. Additionally, Flipgrid's User Interface (UI) and User Experience (UX) are akin to popular social media platforms, which likely contributes to a sense of familiarity and comfort for students. This may explain some of the engagement and likability that students have reported in regards to their usage of Flipgrid. This section discussed whether or not Flipgrid creates a “fun, empowering, and engaging,” experience for students and concluded that, generally, it does.

Recommendations Regarding this Learning Tool

One of the goals of this paper is to guide current teachers and administrators to make informed decisions about *if* Flipgrid should be used in the classroom. Flipgrid is clearly a valuable formative assessment tool for teachers, even with the drawbacks previously mentioned. Similarly, Flipgrid seems to create an engaging, fun, and empowering experience for most students, even if the data surrounding these metrics are limited. Considering this, it is fair to conclude that Flipgrid should be available for use in K-12 settings for formative assessment purposes. Recommendations on when and how it should be used will be the focus of this section. Along with this, recommendations will be made to Flipgrid as to how it could be more effective for classroom use. A theory of change will be proposed for both teachers and students as learners so that metrics can be defined and potentially used to evaluate the tool. These metrics will then guide the recommendations made for teachers and students. These research proposals and metrics will also inform how Flipgrid's success could be measured.

Theory of Change

A theory of change explains how desired goals are achieved by a tool or institution (*Center for Theory of Change*, 2021). The most effective educational technology tools rely on research backed theories of change to guide their creation and implementation (Bowen et al., 2020). These theories of change are particularly helpful in creating a framework through which educational technology tools should be evaluated. The diagram below represents how a theory of change works in the context of learning experience design (Bowen et al., 2020).

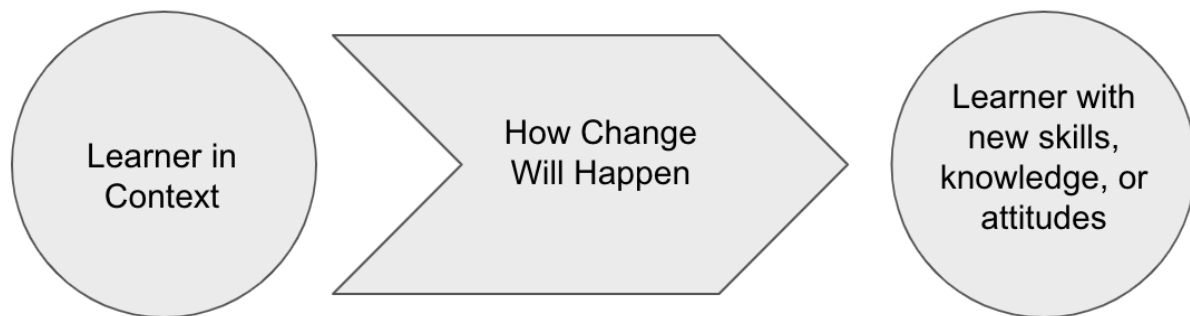


Figure 9. (Bowen et al., 2020)

Keeping in mind the information shared in the Technology and Evaluation of the Learning Tool sections above, the theories of change at play for teachers and students are listed below. For teachers, the theory of change centers on physical and verbal explanations of content from students, asynchronous video posting, more motivated students, and the ability to assess students in situated experiences. For students, the theory of change centers on an authentic audience of peers to share work with, the resulting social interaction created by this, and the immediate feedback provided by the social media gamification aspects of Flipgrid. Using established methods in learning experience design research, the following sections will propose “a systematic process of testing each element,” in an effort to create a system through which Flipgrid’s effectiveness can actually be measured (Bowen et al., 2020, p.25)

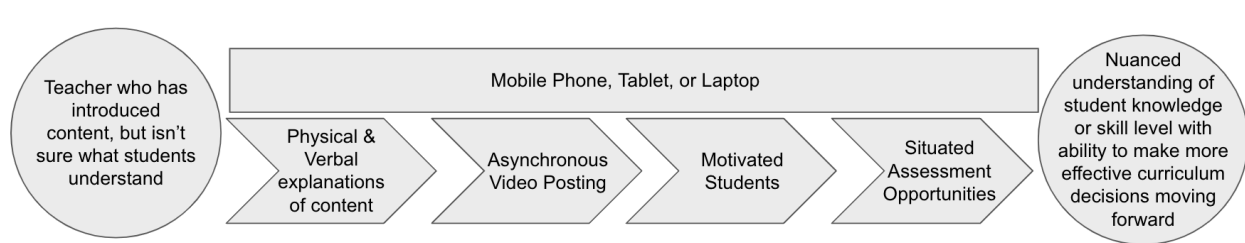


Figure 10. Flipgrid's Theory of Change for teachers as learners

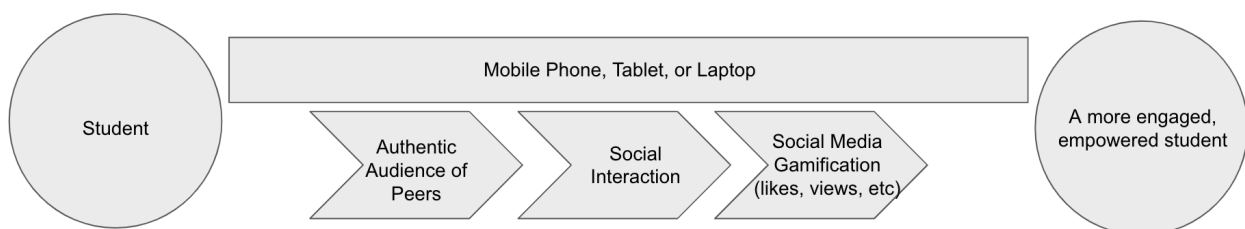


Figure 11. Flipgrid's Theory of Change for students as learners

A. Proposed Research Methods and Metrics for Teacher Focused Theory of Change

This paper assumes that most teachers are using Flipgrid as a formative assessment method in their classroom. It deserves noting that this is an assumption, one that acknowledges that teachers may use Flipgrid for completely different purposes (i.e. having online discussions with community members, communicating with parents, etc). That said, given the formative assessment use case, a successful teacher using Flipgrid is one who gains a more nuanced understanding of student knowledge or skill level, and therefore one who can make more effective curriculum decisions as they move through their classes. Effective curriculum decisions refer to accurately deciding when (or if) to move on to different topics in class, how much class time to devote to reteaching or reviewing content, and/or what kinds of questions to use to assess students on summative assessments.

To assess whether or not Flipgrid is effectively reaching these goals for teachers, the theories of change at play need to be measured. The first theory of change to measure is if physical and verbal explanations of content allow for a more nuanced understanding of student learning. A proposed method here may be in comparing a teacher who has used Flipgrid to elicit student understanding of a lesson to a teacher

who has used a more traditional method, for example, a multiple choice quiz through a medium like Google Forms. A class with multiple sections would be most useful here. For example, two high school biology teachers could be asked to summarize their classes' understanding of the same lesson. The summary of the teacher who used a quiz could be compared with the summary of the teacher who used Flipgrid to see how, or if, Flipgrid is leading to a more nuanced understanding of student learning. In this way, the teachers' summary of students' learning becomes the metric through which to measure Flipgrid's effectiveness for teachers using it as a formative assessment tool.

To assess if Flipgrid's asynchronous video posting is leading to more effective formative assessment, observations of synchronous in-class discussions could be compared to observations of asynchronous class discussions. Using a predefined rubric to measure the quantity and quality of ideas shared by students during these discussions, a quantitative comparison of the data gained might be able to show if there were a statistically significant difference in ideas shared by students in synchronous settings vs asynchronous settings. If more meaningful ideas were shared via Flipgrid, it stands to reason that teachers would gain a more nuanced understanding of student comprehensions and be able to adjust curriculum.

A similar method could be used to measure how or if situated learning opportunities afforded by Flipgrid were actually leading teachers to a more nuanced understanding of student's ability to apply their learning. Again, using a predefined rubric to measure the quantity and quality of ideas shared by students, a quantitative comparison of the rubric data might be able to show if there were a statistically significant difference in ideas shared by students in situated environments vs in-class environments. For example, a high school environmental science teacher may ask her students to make a Flipgrid video in which they must practice classifying a plant in their local community or yard. Teaching the same content, a different high school environmental science teacher could ask his students to make a Flipgrid video classifying similar plants, but only through pictures on a worksheet in class. Using a rubric to analyze the submissions of both classes, researchers could identify if using Flipgrid in more situated environments was leading to more nuanced teacher understandings of students' ability to apply their learning. If teachers found that students were unable to apply their learning, qualitative interviews could also be done to see how, or if, curriculum was adjusted to better develop student's ability to transfer knowledge.

To measure the whether students were actually more motivated to craft their best possible answer (because of social interaction and resulting authentic audience), qualitative interviews could be conducted with teachers and compared to student survey data. For example, a high school History teacher who had asked students to post Flipgrid videos summarizing the meaning of the Gettysburg Address could be interviewed about her understanding of student comprehension. That interview data

could then be compared with the interview data of a teacher who conducted a similar lesson but instead had students summarize the meaning of the Gettysburg Address through a short answer question that was only submitted to the teacher (as opposed to being posted in a public video discussion board that other classmates could see). This could then be measured in relation to student survey data on how, or if, students felt they were more motivated to craft an answer to best of their ability. Researchers could compare the differences in teacher understandings as a result of the motivation of students (created by social interaction & authentic audience) afforded through Flipgrid video posts.

Where all of these serve as potential ways to measure the success of individual theories of change upon which Flipgrid operates, more global measurement of all four of these theories of change for teachers as learners could be surveyed. The survey could ask teachers about the number of times they made curriculum changes (i.e. to move on to different topics in class, how much class time to devote to reteaching or reviewing of content, what kinds of questions to use to assess students on summative assessments) as a result of using Flipgrid. That survey data could be compared to the same survey data of teachers who do not use Flipgrid to see if there are statistically significant differences in the number of changes teachers are making to their curriculum. This could then be measured in relation to the average grades of students in each class to measure if these were “effective” changes to the curriculum. After all, simply changing curriculum is not, in-and-of-itself, going to improve student learning outcomes. Changing curriculum *to improve student learning* should be the goal.

A1. Recommendations for Teachers Using Flipgrid

Were the aforementioned tests to be conducted and yield positive learning outcomes for teachers using Flipgrid as formative assessment, this would then seem to answer the question of when and how teachers should use the tool in their classrooms. Teachers should use Flipgrid in ways that best leverage these effective theories of change.

Teachers should:

1. Use Flipgrid in ways that use its asynchronous abilities. Let students post videos at different times in class and/or let them post videos outside of class at times that are most convenient to them. This may improve the quality of student submissions, and that improved quality should lead to better data upon which to make curriculum decisions.
2. When using Flipgrid, ask students to answer questions in ways that fully leverage the affordance of physical and verbal explanations from students. Don't just ask students to recall information, ask them to act out concepts, take on a persona, sing a song, have a debate with a peer, etc. These activities better elicit verbal

(tone, clarity of explanation) and non-verbal (body language, facial expressions) cues that could provide better data upon which to make curriculum decisions

3. Leverage the authentic audience afforded by Flipgrid. Create activities in which students are encouraged to watch and respond to peer videos as a way to emphasize the idea that videos are going to be shared with more than just the teacher.
4. Create activities for Flipgrid that ask students to apply content in situated environments. For example, when discussing current events in social studies, maybe ask students to make a Flipgrid video watching the news with their parents/guardians at home. If teaching environmental science concepts, ask students to create videos situated within those environments (if possible). When teaching percentages, ask students to create a Flipgrid video calculating the tax percentage of a small purchase they make at a convenience store. The potential here is endless, but the recommendation is the same: Encourage students to use Flipgrid in situated environments. This will likely lead to a more nuanced understanding of student comprehension of content.

B. Proposed Research Methods and Metrics for Student Focused Theory of Change

Testing Flipgrid's theory of change for students as learners would be much more straightforward in comparison to measuring the theory of change for teachers as learners. Again, Flipgrid claims to create a fun, engaging, empowering learning experience for students in an effort to improve their learning outcomes. The most important theories of change at play in the Flipgrid app that would seem to lead to this engaging, empowering experience are an authentic audience of peers, the resulting social interaction of posting a video that all students can see and respond to, and the social media gamification created through the liking, viewing, or upvoting of student submissions.

To measure whether or not these levers of engagement were actually creating a fun, engaging, and empowering experience for students, a survey could be created and conducted with students who regularly use Flipgrid. Mixed-method surveying and follow-up interviewing have already been shown to be an effective way to measure student perceptions of Flipgrid (Lowenthal & Moore, 2020; Mango, 2019). This research is important but is extremely limited given that both studies were conducted with a small number of students, all of whom were using Flipgrid as a part of undergraduate-level coursework. The same methods should be used again, but done with a statistically significant sample size of K-12 students to better address this current gap in research.

B1. Recommendations for Students Using Flipgrid

Recommendations for students as users of Flipgrid are more challenging to make, as they are largely at the mercy of the way in which their teachers choose to use the tool in the classroom. With that in mind, students should engage with other students' videos as much as possible when asked to use Flipgrid. This should encourage learning from other students but should also create a more supportive social environment. Those increased chances for socialization and learning are generally fun, and that fun should be motivating for most students. Hopefully, that motivation will translate to more effective learning outcomes for students.

Proposed Enhancements for Teachers as Learners

Based on the analysis above, Flipgrid seems to already be a very powerful tool for teachers to use to evaluate student learning. That said, it certainly is not perfect. There are two hypothetical enhancements that would create a more effective learning experience for teachers:

1. A faster way for teachers to watch, and provide feedback on, student videos. Right now, watching all student videos takes a relatively long time; this is a pain point that emerged in some of the research on Flipgrid so far and was also a pain point in my experience using it (Lowenthal & Moore, 2020). As one teacher put it, "It becomes tough when...I have to watch EVERY VIDEO" (Lowenthal & Moore, 2020, p.33) Providing teachers with the ability to watch videos at 1.2x or 1.5x speed could speed up the grading process. Also, providing "canned comments" that teachers could click on to quickly provide meaningful feedback, rather than having to make a response video or type out comments, might also alleviate this pain point.
2. To amplify the benefits of situated learning, Flipgrid could integrate augmented reality experiences for teachers. For example, similar to popular games like Pokemon-Go!, Flipgrid could create geolocation-based interactions. These interactions could be located at local, free locations (i.e. public libraries, public parks) and could create learning experiences specific to those locations. By encouraging students to make videos at these local destinations, it could provide a more engaging experience for learners, potentially resulting in more meaningful learning data collected by teachers.

Proposed Enhancements for Students as Learners

Again, based on the analysis above, Flipgrid seems to already be a very powerful tool for students. That said, three hypothetical enhancements might create a more effective learning experience for students:

1. Built-in video and voice filters to create a more inclusive experience for shy students. Where students do currently have the ability to record on a platform that does have these filters (i.e. Snapchat), then upload these videos to Flipgrid, it may be the case that shy students don't regularly use these other platforms. Providing a way for shy students to alter their voice or physical appearance might encourage them to actually show themselves in the video. Right now, these students are limited to simply placing a sticker over their face or covering up their video completely and only recording audio.
2. If a shy student wants to block their video but still provide audio, perhaps an animated avatar option could act out an explanation for the student (similar to Apple's Memoji feature). Depending on the quality of the animation, this might still provide teachers with the benefits of verbal and nonverbal communication, but without the student having to actually be in the video.
3. Better scaffolding for peer-to-peer feedback is needed to increase the effectiveness of social interaction on Flipgrid. Right now, interaction is limited to likes, emoji reactions, or video-comment responses. These can sometimes be meaningful for students, but they would be much more useful for students if peers were provided with some basic training on how to provide specific, actionable feedback to peers. Something as simple as sentence starters for scripted video responses might help encourage better peer-to-peer feedback.

Conclusion

This paper described and analyzed Flipgrid's features, affordances, strengths, and weaknesses to find that, generally, Flipgrid provides major benefits to the learning of both teachers and students. Flipgrid provides an effective medium through which teachers can elicit a more nuanced understanding of student comprehension. Flipgrid also seems to create a more engaging, empowering experience for students, though more research is needed to definitely conclude whether this is the case. Early research around these metrics is promising.

Having recently been acquired by Microsoft and currently ranked as the 17th most accessed ed-tech tool in America, Flipgrid now needs to more definitely prove its efficacy (*Edtech Insights*, 2021). This paper has outlined a theory of change Flipgrid

could use to do so for both teachers and students as learners. The formal research proposed could provide the definitive evidence that many districts need to see before they can formally support the adoption of Flipgrid in their classrooms.

Even without these measurements, this author is comfortable saying that teachers and administrators should use Flipgrid in their classrooms and schools. The opportunities for teachers to elicit higher-order thinking skills in students provide teachers with a more nuanced understanding of student comprehension. This greatly outweighs the challenges of using Flipgrid in the classroom. It also seems to create a more engaging, empowering experience for students. Where more research is needed, Flipgrid's effectiveness is increasingly equal with its popularity. Considering its popularity, this is high praise.

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