Investigating Perspectives of An Online Syllabus's Design and Interactivity in An Asynchronous Course

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Abstract: This study aimed to investigate undergraduates' perspectives of online syllabus design and interactivity in an asynchronous geoscience course. The study was grounded in previous research on syllabus design and interactivity and used a multiple case study design to gather data from five participants. The course had multiple sections, each with a customized syllabus that varied in design and interactivity. The findings suggest that students were motivated to engage with the course syllabus when it included design and interactivity. The use of tabs to organize syllabus content was found to be an effective form of interactivity for searching information and breaking down content. Online syllabi with design were found to be easy to read, but syllabi with design and no interactivity were criticized for causing excessive scrolling. The study's results highlight the importance of incorporating both design and interactivity in online syllabi to enhance student learning experiences. Future research could explore the impact of visual syllabi on student motivation and engagement in other academic disciplines and with other student populations.

Keywords: Online Syllabus, Design, Interactivity, Engagement, Higher Education

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Introduction

Using visual syllabi, which offer course information in an understandable and visually appealing fashion, is advantageous for students in a variety of ways. First, a visual syllabus can improve students' learning by allowing them to focus on the most crucial material and draw connections between ideas from other topics (Kaur, 2021; Nusbaum et al., 2021). Additionally, they can help students identify important learning goals and

evaluation criteria, which will improve their performance on exams and assignments (Monaco & Martin, 2007; Parkes & Harris, 2002). As they allow for engagement with the course material and content, visual syllabi can also be useful in fostering student involvement and active learning.

By allowing students to interact with course material and content in a visual syllabus, visualization can aid in stimulating curiosity, metacognition, and critical thinking skills (Avsec & Savec, 2019; Roberts, 2022). Therefore, a syllabus that is created with appropriate visual design and precise organization may be a useful tool for enhancing the learning processes and outcomes (Dinç, 2017). With that, we asked how undergraduates perceive an online syllabus's design and interactivity in an asynchronous course after using the assigned syllabus throughout the course. This study is significant because it sheds light on the advantages and disadvantages of employing visual syllabi in an asynchronous learning environment.

The Role of Syllabus

In a course, the syllabus is regarded as a roadmap (e.g., Abdous & He, 2008; Kaur, 2021; Martin et al., 2018; Saville et al., 2010). A syllabus lists topics, learning objectives, assignments, assessments, and the expectations of the instructor. A syllabus is a structured manual for understanding how and what needs to be done to be successful in a course (Monaco & Martin, 2007; Slattery & Carlson, 2005). It is the first means of communication that has the potential to increase motivation and the relationship between students and the instructor in an online or face-to-face course (Cummings & Jacobs, 2002; Saville et al., 2010; Slattery & Carlson, 2005). A syllabus serves as a form of communication and a reference tool for any course-related questions (Cullen & Harris, 2009; Ekachai & Kim, 2019).

No matter if the course is online or in-person, a syllabus has three key significances. First, it establishes clear expectations for the course. The expectations could include what will be learned, what assignments will be given, how those assignments will be assessed, and what behaviors are anticipated (Fuentes et al., 2021; Parkes & Harris, 2002). Having clear expectations and upholding them aid students in understanding what is expected of them, which can help reduce anxiety and remove uncertainty in the course (Hildenbrand et al., 2020; Smith, 2005). Second, a syllabus promotes transparency through the accountability it establishes. Students and instructors can refer to the syllabus to confirm the requirements are followed. The content and assessments can be delivered in accordance with the syllabus, indicating the course's fairness (Faranda & Clarke III, 2004; Parkes et al., 2003). Third, a syllabus encourages engagement and learning. A relevant, informative, and student-centered syllabus may entice and motivate students to engage with the course syllabus and content (Canada, 2013; Eberly et al., 2001; Ekachai & Kim, 2019), resulting in the intended learning outcomes. Particularly in asynchronous courses, in which participants have more control over their learning (Ismailov & Chiu, 2022; Kaur & Sidhu, 2010), a well-designed syllabus can be used as a tool to manage time and workload (Barth, 2020).

Conceptual Framework: Design and Interactivity in an Online Syllabus

The conceptual framework was grounded in design (e.g., Ludy et al., 2016; Richmond et al., 2019) and interactivity (e.g., Kim & Ekachai, 2020) syllabus studies. We considered images, color, infographics, and static charts as design elements, and structures that required students to engage with the syllabus as interactive elements. In our study, interactivity included accordion structures, tab structures, interactive charts, and embedded videos.

In a syllabus, the use of colors, images, static charts, and infographics is important for improving its efficacy. These design elements offer an effective way to present information and pique interest in the subject (Biktimirov & Nilson, 2003; Macintyre & Hamilton, 2010; Yarosh, 2021). Colors, for example, might be used to highlight significant information or to organize related topics. This can aid students in developing stronger organizational skills and retaining information (Ludy et al., 2016; Yarosh, 2021). Additionally, the use of color can improve the syllabus's aesthetic appeal and make it more interesting to read (Kaur, 2021). Images, static charts, and infographics can be used to visually express challenging concepts in an approachable way that makes them more accessible to learners (Harrington & Gabert-Quillen, 2015; Johnson, 2022; Womack, 2017). They can also break up large blocks of text, making the syllabus visually appealing and easy-to-navigate.

In an online syllabus, interactivity can appear in a variety of ways, including accordion layouts, tab structures, interactive charts, and embedded videos. These interactive components present a unique chance to engage students in the learning process and produce a more engaging educational environment. A syllabus's layout can be improved by incorporating interaction through structural approaches, such as the use of accordion structures and tab structures (Kim & Ekachai, 2020). Students can more easily acquire the knowledge they need and experience less cognitive overload by giving them the option to collapse and extend content portions through the structure of the syllabus content (de León, 2016; Slattery & Carlson, 2005). Another effective technique that can boost student engagement and comprehension is interactive charts. Students who can analyze data using interactive charts have greater comprehension and better retention of complex concepts (Essa & Ayad, 2012). Further, using embedded videos can give students a rich multimedia experience that can improve their learning and motivate them (Simpson & Bolduc-Simpson, 2018).

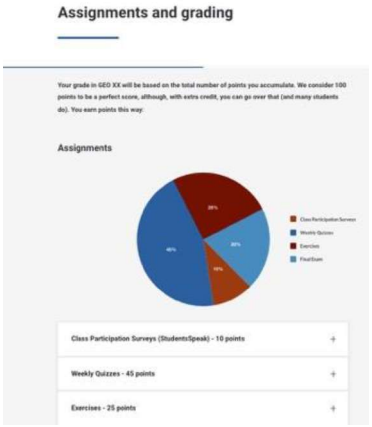
Method

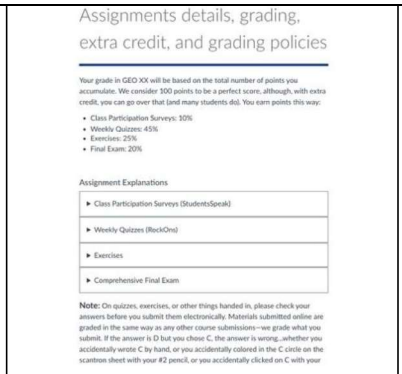
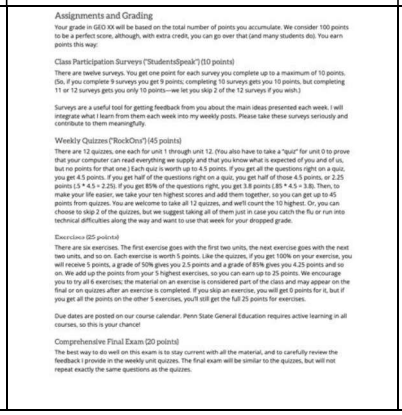
Participants and Setting

This multiple case study investigates five participants' perspectives on the use of visual online syllabi in an online asynchronous geoscience course that focuses on U.S. National Parks. The participants are from a university in the northeastern United States. The usefulness of visual online syllabi in assisting these participants' learning experiences was investigated, as well as their preferences for using such syllabi. There were six sections in the course. Each section followed a syllabus, customized for them. The content of the

syllabi was the same, but there were variations in the design and interactivity. There was no interviewee from one section, thus we focused on one case from each of the other five sections. Course content was on Canvas for all sections. For the location of the syllabus in each section, Canvas, Rise, and Drupal were used. Canvas is a learning management system, while Rise and Drupal are content management systems. See Table 1 for the varying syllabi in the sections, their unique features, and participants' information.

Table 1. Information about the Participants and the Syllabi

Participants (Pseudonyms)	Age	Race/ ethnicity	Sex	Syllabus	information for the syllabus used
Mary	20	Asian	Female		text only/no design no interactivity syllabus in Rise
Cate	21	Caucasian	Female		text only/no design with interactivity syllabus in Rise
Charles	18	Caucasian	Male		design included no interactivity syllabus in Rise

Bob	19	Caucasian	Male		text only/no design with interactivity syllabus in Canvas
Frank	21	Caucasian	Male		text only/no design no interactivity syllabus in Drupal

Data Collection

To collect data, individual semi-structured post-interviews were conducted. Five individual semi-structured post-interviews were conducted with students who had completed the course, with an average interview time of 17 minutes and 37 seconds. During these interviews, participants were asked a range of questions related to their use of the syllabus throughout the course, their perceptions about the significance of the syllabus, and their thoughts on the design and format of the syllabus. The data collection helped us understand students' perceptions of the syllabus. By utilizing interviews, we were able to gather rich and diverse data that provided insight into students' preferences towards the syllabus.

Data Analysis

We undertook thematic analysis (Alhojailan, 2012; Miles & Huberman, 1994); data reduction, data display, and conclusion drawing. We developed a coding scheme that was grounded in our conceptual framework. The coding scheme considered various aspects of the syllabus, such as its design, interactivity, and role, the relationship between student and teacher as depicted in the syllabus, responsibilities and expectations outlined in the syllabus, the efficiency of the assigned syllabus, and interesting aspects of the syllabus. We conducted a thorough data coding process using our coding scheme and engaged in multiple discussions. Through this process, we reduced the data according to our coding scheme (i.e., data reduction). The thematic analysis

process involved identifying and analyzing the overarching themes that emerged from the coded data. We employed an iterative process of reviewing and refining our three themes to ensure that they accurately represented the data.

Findings and Discussion

Theme 1. Design and Interactivity Motivate Students to Engage with Course Syllabus

This study suggests that including design and interactive components in a syllabus can affect student motivation. This finding coincides with previous studies indicating that a rich multimedia experience can motivate students (e.g., Simpson & Bolduc-Simpson, 2018). Furthermore, it adds to the existing literature regarding the impact of design and interactivity in increasing motivation and engagement. This is in addition to the importance of having a relevant and informative syllabus, which has also been shown to increase motivation to engage with course syllabus and content (Canada, 2013; Eberly et al., 2001; Ekachai & Kim, 2019). Participants Bob and Frank both stated a preference for well-organized and aesthetically pleasing syllabi. The syllabus's chunked structure made it simpler for Bob to navigate and access specific information, which he found to be helpful. Frank indicated that he would want to see more entertaining and intriguing graphics to keep him interested in the course syllabus. These imply that syllabi that are both interactive and visually appealing can have a favorable effect on student engagement. A syllabus can be made more interesting and effective by including design and interactive components, such as infographics, images, and expandable tabs. This will keep students interested in the syllabus and motivated throughout the course.

> Bob: I probably like a chunked-up setup because it kind of... like if I want, wanted to come and just look at how much the quizzes were worth in the grade book it'll be, it'll be easy because you'd just click right on grading and then find it.
>
> Frank: That's one thing I will say is it did feel a bit lacking and in that like side because I usually like to have a little fun infographics and all this other stuff around on syllabus and just stuff to make it in general more entertaining. And, and I feel like with a geology type a course like you can kind of have a lot of leeway with that type of thing. You can have a lot of fantastic photos and pictures displayed throughout the syllabus or something to keep that, a little tension there. Or maybe something that you won't hate looking at for a couple of weeks.

Theme 2. Interactivity Embedded Within the Syllabus, In the Form of Tabs to Organize Syllabus Content, Stood Out as Easy to Use for Searching Information and Breaking Down Content

A promising strategy for aiding the search and retrieval of course information is the incorporation of interactivity inside the syllabus through the use of tabs to organize syllabus content. This relates to the existing research, indicating that interactive nature can decrease the cognitive load by allowing expanding or collapsing of the content given to them (e.g., de León, 2016; Slattery & Carlson, 2005). Positive feedback from student

interviews, like the one with Cate, serves as evidence of this strategy's efficacy. She stressed the benefit of the format by pointing out how it improved the organization and use of the syllabus. As Cate stated, the usage of tabs made it simple for her to explore the syllabus and find certain information, such as the necessary course materials. This emphasizes how valuable it is to include interactive elements in the course design in order to improve students' access to and utilization of information resources. Additionally, by encouraging students to interact fully with the course syllabus, the inclusion of such interactive features may enhance student engagement.

> Interviewer: What do you think are the advantages of the format that you used [Section 2 syllabus]?
>
> Cate: I mean, as I said, I do think it [Section 2 syllabus] is more organized in a way because instead of like scrolling and looking for the section that you need to find, like if I'm, because I have it pulled up right now, like if I'm like, "Oh, what materials do I need for the course?" I just click on that tab. As opposed to having to like skim through the entire thing.

Mary was shown other types of syllabi during her interview. She used a conventional, all-text syllabus with no design or interactive elements in the course. She did, however, say that she preferred syllabi with interactive elements.

> Mary: I was just going to say, I really like the first one you showed to me, which is more of just the breakdown. I think the text only, break down, the one that you used with the interactivity. ... I did like the breakdown where everything kinda flowed into each other.

Theme 3. Online Syllabi with Design Included Were Found to Be Easy for Students to Read; However, Syllabi with Design but No Interactivity Were Criticized for Causing Students to Scroll Excessively

Students indicated that integrated online syllabi were simple to read when the design was included. Participants specifically praised the order and clarity of sections, including the provision of key information such as due dates and success criteria. Included design elements were thought to be beneficial in encouraging a thorough comprehension of the course requirements and expectations. The design-related finding can be associated with presenting information in a more accessible way, as visualization has a role in making the content more accessible to all learners (Harrington & Gabert-Quillen, 2015; Johnson, 2022; Womack, 2017). Mary claims that syllabi with design can stop them from being delivered in a difficult-to-read manner.

> Interviewer: How important would you say looking pretty is, or that visual appeal?
>
> Mary: I think it's important in the sense of it [a syllabus] would have me coming back to it because I think that if I knew that the syllabus was clunky and kind of hard to look at, I would be like, "Oh, I don't really want to come back to it."

It was also noted that courses that have design but no interactivity were criticized for requiring too much scrolling. Charles complained that having to read through lengthy portions made it difficult to find the important information. According to this finding, interactivity is just as important as design in supporting readability and facilitating ease of use and navigation.

> Charles: My favorite parts [of Section 3 syllabus] were just the, how the sections were really, they were very, it was just very easy to read. You have your Keys to Success and the due dates, which I liked. And probably my least favorite part was, I don't know, it was just like a lot to go through, just the way it was laid out. You had to do a lot of scrolling. And it was just, it was a very long syllabus.

Conclusion

The use of visual aids is even more crucial in an online setting where students are more likely to get disinterested or easily distracted. The use of images, infographics, and interactive elements can assist in holding students' attention and keep them motivated throughout the course. When creating course materials, instructors should take their students' preferences into account. Teachers can encourage students to feel more invested in the course and improve their overall learning experience by developing well-organized, attractive syllabi.

The results show that using tabs to group syllabus content is a highly effective strategy for enhancing the usability of syllabus documents, in general. By minimizing the time and effort needed to find pertinent material, this strategy can improve the user experience and raise satisfaction levels for the syllabus as a whole. As a result, to enhance their students' learning, teachers should think about introducing interactivity, such as tabs, into their syllabi. Our findings highlight the need for creating online syllabi that balance aesthetic appeal and practical utility. Instructors can improve the reading experiences of their students and foster better engagement with the course syllabus by incorporating both interactive and design elements into their syllabi. Considering that our design and interactive elements are designed accessibly, it is important to conduct further research to fully understand how all learners—including those who require official disability accommodations—receive and use these elements.

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