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Enhancing Student Learning Using Article Reading Assignments

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Abstract

Studying the textbook is an indispensable element of learning when students are trying to understand the contents of a course. However, learning a subject should not only be limited to the contents of a textbook, but rather, should be approached with the goal of understanding the subject from a broader perception. Therefore, in order to broaden students' perspectives with different points of view, an article related to course contents was posted weekly on the learning management system, Canvas, in both undergraduate and graduate courses in fall 2022. Students were required to read the article and leave comments by using a template. The template included a set of questions regarding their experience of reading the article. For example: Does the article include enough background information? Does the introduction begin with a hook that gives the reader insight into where the article will take you? and, does the conclusion tie back into the introduction to summarize the main points? The idea behind using a template was to provide students with directed guidance while reading the article, rather than leaving responses too open-ended. In addition, it is important to equip students with the necessary research skills to find appropriate sources when conducting independent research on a topic. Therefore, students were also asked to identify relevant articles to the course and instructed to leave comments for two reading assignments.

A questionnaire regarding the reading assignments was designed and distributed to students at the end of the semester. The purpose of the survey was to gain insight into how students felt about the reading assignments, evaluate the effectiveness of the assignments, and to locate potential deficiencies for future improvement. In the paper, we discussed our observations from the survey results.

1. Introduction

Textbooks are written by professionals specializing in a specific discipline. Textbooks are probably the most commonly used instructional aid in colleges, with instructors lecturing on the important concepts of the textbook in classes to educate students. However, students still need to study the book independently in order to gain a better understanding of its contents.

Though the textbook is considered an effective medium to help students get familiar with a particular subject, it is impossible to cover the subject comprehensively from different perspectives. For example, a book focusing on introductions of wireless technologies might include WiFi, Bluetooth, ZigBee, NFC, WiMAX, LTE, and cellular standards, but does not cover deployment, survey, and services. A book discussing networking might include topics of the OSI model, strategy, planning, technologies, topologies, infrastructure, and security, but does not include cloud, IoT, data center, and virtualization. Additional readings should be given to help students gain increased exposure to the subject by providing a more comprehensive study within the context of a course.

Hence, reading articles were posted on the Canvas learning management system for one undergraduate course (ICTN 4520 Wireless Communication) and two graduate courses (ICTN 6810 Communication Technology and ICTN 6873 Network Intrusion Detection and Incident Response) in fall 2022. All the articles were related to course contents and all were either journal articles, conference proceedings, white papers, or government documents that were published within the last 3 years. One article was posted in week 1, 2, 3, 4, 6, 7, 8, and 9. During weeks 5 and 10, students were asked to find an article by themselves in order to foster independent research skills, namely finding relevant sources when researching a topic. For all ten reading assignments, students were required to read the article and leave comments by filling out a template. The comments included summary, criticism, improvement, and identification of the key points of the reading article.

Reading is an essential skill in order to acquire knowledge from literature. Unfortunately, many students do not even study the textbook when preparing for exams [1, 2]. In fact, research findings have shown that compliance with course reading was at 20-30% for any given day or assignment per class [3, 4]. Students need more motivation to study the assigned readings, such as awarding points. Studies have shown that awarding as few as 2 points was a sufficient incentive to help achieve an average completion rate as high as 90% of reading activities by students [5].

Also, exchanging information through writing is a crucial skill that each college graduate should possess. Employees expect graduates to be able to effectively communicate in different forms of writing, such as emails, letters, or text messages, when needed. Therefore, one point was assigned to each reading assignment to encourage students to complete the assignment, which includes both reading the article and then writing comments on the template. We hoped that the activities could help students expand their vision on different course topics as well as develop their literacy, writing, and research skills. Furthermore, we hoped it could foster students' long-term consistent reading habits by the end of the course.

At the end of the semester, a survey was distributed online for student access. The survey included a set of categories; each contained questions to evaluate whether the reading assignments were suitable and helpful to students' learning. Based on the survey outcomes, we could then make proper adjustments to improve the effectiveness of the assignments. In this paper, we not only introduced the reading comment template, but also discussed the survey and its results.

This paper is organized as follows: Section 2 illustrates the reading comment template. Section 3 describes the survey questionnaire and the survey results. Finally, we conclude our work in the last section.

2. Reading Comment Template

One of the benefits of using a reading comment template is that it helps students read and comprehend reading articles quicker and more efficiently. Also, it mandates students to refresh their memory on what they have read by writing it down. Therefore, a template was designed that included multiple sections as shown in Figure 1. Basically, the template asked students to (1) evaluate the contents, (2) explore key concepts, (3) synthesize prior understanding, and (4) provide suggestions.

The template provided students with directed guidance while reading the article, rather than leaving responses too open-ended. For each reading assignment, students were required to leave at least a 300-words comment in the template. The template delivered a learning process to guide students with step-by-step instructions in reading, comprehending, retaining, and commenting on articles.

Reading article title:
Describe the summary of the article.
Does the article include enough background information? Explain.
Introduction should present the background of the research, introduce the topic and objectives, and give an overview of the article. Does the introduction begin with a hook that gives you insight into where the article will take you? Explain.
Conclusions should re-state the research problem and synthesize the key points. Does the conclusion tie back to the introduction and summarize the main points? Explain.
List two main points in the article. 1. 2.
No article is perfect. List two parts of the article that can be improved, emphasized, or elaborated upon. 1. 2.
List two things you learned from reading the article. 1. 2.
I would recommend this article: ☐ Yes ☐ No Reason:

Figure 1. Reading comment template

3. Survey and Results

An online survey was distributed to students at the end of fall semester in 2022. In order to encourage students to conduct the survey activity, one incentive point was applied to those who completed the survey questionnaire. In the end, a total of 52 students participated in the survey (27 students in the class of ICTN 4520, with 24 students completing the survey; 17 students in the class of ICTN 6810, with 15 students completing the survey; and 14 students in the class of ICTN 6873, with 13 completing the survey).

Google Forms was used to design the survey. The survey questions included five major categories: (1) reading articles, (2) reading comments, (3) reading assignments, (3) reading workload, and (5) study habits. The type of questions included five-level Likert scale questions, multiple choice questions, and short answers. Examples of the Likert scale questions were "5 = Excellent, 4 = Very Good, 3 = Good, 2 = Fair, and 1 = Poor" and "5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, and 1 = Strongly Disagree". An example of the Likert scale questions included: I would rate the load of the reading assignments as intensive. An example of the multiple-choice question included: How much time on average did you spend on reading the assigned reading articles every week? An example of the short answer question included: Which item do we need to add in the reading comment template?

In this paper, we focused on the discussion of the reading articles and the reading assignment. Based on the survey feedback, we hoped to discover improvements to provide students with a better learning experience in future classes.
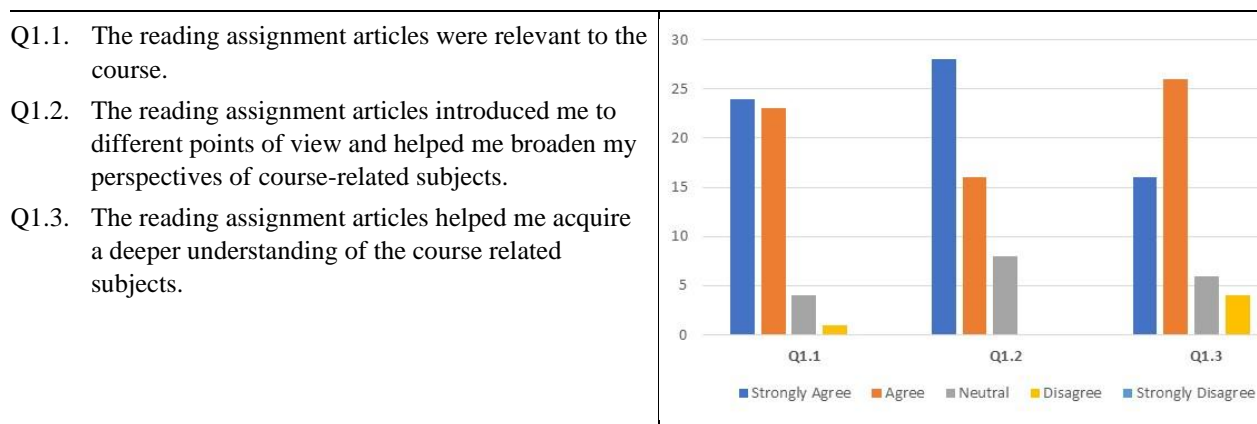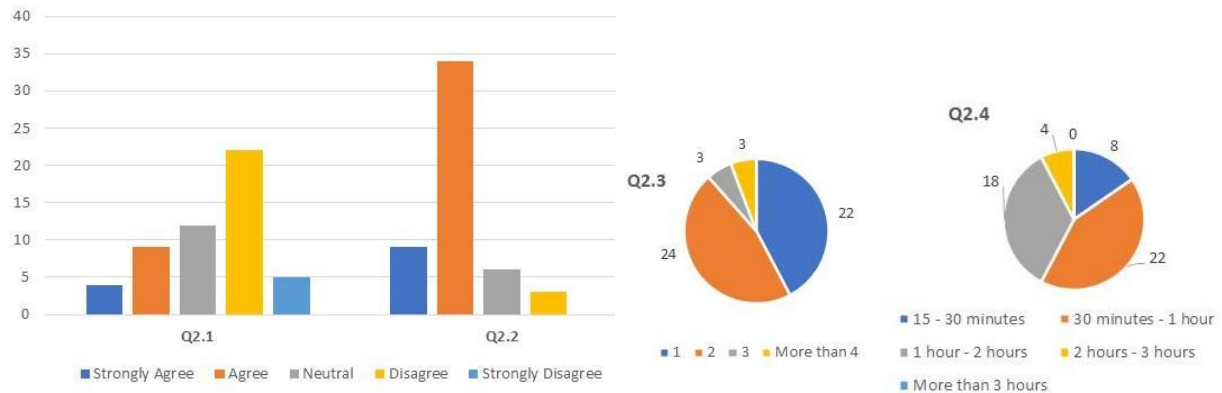
Table 1. Reading articles

Q1.1.	The reading assignment articles were relevant to the course.
Q1.2.	The reading assignment articles introduced me to different points of view and helped me broaden my perspectives of course-related subjects.
Q1.3.	The reading assignment articles helped me acquire a deeper understanding of the course related subjects.

Table 2. Reading article contents

Q2.1.	Most of the reading assignment articles were difficult to understand.
Q2.2.	Most of the reading assignment articles were well written.
Q2.3.	How many times on average do you read the weekly reading assignment article before commenting on it?
Q2.4.	How much time on average did you spend on reading the assigned reading articles every week?

Tables 1 and 2 illustrated the reading articles' related survey questions and the survey results. The original objective of the additional reading assignments was to broaden students' perspective of the course contents on subjects that the textbook did not cover. None of the respondents disagreed with the statement that the reading articles did not help them expand their view of course-related subjects by approaching them from different points of view. Over 90% and 80% of the respondents felt the articles were relevant to the course and helped them acquire a deeper understanding of course related subjects, respectively.

When asking about the contents of the articles, 13 respondents expressed that the articles were difficult to understand and only 3 respondents felt the articles were not well written. As for the average number of times that students needed to read the article before commenting on it, 42.3% of the respondents expressed that they only read the articles once and 57.7% needed to read the article 2 times or more before commenting on it. All the respondents answered that they can finish the reading in less than 3 hours every week.

Table 3. Reading comments

Q3.1. The reading comment helped me grasp key points in the article.

Q3.2. The reading comment helped me remember what I have read.

Q3.3. Leaving a 300-word comment for a reading article is not difficult.

Q3.4. The sections included in the reading comment template helped me to summarize important information in the article.

Q3.5. The sections included in the reading comment template are adequate.

Q3.6. How much time did you average spend on writing the reading comment every week?
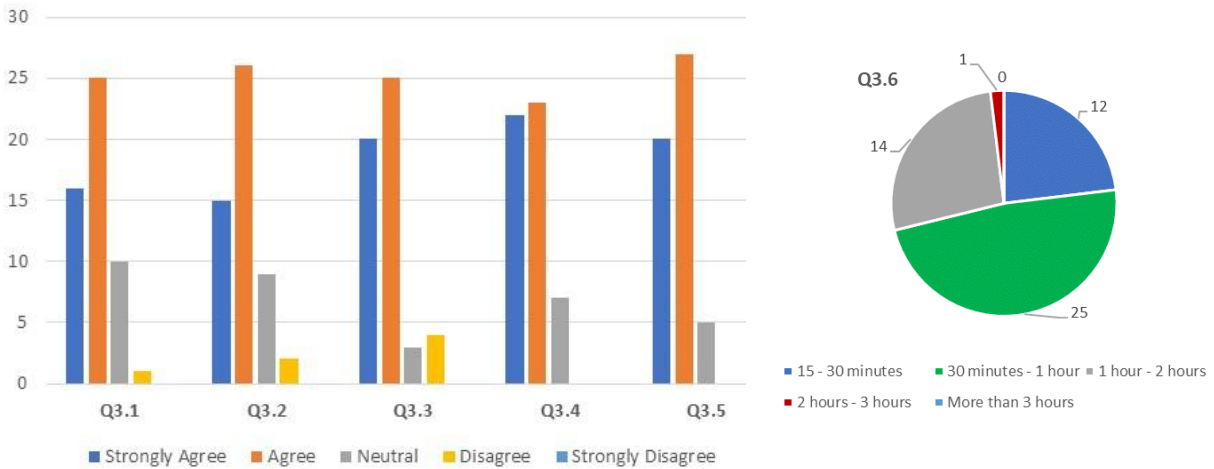
Table 3 showed the reading comments' related survey questions and the survey results. Most of the respondents were satisfied with the reading template design. The template effectively helped the respondents grasp and summarize the main concepts in the article. Also, a 300-word comment on a reading article was not a difficult task for the respondents. Most of the respondents spent less than 2 hours on writing a reading comment every week. Only one respondent needed 2-3 hours to write a comment and none spent more than 3 hours.

Table 4. Reading assignments

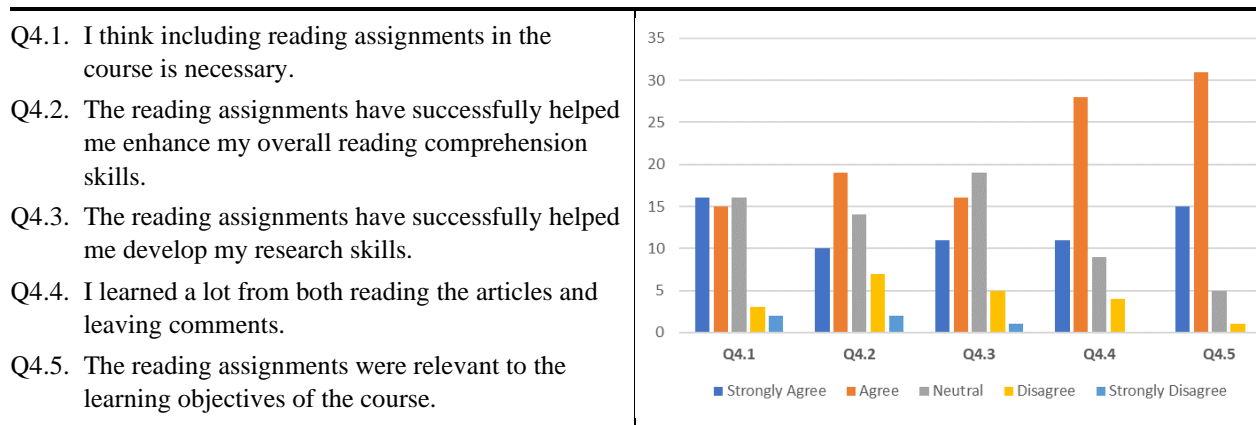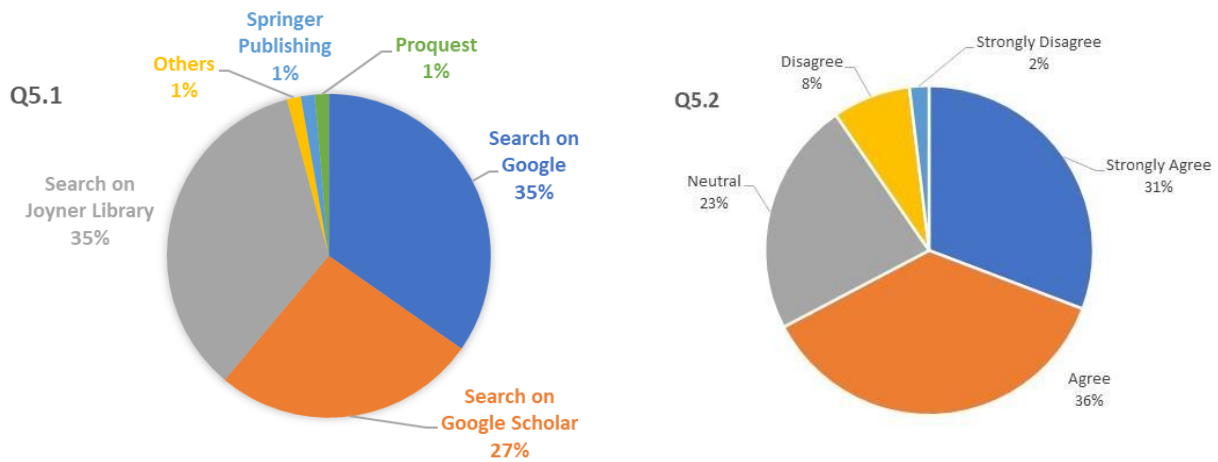| Q4.1. I think including reading assignments in the course is necessary. | |
Q4.2. The reading assignments have successfully helped me enhance my overall reading comprehension skills.	
Q4.3. The reading assignments have successfully helped me develop my research skills.	
Q4.4. I learned a lot from both reading the articles and leaving comments.	
Q4.5. The reading assignments were relevant to the learning objectives of the course.	

Table 4 described the reading articles' related survey questions and the survey results. Many of the respondents expressed a neutral attitude in Q4.1 to Q4.3. They neither agreed nor disagreed that the reading assignments were necessary or helped them enhance their overall reading comprehension skills or develop their research skills. However, most of the respondents still learned a lot from the reading assignments and had positive attitudes toward the reading assignments.

Table 5. Reading assignments R5 and R10

Q5.1. How did you find the articles for R5 and R10? (Can choose more than one)

Q5.2. R5 and R10 effectively help me improve my article search and online research skills.

Q5.1

- Springer Publishing 1%
- Proquest 1%
- Others 1%
- Search on Joyner Library 35%
- Search on Google 35%
- Search on Google Scholar 27%

Q5.2

- Strongly Disagree 2%
- Disagree 8%
- Neutral 23%
- Strongly Agree 31%
- Agree 36%

In addition, two questions were designed to ask students about the implementation of finding articles independently on the internet in weeks 5 and 10. Table 5 demonstrated the questions and the results. The results showed 97% of the respondents searched for articles from Google, Google Scholar, and ECU Joyner Library. Only 10% (5 respondents) felt the two assignments did not help them improve their article search and online research skills.

Overall, most of the respondents had very positive attitudes toward the reading assignments. They thought the reading assignments were necessary and informative. Also, they agreed the process of the reading assignments (read an article first and then leave the comment) was helpful. However, students also provided some recommendations for improving the reading assignments, for example, amending the length of the reading article. A number of respondents felt some of the articles were too long. 45 out of 52 respondents thought an article under 8-pages would be more retainable. Also, a couple of respondents responded by saying that they found the process of locating satisfactory journal/conference/white papers from the past three years was difficult. They suggested that it would be easier to find articles that were published within the last five years or web articles on related subjects.

As for the comment template, most of the respondents felt the template contents were sufficient and did not find it necessary to add additional items. A few respondents expressed the template could potentially add sections for commenting on things such as students' favorite part of the article, the body of the reading article, the two things that they liked the most about the article, and how the article's topic changes or applies to day-to-day life/work and the real world.

Conclusions

Reading assignments were assigned to students in fall 2022. Students were required to read eight articles relevant to the course and use a pre-designed template to leave comments on the articles. In addition, students were asked to find articles by themselves and leave comments for two reading assignments. A survey was distributed and results were collected at the end of semester. A total of 52 students participated in the survey. This paper discussed the template, survey, and survey results.

The survey results revealed that most of the respondents were pleased with the reading assignments. The reading articles provided an effective way to help participants learn additional subjects outside of the textbooks. Most of the respondents felt comfortable in writing comments on the articles. Overall, respondents had positive attitudes toward the contents of the articles and the design of the comment template. We believed that the reading assignments have helped improve students' reading comprehension, writing techniques, and critical thinking skills.

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