Digital Analytics Report
"Seeing Through Photographs"

Educational Online Course by MoMA via Coursera

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Executive Summary

The Museum of Modern Art provides a variety of educational classes to the public available through Coursera (www.coursera.com), an online education provider. Out of the classes offered, this digital analytics report investigates one class: MoMA's "Seeing Through Photographs" course. Conducted by a team of five researchers, this study focuses on understanding the degrees of participant satisfaction and influences on their engagement from the point of participant enrollment, drop-off and course completion.

MoMA's "Seeing Through Photographs" analytics were critically analyzed and through this analysis, five dominant categories were identified. Within these categories were dominant findings and their corresponding recommendations:

1) **Language Barriers**
   - Findings: Non-english speaking participants experienced a language barrier that prevented them from fully enjoying the course
   - Recommendations: Direct participants to Coursera's subtitle feature prior to the course commencing
2) **Course Objectives**
   - Findings: Participants felt the course objectives were unclear
   - Recommendations: Clarify course description and objectives in the introduction
3) **Course Accessibility**
   - Findings: Course readings were inaccessible or limited for some participants
   - Recommendations: Rescan the readings to be user friendly
4) **Assignments & Quizzes**
   - Findings: Assignments and quizzes unaligned with course objectives
   - Recommendations: Refine assignments and quiz questions to promote critical-thinking and include content emphasized in the applicable modules
5) **Community Building & Support**
   - Findings: Participants desired a way to connect with others in the class and feel supported when completing assignments
   - Recommendations: Connect and expand course community through social media and alumni as volunteer forum moderators

Introduction

As one of the largest modern art museums in the world, the Museum of Modern Art (MoMA) offers access, education and stewardship around a wealth of contemporary artworks and art related resources. One way in which this New York City institution supports public involvement in the arts is through their educational online course offerings. The MoMA has created a well-rounded class series on Coursera (www.coursera.com), an online education provider.
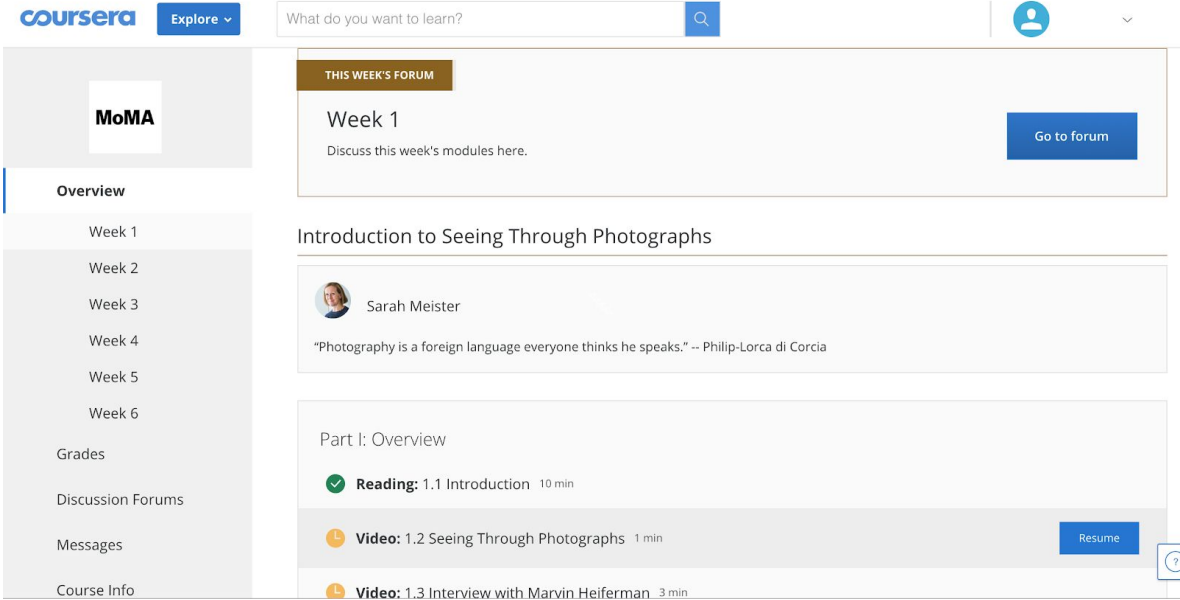

Figure 1: The landing page for the "Seeing Through Photographs" online course via Coursera

Their online courses cover a range of topics from fashion to photography to broaden public knowledge and spread historical value of the arts. This report focuses on the satisfaction ratings surrounding MoMA's most popular course, "Seeing Through Photographs" (figure 1), with over 217,665 participants enrolled (Figure 2).
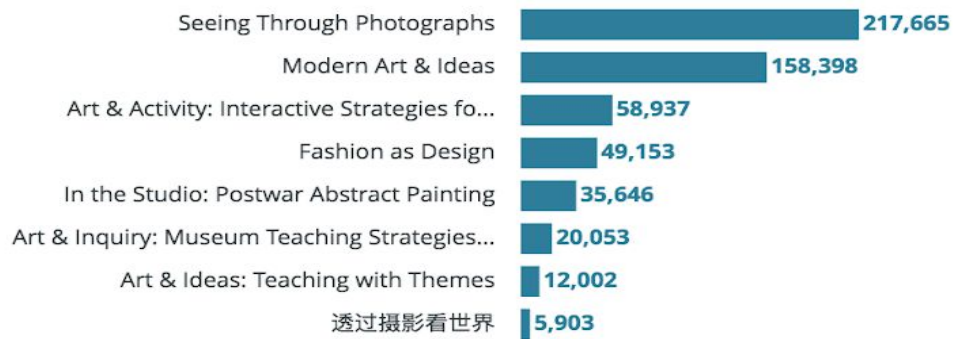
Figure 2: Depicts the the top 8 courses by enrollment

The goals of this investigation were to better understand the factors influencing participant course completion and participant drop of rates in order to provide valuable suggestions to increase course engagement and determine any structural changes needed. The origin of this research was the completion rates as "Seeing Through Photographs" had around 154,443 participants commence the course but only 4,767 completed it (Figure 3). This report analyzes a bounty of data from MoMA's internal analytics on their MOOC (massive open online course) offerings and reveals five corresponding findings and suggestions on the following overarching categories: language, course objectives, accessibility, quiz & assignment structure and community support.
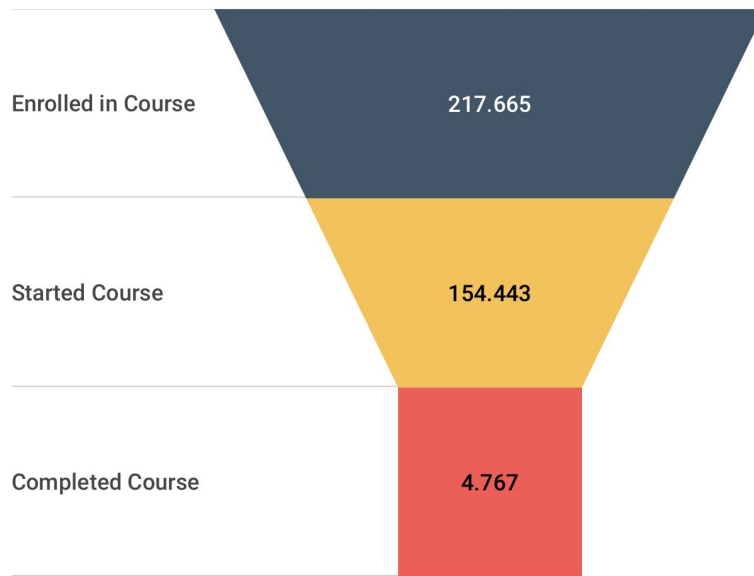
Figure 3: Funnel contrasts total # of students enrolled to how many began and completed the course
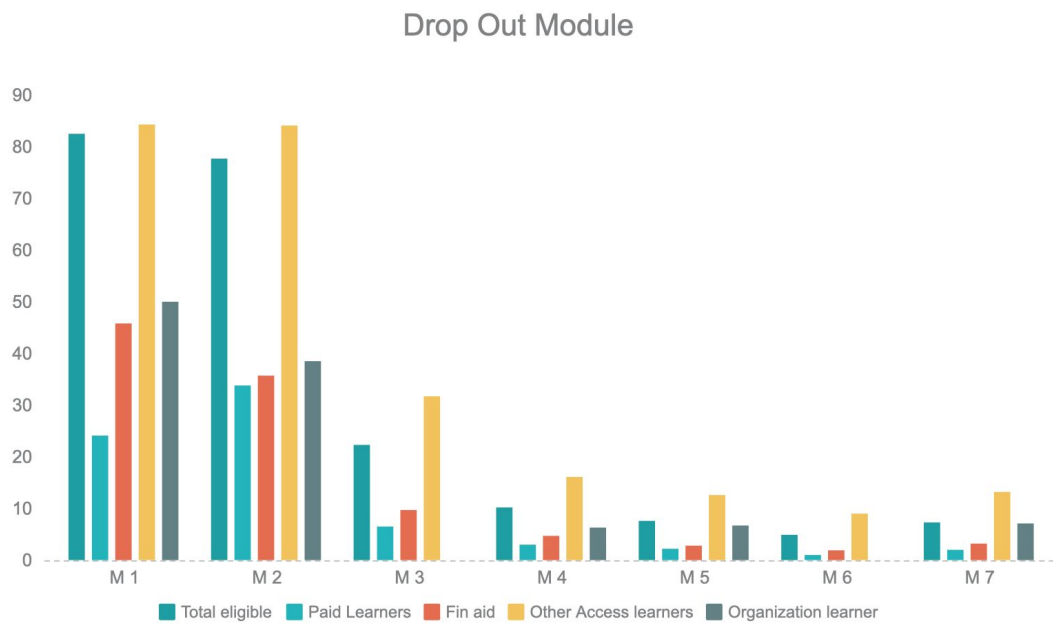
Drop Out Module

Figure 4: Chart depicting participant drop out rate by course module[1]

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[1] Figure 4 illustrates how learners were dropping out of the course. MoMA courses are available for free, however there is an option to purchase a certificate. **Paid Learners** visualized in Figure 4 purchased such a certificate and do not use Coursera financial aid nor are organization learners. Coursera offers financial help for learners who cannot afford to pay for a certificate. They are illustrated in Figure 9 as **Fin aid learners**. Coursera also offers business accounts allowing organizations to train their employees. This type of learners is called **Organization learner**. **Other Learners** are learners who do not belong to the above mentioned categories, they audit the course, have site-wide subscriptions, use vouchers and are in degree program.

The high drop-outs rate are considered natural for the MOOC courses as depicted in Figure 4. The study from 2017 year by the researchers from MIT and Harvard University presents that only 5.5% of learners receive free certificate for completing their course. The researchers analyzed the data from 290 courses available on EdX platform from 2012 till 2016 (Chuang, Isaac and Ho, Andrew, HarvardX and MITx, 2016). For the courses developed by IE Business School the completion rate reaches 12-15%, which is explained by the interactivity of the courses. As the Martin Rodríguez Jugo, a director at IE Publishing, says: "Learning is improved when students apply the theoretical concepts to practical scenarios" (Financial Times, 2019).

Methodology

Data

This report is based on the quantitative and qualitative analysis of the data concerning "Seeing Through Photographs" course delivered by MoMA via Coursera. In order to ensure the validity of findings, the triangulation of the data has been used.

On 29th of March 2019, the researchers from Pratt Institute met with Ms. Kelly Cannon, the Associate Educator for Interpretation, Research and Digital Learning in the Department of Education at the MoMA. During the meeting, it has been agreed that the project will focus on "Seeing Through Photographs" course and the research objectives of this report is to provide the recommendations aiming to improve its completion rate, reduce the drop-outs, increase learners' engagement and determine whether any structural changes are needed. Moreover, the researchers agreed that MoMA will provide the available data retrieved from Coursera.

Data retrieved from Coursera

The researchers analysed the data retrieved from Coursera and provided by MoMA:

- Course participants demographics
- Course enrollment rate
- Course completion data
- Course drop-off points
- Course engagement rates
- Course feedback
- Post-course survey

The data has been requested on the 4th of April 2019 and contained the data from the beginning of launching "Seeing Through Photographs" course. This course had two versions. The second version was launched in 2018 and differed from the first version in terms of Peer Review assignment. This change has slightly improved the course completion rate.

The **course participants demographic** data contained the results of the voluntary survey administered by Coursera and data inferred by Coursera, such as age, gender, education level, employment status. The geographic area is provided based on the browser's IP and language is based on the user's profile setting or browser's language. They were visualised on the Coursera dashboard. The Pratt Institute researchers have received an access to its print-screens.

The **course enrollment rate**, **course completion data**, **course drop-off points** and **engagement rates** were visualised on the several graphs presenting checkpoints. Each Coursera course has 2 main checkpoints: Enrolled in Course and Completed Course. Each module has 5 checkpoints: Started Item (learner starts any item), Completed Item (learner completes any item), Started Assessment (learner starts any assessment), Completed Assessment (learner completes any assessment), Completed Module (learner completes module by passing all graded assignments). Coursera provides Course Progress Funnel presenting learners journey through the course and drop-off points. Pratt Institute researchers were provided with its print-screens. Coursera processes the data using Amazon Redshift product (Coursera Data Exports Guide, n.d.).

Course feedback contains the 2178 comments received from users throughout the duration of the course. The data was provided in the MS Excel readable spreadsheet.

Post-course survey was administered by Coursera, however only 14 learners responded to it. Their responses were recorded in MS Excel readable spreadsheet.

Additionally, researchers looked into **course reviews** available on the course page and analysed:

- Top 30 reviews from persons who completed this course (5 stars);
- 18 least favorable reviews from persons who took this course (1, 2 and 3 stars).

All reviews were sorted by their helpfulness (votes received from other readers). In total, "Seeing Through Photographs" course has 4.7 rating and received 509 reviews.

Competitive Review

The data retrieved from Coursera has been complemented by the qualitative analysis of the reviews provided for similar courses and made available on Class Central (https://www.classcentral.com/) - the website comparing free online courses. Following courses with written reviews were analyzed:

- "Cameras, Exposure, and Photography" by Michigan State University via Coursera;
- "The Art of Photography" via Open2Study;
- "Photography: A Victorian Sensation" by University of Edinburgh via Coursera.

These comments provided the basis for the provided recommendations.

Analysis

Data retrieved from Coursera

Due to the high volume of available data, researchers in case of: **course participants demographics**, **course enrollment rate**, **course completion data**, **course drop-off points** and **course engagement rates** decided to analyze the overall tendencies visible on the Coursera dashboard. The critical points and Key Performance Indicators were identified and noted down:

- Completion Rate;
- Drop-Out;
- Course Rating.

While analysing **Course Feedback**, the researchers annotated the available data using 4 different labels:

- Week (Week 1, Week 2; Week 3, Week 4, Week 5, Week 6, General);
- Language;
- Sentiment (Positive, Negative, Neutral);
- Topic (Quizz, Peer Review, Readings, Videos, Photos, Instructors, Interaction, Course)

Additionally, comments in language other than English were translated using Google Translate and labeled accordingly. The researchers in the additional column extracted the learners recommendations for course improvement.

The quantitative data in **Post-survey questionnaire** has been visualised in graphs and the qualitative data analysed by the researchers. The main themes were noted down.

While analysing **Course Reviews**, top 30 reviews from persons who completed this course were reviewed and main points were noted down. Afterwards, the researchers analysed the reviews from persons who evaluated "Seeing Through Photographs" course for 1, 2 and 3 stars. Main points were noted down.

Competitive Review Analysis

The reviews available on the Class Central were divided into comments describing the strengths and weaknesses of the courses. Additionally, course rating was noted down.

The researchers working together reviewed the gathered data and identified the findings. Based on the user feedback, Competitive Review and MOOC Literature Review, the recommendations were provided.

Research Limitation and Future Research

The analysis of the data retrieved from Coursera was mostly based on the print screens of the Coursera dashboard, which limited the possibility to closely look into the data. While analysing in detailed the feedback retrieved from the Coursera, it is important to note, that this feedback was gathered from all users, during the course and after its completion. It means, that Coursera collected the feedback from learners who decided to drop the course.

A future recommendation is to conduct a more detailed analysis to follow Coursera Data Export guide and create a Postgres database using the tools provided by Coursera (Coursera Data Exports Guide, n.d.). Additionally, it is suggested to design a dashboard template, which could be used to for every course. This template would allow to notice the strong points of the courses and the room for improvement.

Findings & Recommendations

The "Seeing Through Photographs" course elegantly combines exceptional reading material and in depth interviews to create an overall captivating learning experience. This course received significant praise from its participants who were particularly impressed with the content curation and professional insights in each video and module. Considering how much positive feedback was received, it was important to address the areas that may offer room for improvement to ensure this course is supported in achieving maximum potential and impact for its audience, new and returning.

Figure 5: Word Cloud depicting key words from 1346 positive feedback received

Figure 6: Word Cloud depicting key words from 52 negative feedback received

The following findings describe, in depth, the five areas that participants desired varying degrees of change or attention. Figure 5 and Figure 6 illustrate frequented words used when delivering positive and negative feedback in their personal course experiences. Some positive keywords that stood out were history, quality and interesting. In contrast, some prominent negative keywords were time, language and subtitles. Overall, the sentiments for "Seeing Through Photographs" were positive, with 82% positive comments received. However, there was about 18% cumulative neutral to negative comments that warranted investigating (Figure 7). These will both be explored further in the findings and recommendations below.

Sentiment

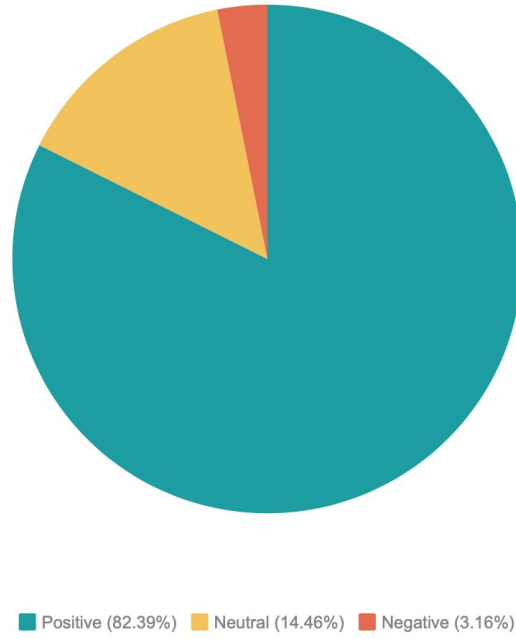Positive (82.39%)   Neutral (14.46%)   Negative (3.16%)

Figure 7: Pie chart depicting Positive, Neutral and Negative comments received from 1528 number of comments

Finding 1: Learners look for content in their own language

The "Seeing Through Photographs" course is offered in the English language. However, the user demographics reviewed reveals that course participants come from many different countries. For many of them, English is not their primary language but instead other languages, such as Spanish, French or Portuguese, are their primary (Figure 8).

Figure 8: "Seeing Through Photographs" learners by Countries and Regions

Learners in their comments provided an excellent feedback about course content, but they also asked for the high quality video subtitles in their own language (Figure 9). They have also suggested providing the translations of the readings.

"Es un curso hasta el momento muy bueno, organizado, pero para personas de habla hispana puede resultar un poco complejo, al no contar con subtitulos"

Translation*: "It is a very good course, organized, but for Spanish speakers it can be a bit complex, as it does not have subtitles."*
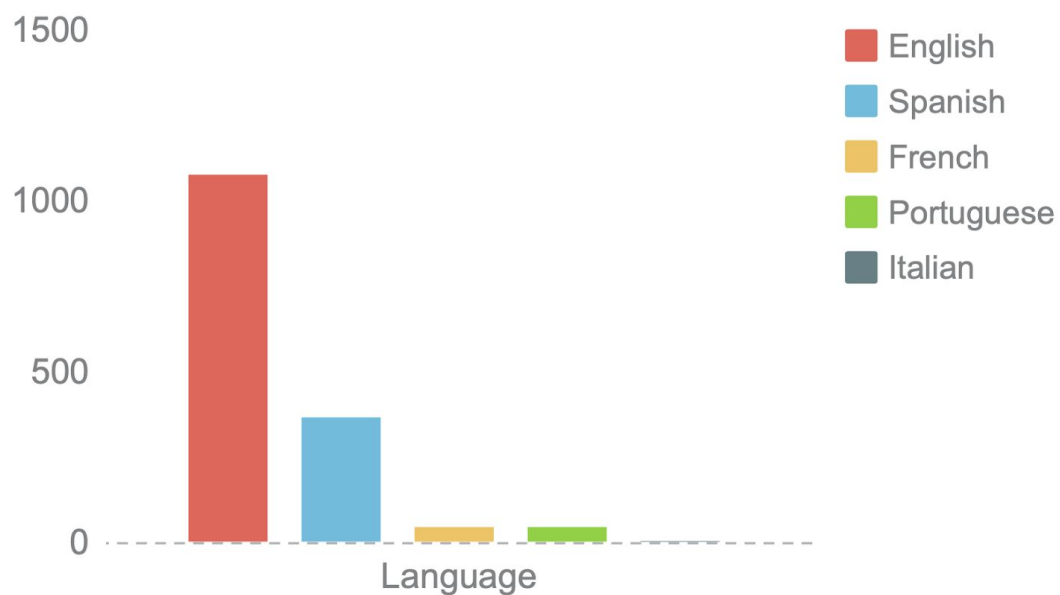
Figure 9:: "Seeing Through Photographs" learners by their Language from 1528 comments

Recommendation 1: Highlight Coursera's Subtitle Feature

More than 40% of "Seeing Through Photographs" course learners come from Europe and approximately 18% from South America. Coursera has a subtitle feature available for the videos it hosts however, it is easily missed and many participants were unaware of this option. It is recommended to provide a point of reference for participants in the introductory text or prior to the course commencing directing participants to the subtitle options available. This would allow learners to easily focus on the course and take greater advantage of the content.

Finding 2: Course title and purpose are not clear

Many learners while enrolling into the course, were not sure about the purpose of the course. Some of them were convinced, that it will introduce them into the history of photography:

"It give insight in the history of photography and is a stimulating start to do more research."

Others, were expecting a course focusing on teaching how to take pictures and looked for the practical part of the course:

"I hoped that it was more professional, It was interesting but non technical."

"I gained a broader understanding of the history of American photography and some of the forces that has shaped it. Not a new skill."

Recommendation 2: Clarify Course Description & Course Objectives in the Introduction

Making the course objective more explicit upon start of the class would reduce some participant confusion. Additionally, editing the course title to touch on intended history, theory and critical thinking would provide clarity some participants felt were missing.

Finding 3: Limited Course Accessibility

Learners were praising the quality of the materials used in the course, however, they noticed, that the transcript text used in the videos is too small and uncomfortable to read and follow. They expressed their dissatisfaction with the quality of the readings. They noticed, that the text used in the scans was too small and very difficult to read. Additionally, the readings are very academic, which might cause some difficulties for persons without an academic background.

"The language used in the required literature is intensive for those of us who have not been back at college for a while."

"Uploaded text was formatted in to be easier to read online. The pages were multiple horizontally and text was small."

"Better scans, some of them were difficult to read, pdfs should be formatted to fit a single page in full screen. It's almost impossible to read from a cell phone."

Recommendation 3: Rescan Readings

Rescanning the readings to improve their quality will increase their accessibility. The new scans should have the same orientation and, if possible, larger font.

Finding 4: Assignments & Quizzes Unaligned with Course Objectives

Learners would complete a quiz at the end of each module, which they would need to pass in order to move forward in the course. In reflection, they experienced difficulty in three different aspects involving the course quizzes.

They found that quiz content was not aligned with lessons' emphasis or course objectives and were unsure how to assess which details held more value than others. Similarly, participants felt the assignments were extensive and often difficult to get through which led to partial understanding of the overall scheduled content.

> **"***Quiz assignments could not be found in the required reading or slideshows.***"**

> **"***Some of the questions were misleading, unanswerable based on the content or appeared unrelated***"**

At times, Learners were unsure why their answers were incorrect after submission and desired a way to learn from their mistakes to ensure they wouldn't be repeated on the next attempt.

> **"***Excellent multiple choice for testing, but it is really hard to understand the mistakes made or know the correct answer after passing the module***"**

Lastly, learners also desired questions that were less static or fact-based (i.e. questions asking for a specific year or city) and more open-ended and thought-provoking. They believed that a more open question structure would allow them to process the information provided in a way that lets them form their own opinions or understanding.

> **"***There are so many photographers names that it is quite a challenge to have more than five questions right***"**

Recommendation 4: Refine and Refocus Course Assignments and Quizzes

Students desired shorter assignments to stay focused and a chance to better complete them. They also requested quiz questions shift from static questions to include more critical thinking prompts. For example: instead of *what year did x occur?*, a shift to *why was the notion of x influential in photography today*?

Clearly align testing content with learning objectives and module content so quizzes and assignments feel less confusing or overwhelming. This can be accomplished by ensuring topics emphasized in a module's videos and readings are incorporated cohesively throughout its corresponding quiz, assignment and final.

Lastly, providing an offline prompt, such as taking their own photos outdoors or researching inspiring figures in this craft, encourages students to think critically about the content while exploring photography technically or through their own personal research to promote engagement.

Finding 5: Community Building Through Course Content

Learners desired support when engaging with the course content especially when they were experiencing a language barrier. They wish they had more support from the forum for assignments and also felt unable to discuss their new knowledge with others. They wanted the opportunity to engage with other participants.

> "*It would have been great to be able to share our photographs - like the painting courses from MOMA and to have a virtual group for completing students*"

Some participants also asked for a second more advanced course offering to continue their educational journey in photography.

How could MoMA improve this course to exceed expectations? Select your top 3 options from the following list.
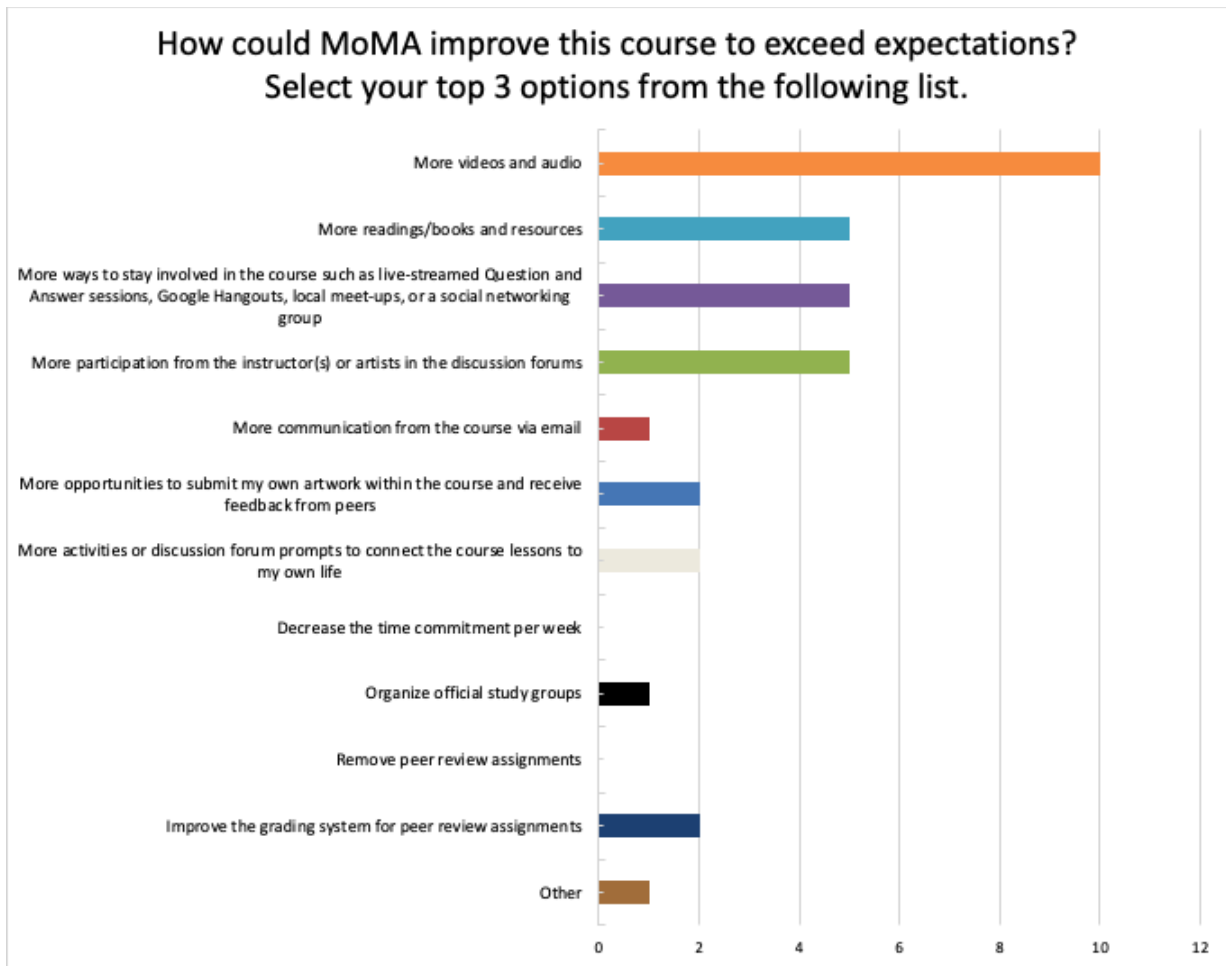
Figure 10: Depicts participants top preferences for course improvement from post-course questionnaire (14 replies)

Learners noted in the post-test questionnaire (Figure 10), their desire for more participation from instructors and artists in the discussion forum as well as more ways to stay involved in the course such as live-streamed question and answers.

Recommendation 5: Connect and Expand "Seeing Through Photographs" Community

New Course Offerings

Users who enjoyed this course asked for an opportunity to further develop their skills through a new advanced photography course focusing on theory and critical thinking. It would provide incentive to continue and allow participants to stay engaged in the course online forum.

Similarly, students had requested a chance to learn practical photography skills. MoMA is encouraged to look into creating a new practical course with photography, similar to the "In The Studio: PostWar Abstract Painting" course. The current "Seeing Through Photographs" course can be complemented with course offering describing the contemporary work and trends in photography.

Activate Participation in the Online Forum

Students felt unsupported at times when using the course forum. MoMA can consider opening forum moderator roles to course alumni and past students. Course alumni have first hand knowledge of the course content and, with more involvement, can promptly respond to questions and concerns while removing language barriers. This has the potential to notably increase participation through establishing an accessible support system.

"Seeing Through Photographs" in Social Media

Students expressed a desire to connect and expand their photography skill set in relation to the course. Potential steps to facilitate this connection could be creating a course inspired hashtag, such as #momathroughphoto for example, or creating a course-dedicated Instagram page, Flickr or Facebook group where participants can freely share their photographic work and experimentations with the medium for course related feedback from around the world.

Conclusion

MoMA's "Seeing Through Photographs" course successfully educates its audience. One of the learners described the focus of the course in one sentence: *Because it is about understanding photographs, not about taking photographs.* Participants were inspired by the quality of materials and the professionalism of the course and appreciated how MoMA made it possible for them to access this knowledge in such a wonderfully curated way.

As MoMA ensures the highest quality in all aspects of their offerings, this report provides 6 recommendations aiming to increase their participants' satisfaction. Their Learners are global and they speak a variety of different languages. MoMA could increase the accessibility of the course by directing participants to the subtitle options Coursera offers. It is also recommended to clarify the purpose of the course, as learners sometimes where surprised by its content. The quiz questions could be reformulated to be more thought provoking and aligned to the course learning outcomes. Creating the learners community by sharing photos could both increase interactivity of the course and its accessibility - some learners could share their photos and feel welcomed at the course, even if they are not fluent in English language. Finally, the quality of readings could be improved by providing their better copies.

Learners were thrilled about the course content and look forward to the more advanced versions of this course. MoMA, thanks to the implementation of these recommendations, can increase their participant satisfaction as well as increase their completion rate for this course.

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