FINAL SUBMISSION

DGM—2341

BY: TYSON COTTAM

SUMMARY—

The purpose of this project was to understand how media is affected by different platforms. My platform of choice is Canvas since I work for Canvas as a full-time L1 support agent. I've been working at Canvas for almost 3 years now so I'm experienced with the platform and I see the problems the platform has and where it really shines. Since I was studying the compression and the vulnerabilities of the site, this project has two parts:

PART 1— MEDIA COMPRESSION

This part shows my research and testing into the media compression of Canvas. Canvas has multiple ways of adding content so I decided to test adding media to both the RCE (Rich Content Editor) and Canvas' media platform Studio. I wanted to see if there was a difference and how it affected the view experience and the content themselves. I uploaded the media to the site and then downloaded the files to see how the file sizes changed and if the quality diminished.

PART 2— MEDIA INTEGRATIONS & VULNERABILITIES

The second part focused on adding the media throughout the course to see if it showed differently in different locations and what was possible for teachers. I found some differences in the platform that showed the content in different ways because they were added using contrasting tools. I also researched what the guidelines are for the site and tried to break pages and have the content show differently on Desktop, Tablet, and Mobile.

ESTABLISHING A SANDBOX—

Since I'm a Canvas admin, they have given me my own instance of Canvas and my own testing courses. To begin this project, I set up a sandbox course with testing teachers and testing students. I added some basic files to the course.

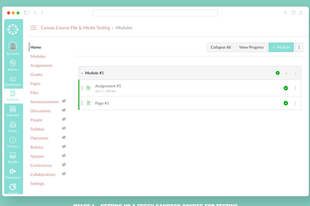


IMAGE 1 - SETTING UP A FRESH SANDBOX COURSE FOR TESTING

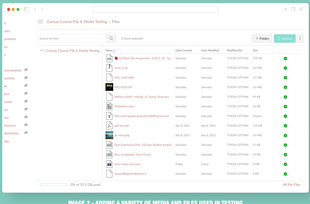


IMAGE 2 - ADDING A VARIETY OF MEDIA AND FILES USED IN TESTING

I took note of how they were added and checked for potential errors along the way such as restricted file types, upload sizes, and any other miscellaneous errors that Canvas would give. I found that Canvas didn't restrict any kind of file types on their website when adding files to the file's tab and that school admins can increase the storage capacity of the course if the teacher needed more room.

— Part 1 —

Media Compression

MEDIA COMPRESSION (FILES)—

I added a video and an image to the course files. I recorded their initial file sizes, quality, and other basic file structure.

video-test.mov

FILE TYPE — .MOV
RESOLUTION — 1920x1080
CODECS — AAC, Timed Metadata, HEVC
DURATION — 11:57

866.9 MB

pic-test.jpeg

FILE TYPE — .JPEG
RESOLUTION — 5857x3905
COLOR SPACE — RGB

3.4 MB

The first thing that I noticed was the video couldn't be previewed right away in Canvas after uploading. The file was uploaded to Canvas, but it was still being processed.

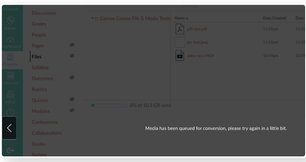


IMAGE 3 - VIDEO MEDIA BEING QUEUED FOR CONVERSION AFTER UPLOAD

After giving it time, it was finally ready to preview. I checked out the video quality options that it gives you straight from the video. You get the options: 640x360 at the file size of 916 KBPS, 854x480 at the file size of 1173 KBPS, and 1280x720 at the file size of 2436 KBPS. All of which are far less than the original size so even though you can import a 1920x1080 video, it won't let you watch it in the original file size.

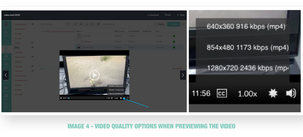


IMAGE 4 - VIDEO QUALITY OPTIONS WHEN PREVIEWING THE VIDEO

When I downloaded the video again, the only difference I could see was the storage on disk changed just like it did for the images you will see below. This time, it did the opposite of what images did. Downloading again increased the disk space by 5.6 MB. The images as you'll read below decreased the disk space storage when you downloaded them again. I wasn't able to find an answer in Canvas' guides or other sites online for the reason behind this. Since the real file storage is the same, I don't think very many people care about this but I thought it was interesting to find.

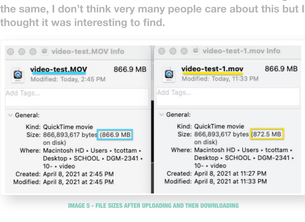


IMAGE 5 - FILE SIZES AFTER UPLOADING AND THEN DOWNLOADING

MEDIA COMPRESSION (STUDIO)—

I then switched gears over to Canvas' video platform Studio to see how their compression works and to see if I would get similar results. While uploading, I got a progress bar but at the end, it just showed me these 3 dots and I wasn't sure if I should wait or refresh the page. After waiting a long time I finally refreshed and it still had the 3 dots. The only time they went away was when I clicked into the video. Canvas needs to explain what's happening and advise the user on what they need to do for these situations because I've always been told not to leave the page while it's uploading for this could cause the upload to fail. Uploading videos to YouTube is a much easier process because it gives you a progress percentage with an ETA of when it will be done and they recommend that you stay on the page while it uploads.

IMAGE 6 – STUDIO PROCESSING VIDEO

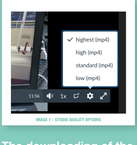


IMAGE 7 – STUDIO QUALITY OPTIONS

Once it was finally uploaded, I checked out the settings and options they had for the video. They have a similar quality option to playback the video, but it doesn't go into detail what quality it's actually showing. It just shows generic words as shown below.

The downloading of the Studio File is where it gets interesting. Not only did it download as a .mp4 file instead of a .mov (which was the original format), the file size was drastically smaller in size. It went from 866.9 MB to 556.7 MB which made the file size go down 310.2 MB. That is a drastic difference. I reuploaded the file to Studio to download it again to see if the size keeps shrinking or if it's more of a conversion from .mov to .mp4. After doing it a second time, I see the compression has brought the video size down again. The file size went from 556.7 MB to 517.1 MB from just importing it to Studio and then Exporting that same video.

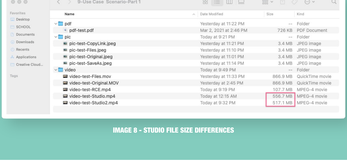


IMAGE 8 – STUDIO FILE SIZE DIFFERENCES

MEDIA COMPRESSION (RCE)—

After I tested Studio, I moved over to adding media directly to a page in Canvas. Teachers can add content to the files tab and then pull that content into different areas of the course. Or they can use the RCE and upload the content there. When I tried to do this with my video, it wouldn't let me because it said the file upload limit was 500MB. I knew that Canvas had this for students uploading but I wasn't sure why it would restrict teachers when their course file storage allowed it. Now as the teacher I would have to add it to the files tab first and then use the insert > course media instead. This doesn't make sense why they would restrict it like this and require them to upload to the files area first.

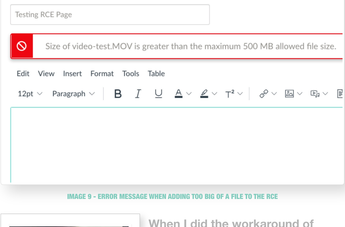


IMAGE 9 – ERROR MESSAGE WHEN ADDING TOO BIG OF A FILE TO THE RCE

IMAGE 10 – RCE QUALITY OPTIONS

When I did the workaround of using the course media I was able to get the video added to the page, but now the media options are completely different than the files area and Studio as shown below.

One problem is you can't download directly on this page. You would have to download the file from the files page. One workaround is you can right click the video and copy the video address as shown here:

IMAGE 11 – RCE DOWNLOAD WORKAROUND STEP 1

IMAGE 12 – INSERTING THE URL FOR RCE FROM STEP 1 ADDED THIS A DOWNLOAD OPTION

Then you can copy the link to the video and open it in a new window. Then on this page, the video can be played, but the interface is once again different and this interface has a download option.

This download option brings us to the next discovery of how it's compressed. When we downloaded it directly in the files tab we saw almost no difference in file size difference or compression. This second option in the RCE is drastically different. When I downloaded it using this weird workaround, the file size went from 866.9 MB to 107.7 MB. They also downloaded with a really weird name which I thought was interesting. When I looked at the details of this small video file, the resolution of the video went from 1920x1080 to 854x480.

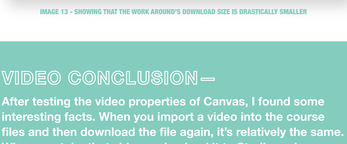


IMAGE 13 – SHOWING THAT THE WORK AROUND'S DOWNLOAD SIZE IS DRASTICALLY SMALLER

VIDEO CONCLUSION—

After testing the video properties of Canvas, I found some interesting facts. When you import a video into the course files and then download the file again, it's relatively the same. When you take that video and upload it to Studio and download it again the file size goes down because of the compression. This makes sense and this is what we were expecting to see. The compression will continue to shrink the file size as you keep repeating this process. With both these options, the resolution stayed the same. Things got interesting when you added the video to the RCE of a page in a course. First it wouldn't let me pull the video from my computer directly on to the page because of the file limit but it would let me pull from the one I already added to the files. This shouldn't happen because there are no differences between the two.

Once I got the video to the page, the interface was different from Files and Studio. I can understand the interface being different from Studio because they are different but I was confused why it was different from the preview of the files. They also don't allow a download option on the page of the course, but you can copy the url link of the video and download it that way. This also brings another different interface for no apparent reason and when you download the file this way, there was a huge decrease in file storage and resolution quality.

Hopefully Canvas will make all these options more streamline and the same thing. They really should just have everyone use Studio because it's a better and more reliable service and the interface is the same everywhere it goes. But as of right now Studio is a paid for service that schools have to opt into if they want it.

IMAGE COMPRESSION—

After testing the images on the site, I wasn't able to see any problems with images being compressed. I still saw the same file size disk, but besides that you had the same files you added to Canvas. You can add them inside the files tab or in the RCE and with both ways as soon as you downloaded them again or used the save as in the web browser, you still got the same file back. The images also displayed the same way throughout the course no matter the way you added it. This was good to see that there was reliability within adding images to Canvas.

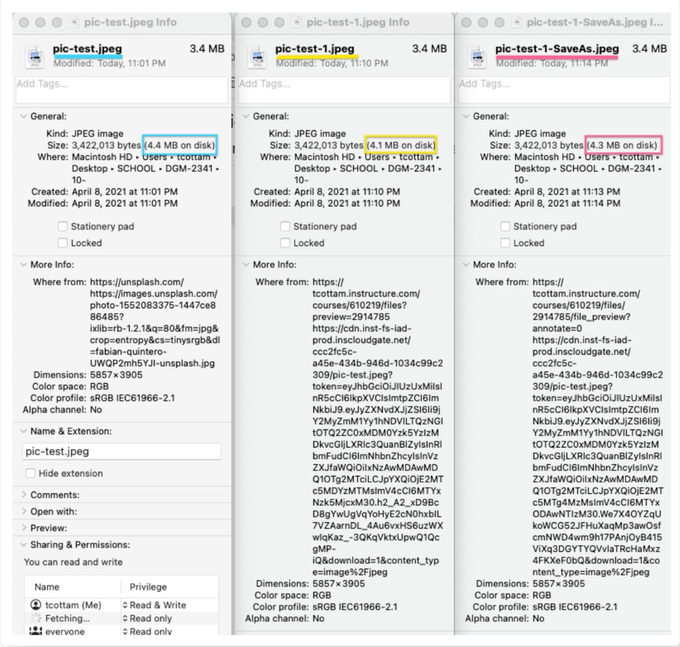


IMAGE 14 - IMAGE FILE COMPARISON AFTER COMPRESSION TESTS

For my next test on images, I added the image to the page and tested to see how long it would take to load. I started off doing 10 versions of this high resolution image and it handled it no problem. Then I bumped it up to 40, 60, 120, 180 and each time the entire page loaded within a matter of seconds and I saw no problems. I even made them smaller and "decorative images" and made 500 images and that took a bit longer to load (3 seconds extra) but the page didn't have any problems loading these images.

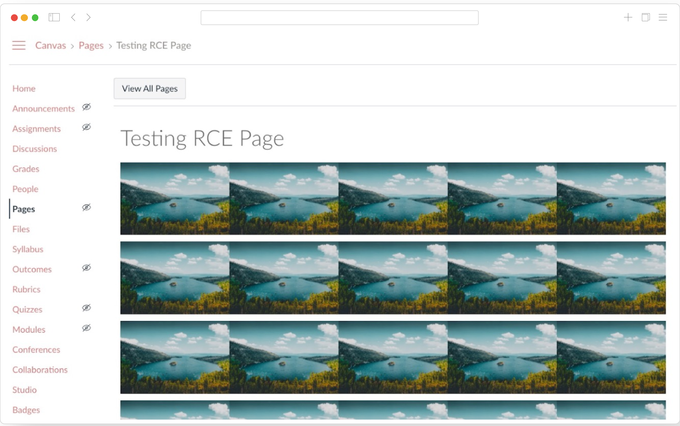


IMAGE 15 - TESTING LOAD TIMES WITH A TON OF IMAGES ON A SINGLE PAGE

(PART 1) MEDIA COMPRESSION CONCLUSION—

Video media is definitely the most affected in Canvas when it comes to compression and this makes sense because videos tend to be way bigger in file size compared to images. What didn't make sense is the variety of adding videos to the site and the different display platforms that it gives you with it's varying degrees of quality. This only escalates when you add other external video platforms such as YouTube, Vimeo, and Kaltura. I still feel like Canvas' engineers should develop a single system when it comes to adding content using the tools they've created. It seems like they are trying to get everyone to use Studio and this would be a huge benefit because it's more reliable, easier to add/download content, and it's uniform throughout Canvas. I also tested adding images to Canvas, but I didn't find as exciting of discoveries as I did for videos.

— Part 2 —

Media Integrations & Vulnerabilities

THE PROCESS—

I added a basic pdf, a large image, and a short video to the course so that I can use the files throughout the assignment page, course page, and module and see how they view for the student and teacher. I took these files and added them to the course in the assignment, the page, and module and then logged in as the student to see how they viewed.

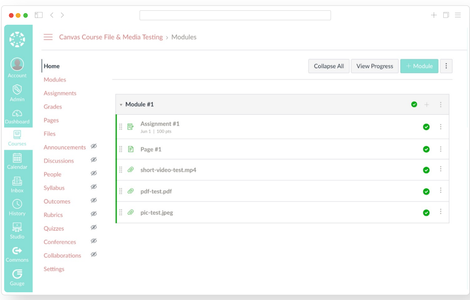


IMAGE 16 - PLACING MEDIA THROUGHOUT THE COURSE

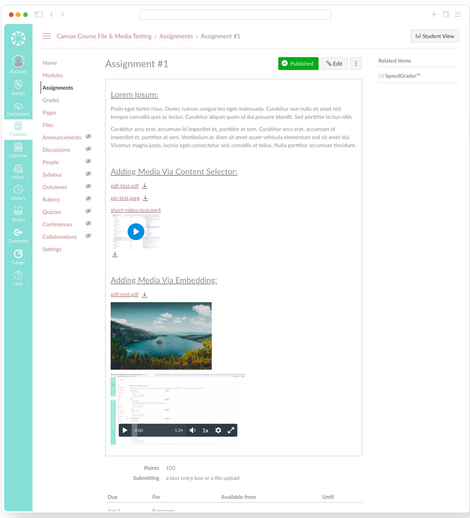


IMAGE 17 - PLACING MEDIA IN THE ASSIGNMENT

THE TESTING—

I decided to not record what the media looks like on a page because assignments are basically exactly the same as a page just with a due date and a submit option so it would look exactly the same. What I found though is adding media to a module and page are very different. Having it added to a module allows the user to open it up directly in it's own page.

The assignment page was also interesting to observe because you can add media content through the content selector or embedding to the page. In my screenshot, you will see the two differences.

The PDF is exactly the same, but when you use the content selector, the picture is just a file to download and you can't preview it and the video is in a different format than the one used to embed. It seems they are using two different platforms for some reason.

The embedding option gave what most people are looking for, a preview on the page and then if you'd like you can download the files. The image is clearly seen and the teacher can set the image size in the image format option.

The video platform on the Embedded option looks more updated and modern.

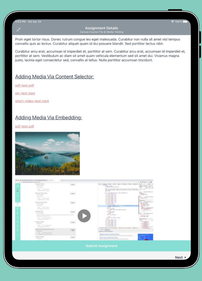


IMAGE 18 - MEDIA IN ASSIGNMENT (TABLET)

From the student's view on the desktop it looks exactly the same as it does for the teacher which is to be expected. When I login as the student on the iPad the assignment roughly shows the same thing. The media player is different because it's using Apple's media player. Everything else is the same.

EXAMPLE ASSIGNMENT IN MEDIA - 19 - SIZE

The mobile view on the Canvas Student app is exactly the same as the tablet view on the student app as well. The only difference is less real estate to see the material and more scrolling but that's to be expected.

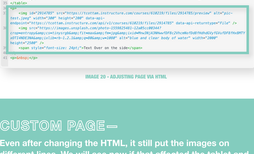
Working for Canvas, I've been told that the iPhone and iPad app should have no differences so this was good to see.

TESTING THE LIMITS—

The next part of this project was to create a unique page with unique HTML on the desktop and see how it scaled down to the tablet and mobile view. I think this really comes down to how well you design a page, but I will try to break it and have a lot of weird organization to get it to scale differently. I think if you were to use width:100% on most things then it would scale roughly the same but that's what I want to test.

I started off with some tables and I made them different sizes and I made one 100% width and another fixed width with different column lengths. I also added a smaller picture with a very large image that can't be fully viewed unless you scrolled horizontally. I added some text that should be on the same line but it's not displaying on the desktop because there's not enough width but I wanted to see how the other devices handle it.

Canvas' Rich Content Editor (RCE) is how I'm developing this page and it allows you to go into the HTML and change things there or add your own HTML which is really nice if you're savvy with that. I went in and updated the HTML so that the smaller image, large image, and text at the bottom are all within the same paragraph element as shown here.


<table><tbody> <tr>
<td style="width: 83px; height: 98px;">
<span> </span>

<br

Asset Management

Managing this Project

SUMMARY

For my asset management, I was very focused and organized with keeping my system clean and organized so that I can find the files I need quickly and efficiently. I've been proud of maintaining this and developing it throughout the years. I am consistent with my naming schemes and I think they are very easy to understand for someone else. When I start a new semester in the year, I list out all my course names in my main "School" folder and I place my older courses that have been completed in the older classes folder in case I need to access them later.

I have my main folders on top and then for each course, I typically will number the assignments according to the order I complete them. I also put the name of the assignment listed in Canvas and I will summarize the name if the teacher has given it a long title. That way if I need to find the folder and I know the name, I can use Command+Space to pull up my search on my Mac and start searching for it through the name and it pulls me right to the assignment. I love how quick and efficient this is.

For example if I see I got a lower grade on an assignment and I need to update it, I can quickly use this tool while looking at my grades in Canvas and start editing it in minutes. From the main folder of the assignment I will create a sub-folder and name it "images" or "icons" depending on the assignment details. I will have all the images used in the assignment stored there alongside the final submission folder and software folder like XD.

I usually always create my documents on Google Drive instead of Microsoft products because they are easier to use, don't require updates, can be accessed on any computer, and I can collaborate with other students using Google Drive. Microsoft Office just doesn't compete with these tools and I honestly don't remember the last time I've used Office products. I also love that they are free to anyone. Well done Google.

Usually the only other software I will use is XD, Photoshop, Figma, and other similar tools. I need to start using Figma more over XD because it's used more in the industry and can collaborate a lot better. I'm just so used to XD that I haven't had time to switch.

MANAGEMENT IMAGES

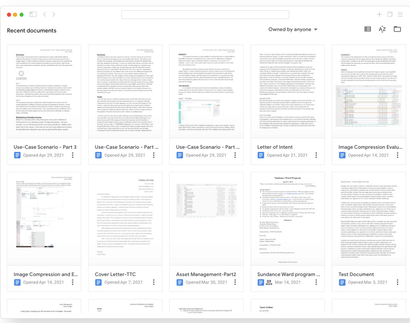


IMAGE 28 - GOOGLE DOCS ORGANIZATION

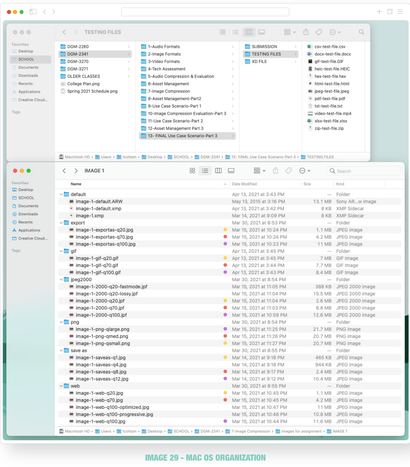


IMAGE 29 - MAC OS ORGANIZATION

ASSET CONCLUSION

I'm really proud of my organization as you will see in my screenshots and naming convention. I definitely think it's worth it to take a minute and focus how each file is saved. This will really impress your team and allow you to access important information quickly. There's nothing worse than needing a file and not being able to find it. I've seen a lot of people just put everything on their desktop or downloads and then never take a second thought about it again. This can cause a lot of heartache later. I also try to download as much as I can as a pdf to preserve the formatting. I still keep the document where it was originally created like Google Docs for editing, but I always try to submit a pdf if I can.

I still keep some things in desktop and downloads but I usually only use the Desktop for the most important files or files that I need to be using and referring to during the project. I will then move them to the proper folder later or delete them if I don't need them. I also delete my downloads folder regularly and only store stuff there that I know I can delete later. There is still more improving that I can do as I learn to manage my assets, but I'm proud of what I have right now and it keeps my work clean and tidy.

— Final Thoughts —

IN CLOSING—

This project was definitely a unique project that I completed because there was a lot of freedom with completing and documenting this project. I liked the freedom because it was different than most courses, but I felt like the instructions were too vague and convoluted so I didn't have any direction to look towards. I wish that this project still had creative freedom, but simplified bullet points of topics that were required.

For most of the semester I was lost and confused in the instructions. Videos and examples could solve this problem while still giving students creative freedom.

I enjoyed exploring Canvas more in-depth and finding the successes and problems with the platform. It's fun to test a product to the limit and see what it can handle. Most of it was pretty straight ford and expected, so I wish that I ran into more variables, but this just means that Canvas is built well with a lot of fail-safes. Having a system that's redundant is important. There are plenty of ways Canvas can improve but they are working right now to solve the most pressing issues first and this definitely makes sense with a platform used by millions.

If I was to do this project again, I would want to pick a different platform to test it against Canvas and I would want more guidance from the beginning so that I don't receive an unexpected grade. Thank you for reading through my project. I hope you enjoyed and learned more about Canvas.