

Achieve Intended Learning Outcomes and Improving Digital Literacy Skills for Practical-Based Subjects Using Online Teaching via Propagation of OER Materials

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How to cite this paper: Mok, K.M., Sarkar, P., Ng, S.W., Mandal, S., Chen, Q. and Sarkar, M.K. (2023) Achieve Intended Learning Outcomes and Improving Digital Literacy Skills for Practical-Based Subjects Using Online Teaching via Propagation of OER Materials. *Journal of Textile Science and Technology*, 9, 84-100.

<https://doi.org/10.4236/jtst.2023.91006>

Received: December 28, 2022

Accepted: February 24, 2023

Published: February 27, 2023

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Abstract

As professors are subjected to teaching their classes online due to the recent COVID-19, our local Hong Kong students find it difficult to consult their teachers, and ultimately would fail to achieve the intended learning outcomes, especially for practical-based subjects. In this research, students having online classes of a practical-based fabric design subject were encouraged to self-study from Open Educational Resource (OER) materials for a further and better understanding of their subject. Additionally, online materials were developed to improve students' understanding via skill of digital literacy. Their learning progress was evaluated and compared to the face-to-face version. The majority of students found online classes combined with self-studying OER materials, potentially be a substitute for face-to-face classes. Most of the students further opined different OER videos assisted them without any face-to-face instructions in practical works, to develop new fabric samples from the inspiration. Analysis of test results, and comparison of students' final grades with different learning modes, supported these phenomena.

Keywords

Online Teaching, Open Educational Resources, Learning Outcome, Fabric Design, Textile Education, Teaching Design Subjects

1. Introduction

The main objective of teaching undergraduates is to help students acquire

knowledge, and reach the learning outcome of the subject. Within the limited time provided per lesson, it is not possible to cover everything that is required for students to exhibit the best performance in their professional life [1]. In the present situation, when students cannot attend face-to-face classes, learning becomes restricted in online classes due to less interaction with students as teachers are bounded by screens and are unable to distinguish their students from a stranger. In order to improve the student's understanding and knowledge and properly achieve the learning outcome of the subject, it is essential for students to self-study from other available external sources along with attending classes. This is in line with the principle of tertiary education, where students should not be completely spoon-fed, and instead learn from other sources by themselves, such practices are essential to keep them updated with knowledge in their future professional life [2].

Open Education Resources (OER), as defined by UNESCO, are available resources of learning, teaching, and research materials in any format and medium that reside in the public domain or are under the copyright that has been released under an open license, that permits no-cost access, re-use, re-purpose, adaptation, and redistribution by others [3]. Li and Cheung stated that OER is freely obtainable to the public for educational purposes in a wide diversity of digital forms, and all of them are accessible on the internet [4]. Three main essential features are required to be considered as an OER, firstly, all the OER can be freely browsed by the public, which matches the name and a key requirement of OER, be "opened". Secondly, all the resource is made for education, instead of commercial purposes. These resources are developed to help people learn in different ways. Thirdly, OER is a huge database for education, it is included videos, an open-access journal, a learning plan or syllabus, open-source software, audio recording, and open licenses. They can be in different formats, such as text, audio, drawing, video, software, or other formats.

OER, which includes two types of materials, institutional and peer production, is a great source for enhancing knowledge on different subjects [5]. The effective implementation of Institutional OERs is mainly designed to keep student needs at the forefront when the teacher implements them within a subject. Peer OERs can be more flexibly applied but they have to be sensibly customized [6]. Nowadays many institutions design their curriculums to inspire students to use OER, which provides a strategic opportunity to improve the quality of education as well as facilitate knowledge sharing, and capacity building [7]. For the online and hybrid modes of learning, OER is considered the most popular source among different learners [8] and can help people identify the idea [9].

Woven fabric is the backbone of the textile and fashion industry, so a good conception of woven fabric design and fabric appearance is essential for our students to better survive in the textile industry. This research was conducted on 30 students of the practical-based "Woven fabric design project" subject, who enrolled in the subject. In this research, the effect of OER materials was studied

on the learning outcome of the subject. In addition, various new videos (new OER materials) were developed and uploaded on YouTube, and the effect of these materials on learning was also studied.

All our face-to-face classes with objectivist and teacher-centric pedagogy offered to our fashion and textile students were converted to online and hybrid courses mainly due to restrictions of present COVID-19, as all universities in Hong Kong have implemented an online learning management system (LMSs) for courses that can manage, record, track, report, and deliver educational courses automatically. Under this research, to meet the intended learning outcome and maximum utilization of existing OER including newly developed teaching and learning materials (*i.e.* new OERs), a combined pedagogical approach was adopted, which was interactive [10], collaborative [11], and promoting deep learning through practical works [12], as suggested by earlier researchers for better learning. Students were encouraged to study from useful OER materials including newly developed OER materials, along with the online class lectures on the subject. Examples of different authentic OERs were provided in every class to inspire them to search more. In this research, an effort was given to understand the problems of online learning against face-to-face classes, and how that can be improved by studying different OER materials. In addition, the focus was given to analyzing the deficiency of the existing OER materials in woven fabric designs, and how new OER materials helped to overcome such problems.

2. Methodology

It has been observed that available Open Educational Resource (OER) materials on different topics of the subject do not meet the student's requirements for this subject. These OER materials do not clearly describe the designs, also no OER was found on some of the topics, related to the subjects. To overcome the deficiency of the existing OER materials, around 36 videos were developed, to show the processes of preparation of different designs, the development of various woven designs from the inspiration, and the development of fabrics from these novel designs. All videos were uploaded to Youtube with proper tagging for easy searching by students. Students were allowed to come to the laboratory for developing their samples at their convenient time.

Entire classes were divided into two parts, in the 1st part, only online teaching was done for 40% of the total classes, and in the last 60% of classes, students were asked to consult OER materials including OERs developed aiming at the subject topics. The improvement in their learning process was evaluated by various means, such as comparing quiz marks before and after implementing OER materials study, and the final marks of this year's students against the same marks of students of last year who learned via face-to-face learning mode. In addition, questionnaires were collected from all 30 students of the subject after the completion of all lessons and assignments, and quizzes.

The questionnaire (attached at the end) was administered to gain insights into students' thoughts on online/hybrid teaching, which includes the advantages and disadvantages of such teaching against face-to-face lessons, and collected opinions on existing OER materials and their drawbacks. In addition, students' views were collected to understand the benefit of newly developed OER materials against the existing ones. In this process, we collected students' opinions on the benefit of using OER materials in their subject understanding and learning process, along with online learning.

The entire questionnaire was divided into five sections and consisted of 23 multiple-choice questions; respondents can choose multiple responses for some questions. The first section of the questionnaire includes items about students' gender, students' educational background, such as subjects learned in earlier semesters, 1st-year or 3rd-year (after completing diploma) entry in the curriculum, local or outside students, Cumulative Grade Point Average (CGPA) before promoting to the present semester, etc. The second section of the questionnaire was designed to gain insights into students' thoughts on the existing OER materials and how such materials facilitated the study along with online teaching and understanding of a topic. The third section of it was designed to collect students' views on online learning against its face-to-face version. The next section was planned for collecting students' opinions on the combined effort of online learning and improving understanding and practical knowledge using OER materials against face-to-face learning. In the final section, students' opinion was collected on the quality and deficiencies of existing OERs as compared to newly developed OER materials. All collected data were analyzed using the statistical software SPSS, to understand the significance of differences.

3. Result and Discussion

As mentioned earlier, a total of 30 students enrolled in the subject, were participated in this survey. The majority (87% *i.e.* 26 students) of students were female, and only 13% (4 students) were their male counterparts. When we consider students' of different years who joined this course, 13% of the class were sophomores, 67% were 3rd-year students, and the rest 20% were seniors. In terms of the type of students in the course, 60% of students are regular entry students (*i.e.* joined 1st year in the course after 12th Examination), 33% of them are senior entry students (*i.e.* joined 3rd year directly after completion of either diploma or courses in community colleges). Among all students, local students were in majority (93%), and only 7% were international exchange students.

3.1. Online Learning vs Face to Face Learning

Online lessons have various deficiencies, as teachers cannot see all students during the teaching, so it is difficult to judge students' understanding during an online class [13]. Also, several times students are not enough attentive during class and do not ask questions to clear their doubts [14]. Students also have their

problems. Here, we tried to understand the student's views on this matter. A comparison between online lessons and face-to-face lessons based on students' opinions, is presented in **Figure 1**. Result suggests that face-to-face teaching is more interesting to the majority (more than 86% of students) of students, as they better understand the subject and can better coordinate with teachers in the face-to-face version of teaching. Students observed that the main benefit of on-line teaching is saving time as they do not need to come to school.

3.2. Student's Habit of Using OER Materials for Studies

It has been observed that 87% of all students have previous experience in using OER materials for improving their understanding and knowledge of various subjects. Among students who are experienced in using OER materials, 48% indicated that their tutor introduced OER materials to them, 19% found it by using different search engines, 14% used the university's OER, 14% learned from their friends, and 5% learned about OER from other professional persons. Many students selected multiple answers because they have various sources to get information about OER.

Table 1 represents the purpose of using OER during their study, as summarized from the survey. Many students selected multiple answers as they searched OER materials for various purposes during their learning process. This is the reason, the total number of responses obtained was 60 from the 30 students who participated in this survey. The "Percent" column indicates the percentage in terms of the total of 60 responses from students, whereas the "Percent of cases"

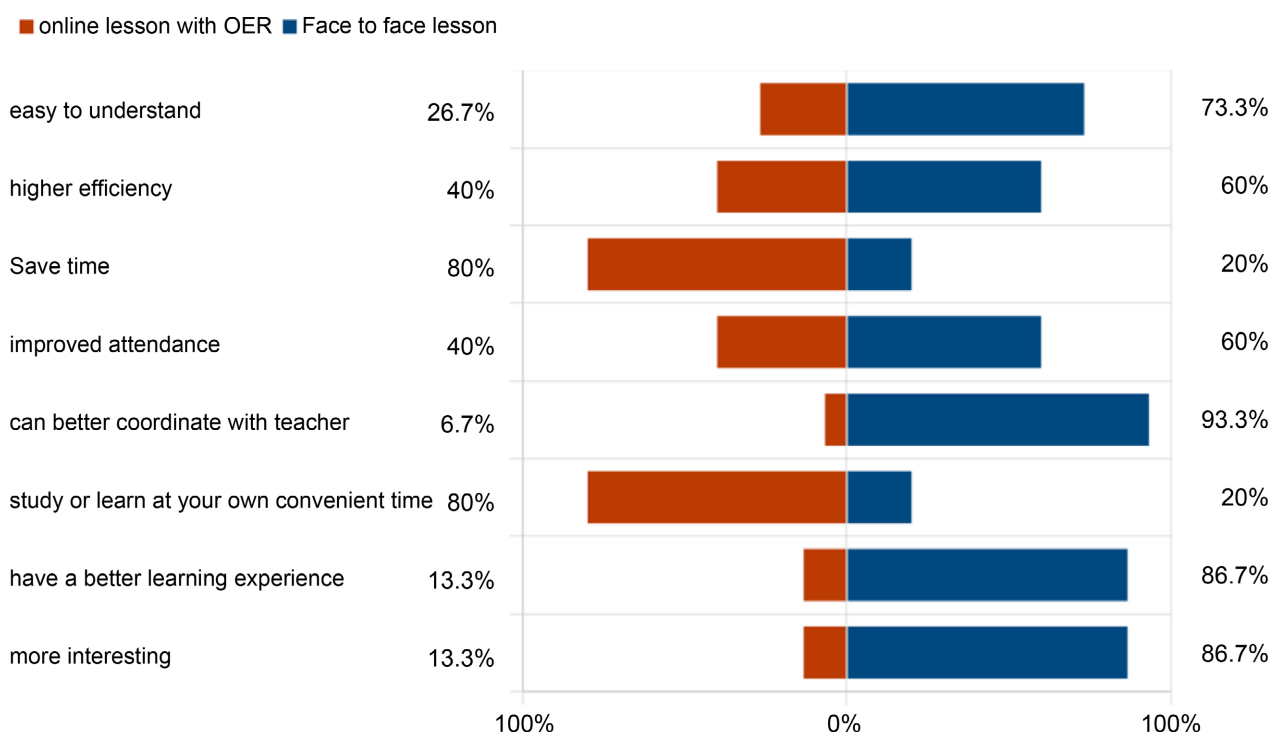


Figure 1. Compare the learning experience between online lessons and face-to-face lessons.

Table 1. Purpose of using OER materials.

| | | Responses | | Percent of Cases |
|-------------------------------------|---|-----------|---------|------------------|
| | | N | Percent | |
| What is your purpose for using OER? | Better understand the subject discussed in the lesson | 24 | 40.0% | 85.7% |
| | To gain knowledge on advanced topics related to the subject | 16 | 26.7% | 57.1% |
| | To satisfy curiosity | 8 | 13.3% | 28.6% |
| | To solve the question after lesson | 12 | 20.0% | 42.9% |
| Total | | 60 | 100.0% | 214.3% |

column shows the percentage in terms of the total number of participant students (*i.e.* 30). 40% of the students indicated that they used OER to have a better understanding of the subject discussed in the lesson, nearly 30% used OER to gain knowledge in advanced topics related to the subject, 18% of the students used OER to solve the question after the lesson and 11% of students used OER for curiosity.

In terms of frequency of using OER materials (see **Table 2**), the majority of students (more than 53%) used OER materials regularly, around 13% indicated that they used OERs occasionally, and 27% mentioned they only searched OER materials before an exam or before submission of assignments/project works. It is surprising, that a few students hardly search OER materials (6.7%) although they are aware of the benefit of this.

In this survey, our purpose was to understand the source of OER materials that attracted our students. Results show (see **Table 3**) that YouTube video is a popular source within the OER for students and more than 53% of students use it as a major source of OER materials. The primary reason people learn well via video is that the human brain processes video 60,000 times faster than it does text [15]. Around 20% mentioned, they preferred viewing online free books during their study, whilst the rest 27% mentioned they mainly bet on online free study materials to improve their understanding. In this survey, we attempted to understand the major sources of different students' OER, so students can choose only one option for this. For SPSS analysis, the "Percent" column represents the percentage of all cases, including the missing cases, whereas the "Valid percent" is the percent when missing data are excluded from the calculations. For our case, we do not have any missing data as all students gave their opinions; this is the reason the value of the "Percent" and "Valid percent" columns are the same here.

Table 2. The frequency of using OER.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|--|-----------|---------|---------------|--------------------|
| Valid | Monthly | 4 | 13.3 | 13.3 | 13.3 |
| | Weekly | 16 | 53.3 | 53.3 | 66.7 |
| | Before exam/submission of assignment/project | 8 | 26.7 | 26.7 | 93.3 |
| | Never | 2 | 6.7 | 6.7 | 100.0 |
| Total | | 30 | 100.0 | 100.0 | |

Table 3. The most frequently used OER materials.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|------------------------|-----------|---------|---------------|--------------------|
| Valid | YouTube/Other Videos | 16 | 53.3 | 53.3 | 53.3 |
| | Online Free Books | 6 | 20.0 | 20.0 | 73.3 |
| | Online study materials | 8 | 26.7 | 26.7 | 100.0 |
| Total | | 30 | 100.0 | 100.0 | |

3.3. Compare Newly Developed OERs with Existing OERs

It has been observed that existing OERs materials are not fully supporting students' requirements for the subject. To overcome deficiencies of existing OERs, around 40 videos were developed and uploaded as OER materials on a YouTube channel, designed for this subject. In this survey, the opinion of students on these new OER materials against the existing ones was recorded, ensuring newly developed OER materials are relevant to the lessons of the subject and meet their expected quality to support their online lessons.

A comparison of the newly developed OERs and the existing OERs, as per the survey, is presented in **Figure 2**. The result suggests that the newly developed OERs have better overall usefulness as compared to the existing OERs. The majority of students (80%) found that they learn more effectively from these new OER materials, which helps them to better perform in the subject. 66.7% of students opined that new OER videos are easier to understand, and better support their studies. The content of new OER materials was specially designed for the subject and clearly explains different topics, therefore, students find this more effective, also the OER videos cover various contents, which are not available in the existing OERs. Possibly this is the reason, students can understand the idea in a shorter time, hence, it can increase their learning effectiveness. It is suggested by students, that more examples of design development from different inspirations, will be more useful for them, which will be considered for future teaching.

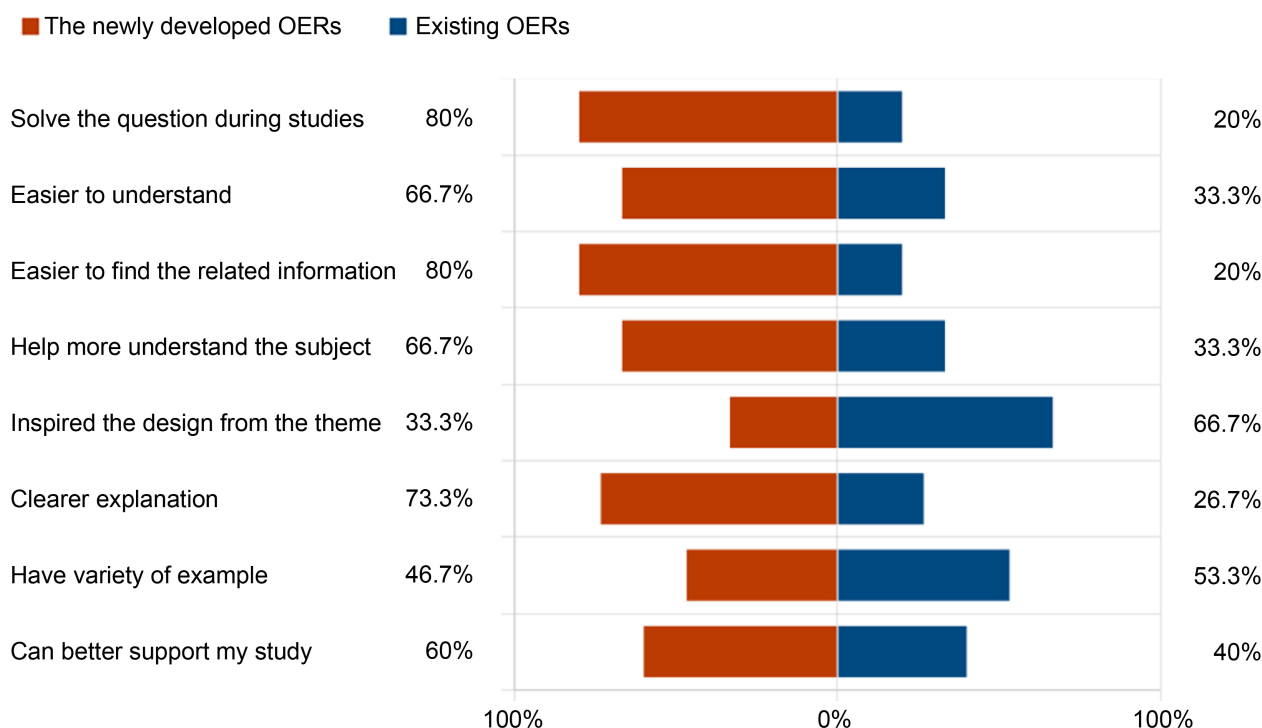


Figure 2. Compare the newly developed OER materials and existing OERs materials.

3.4. Compare the Online Lesson with OER and Face-to-Face Lessons

In this survey, the purpose was to understand whether consulting OER materials along with online lessons can help to overcome part of the deficiencies of face-to-face lessons. The students' views suggest, all students agreed that the use of OER materials helped them to improve their understanding of the subject, learned via online teaching. Out of all students, around 27% students strongly believe that OER helps them to achieve the required learning outcome, and the rest 73% also support the previous statement. As this is a practical based subject, we wanted to precisely understand, whether OER materials can help students as a substitute for demonstration in the laboratory. Students have varied opinions on this matter. A majority (80%) of students agree with it that newly developed OER videos can be a substitute of face to face demonstrations in practical classes, but 20% strongly disbelieve this.

Student's views on whether online teaching with OER materials fulfilled the requirement of face-to-face learning were gathered. This opinion is important, as in this subject students need to develop fabric samples based on a given theme by themselves. More than 86% of students opined that OER materials alone with online classes fulfill the requirements of the face-to-face classes and practical demonstration, whereas the rest around 14% strongly disagreed with the statement. The majority of students like online sessions combined with studying OER materials, possibly due to online lessons and studying from OER materials having a big advantage in time management, it is more flexible than face-to-face

lessons, which have time and place constrain. From this result, we can say online lessons with OER is more useful for students, but still have room for improvement in the learning experience of some students bringing it closer to the face-to-face one. Results are presented in **Table 4**.

3.4.1. Compare Marks of the Tests

To understand the benefit of online study with OER materials against online study, we conducted two different tests (each of 20 marks) for all students, the first one (Test 1) before using OER materials and the second one (Test 2) after using OER materials. A pairs sample t-Test was conducted to examine the difference in the results of 30 students between the two tests. The summary of the test result, with statistical analysis, is presented in **Table 5**. Results indicate that the average score of students increases from 12.13 (Test 1) to 15.67 (Test 2) after using OER materials to study along with online learning, with an average improvement of around 29%.

Table 5 also shows the paired sample t-test, which indicates the significance of the difference between the two tests. The p-value in the table is 0.000, which indicates the differences between the two test marks are very much significant. To briefly summarize, the above data showed that the online lesson with OER can

Table 4. OER enhances the quality of online learning.

| IS OER enhance the quality of online learning? | | | | | |
|---|-------------------|-----------|---------|---------------|--------------------|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Agree | 22 | 73.3 | 73.3 | 73.3 |
| | Strongly Agree | 8 | 26.7 | 26.7 | 100.0 |
| | Total | 30 | 100.0 | 100.0 | |
| Can the OER substitute the demonstration of a face to face class? | | | | | |
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Agree | 24 | 80 | 80 | 80.0 |
| | Strongly Agree | 6 | 20.0 | 20.0 | 100.0 |
| | Total | 30 | 100.0 | 100.0 | |
| OER with online lesson substitute face to face lesson? | | | | | |
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Strongly disagree | 2 | 6.7 | 6.7 | 6.7 |
| | Disagree | 2 | 6.7 | 6.7 | 13.3 |
| | Agree | 20 | 66.7 | 66.7 | 80.0 |
| | Strongly Agree | 6 | 20.0 | 20.0 | 100.0 |
| | Total | 30 | 100.0 | 100.0 | |

Table 5. Compare marks of two tests.

| | | Paired Samples Statistics | | | | | | | |
|--|-----------------|---------------------------|-------------------|--------------------|----------------|----------|-----------------|----|--------------------|
| | | Mean | | N | Std. Deviation | | Std. Error Mean | | |
| Pair 1 | Test 1 | 12.1333 | | 30 | 3.05956 | | 0.55860 | | |
| | Test 2 | 15.6667 | | 30 | 3.43745 | | 0.62759 | | |
| | | | | | | | | | |
| Paired Sample Test | | | | | | | | | |
| 95% Confidence interval of the Difference | | | | | | | | | |
| | | Mean | Std. Deviation | Std. Error Mean | Lower | Upper | t | df | Sig. (2-tailed) |
| Pair 1 | Test 1 - Test 2 | −3.53333 | 4.09990 | 0.74854 | −5.06426 | −2.00240 | −4.72 | 29 | 0.000 |

improve their knowledge and the performance of the academic paper. It is observed that OER can help students better understand the subject and learning material which help students obtain higher marks.

3.4.2. Comparison of Final Marks

When we compare the final grades of students of this year (students who attended online classes and used OER materials) against those of last year (students who attended face-to-face classes), the average marks obtained were virtually the same. The average mark of students in 2021 was 78.91%, whereas the same mark for this year 2022 is 77.13%, and the difference can be subjected to each individual's own study habits which might slightly differ from the previous year's, which is not statistically significant. All in all, this proves that students' understanding and learning are not affected by the change in teaching mode, which is reflected in the student's opinions too.

Comparing the grade distribution in two different years, a slight reduction is observed in A grades in 2022 than that in 2021, but in 2022 grades of the poorly performed students slightly improved against 2021 students. In general, It shows that for students who learned via online lessons and consulted OER materials, their understanding, knowledge gaining, and overall performance are not significantly affected by the change in teaching mode.

3.5. Effect of Student's Background on Their Performance

Along with other aspects, we tried to understand the effect of students' gender and backgrounds on their understanding of the subject. It was observed that Students' gender and backgrounds have no significant impact on the student's quiz marks but have some significant impact on their final marks. The average mark of girl students (78.5%) is significantly higher than that of boys marks (68.5%). This is possibly due to the reason that all boys do part-time jobs, and focus comparatively less on their studies. The year of study of students (taken

the subject), affected their marks in the exam. Results suggest that students in the third year performed better than 2nd year and final-year students, this is possibly due to the fact that final-year students are busier due to their Final Year projects and other things, and second-year students may have knowledge deficiencies compared to third year one.

We observed the average mark of regular students, who joined the course in 1st year after the 12th Examination, is significantly better than that of senior entry students (who joined in the 3rd year of the course); this is possibly due to the difference in the merit of students. Normally, students who joined in 3rd year of the course failed to secure entry in the 1st year due to their poor marks.

The CGPA (cumulative GPA on a 4-point scale) of students up to the semester before joining the course has a significant impact on their final marks. It has been observed that students with higher CGPAs performed better than their lower CGPA counterparts, which is as per the observation of earlier researchers [16]. The average mark of students with an average CGPA of above 3.5% was 85%, whereas the average mark of students with a CGPA of less than 3.0 was 72%. Both effects of the educational year and the CGPA of students on their marks are presented in **Figure 3**.

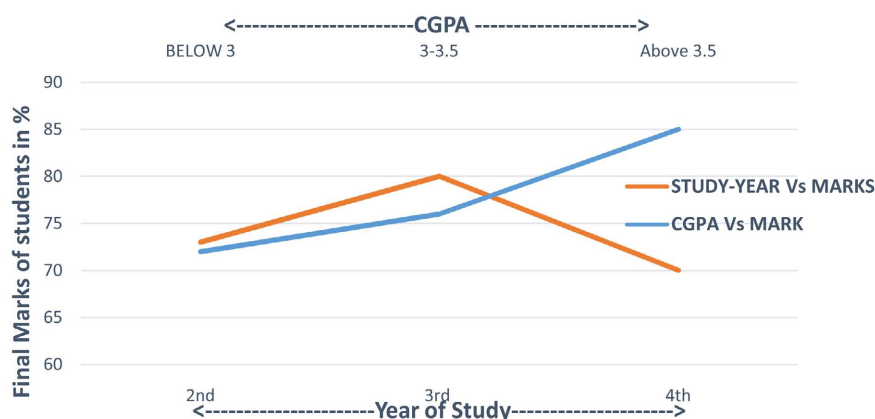


Figure 3. Effect of CGPA and year of study on the student's educational performance.

4. Conclusions

The general belief is that practical based subjects are difficult to instruct via on-line mode. In this research, from the student's opinions, the majority of students enjoy face-to-face teaching, as they better understand the subject in this mode. Online teaching provides flexibility to students, as they do not need to come to school for the classes, and thus can attend the classes from anywhere. However, online classes do not hold our students accountable as they might not understand or give heed to the materials being taught.

This research established that a practical based subject such as “woven fabric design”, can be taught online with flexible practical arrangements for sample developments by the students, and the intended learning outcome can be achieved using online Open Educational Resource (OER) materials. Along with

online classes, self-study of students using OER materials related to subject topics provide significant assistance in their understanding of the subject and can conjointly work as a face-to-face mode of teaching. In addition, to overcome the deficiency of face-to-face teaching and practical classes, self-study via digital literacy can be achieved through online videos related to the design-making process of different fabric designs, design conceptualization from a given theme, and practically making fabrics from such design work. Such online materials provide immense help to students, as they can study at their own convenient time and place. To encapsulate, this research established that it is possible to teach practical-based woven design subjects to students via online teaching mode combined with self-study of OER materials, to provide similar learning outcomes and understanding of the subject via a face-to-face mode of teaching. Also, such teaching improves the digital literacy of students, which is essential [17] in the present day. It is still pertinent to conduct further research on multiple subjects to generalize this concept.

Accompanying such matters, the present research also demonstrates that students' performances are affected by different variables, such as their own merit, enrolling for the subject in the appropriate semester, as well as their educational background.

Acknowledgements

The authors would like to acknowledge all students who participated in the questionnaire surveys.

The authors give appreciation to the ITC Departmental Learning and Teaching Development Grants—Sept. 2021-Aug. 2022, Hong Kong Polytechnic University. The authors also express gratitude to the LTC Projects fund—Sept. 2021-Dec. 2022 (Project Code: SPF20-21/A2/ITC02), The Hong Kong Polytechnic University.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Questionnaire

How does OER help your study for Woven Fabric Design Project Subject?

Please read this instruction before completing this form.

OER refers to Open Educational Resources, which are freely accessible material as informed in your online class, like text, media, and other digital assets, such as online materials, YouTube videos, and Share PowerPoint that is useful for teaching, learning, and assessing.

This questionnaire is aimed to find out the utility of OER in this lesson.

*Necessary

Section 1—Student's Background

1) What is your gender?*

- ☐ Male
- ☐ Female

2) Which year are you in the study?*

- ☐ Freshmen
- ☐ Year 2
- ☐ Year 3
- ☐ Year 4 or above

3) What is your student type?*

- ☐ Regular entry
- ☐ Senior entry
- ☐ Exchange student

4) What is your specialism?*

- ☐ Design
- ☐ Knitwear Design and technology
- ☐ Retail and marketing
- ☐ Intimate apparel and activewear
- ☐ Technology

5) Have you studied any of the following subjects (or similar subjects)? (Can choose more than one answer)*

- ☐ Fabric Technology I
- ☐ Yarn Design Project
- ☐ Colour and Fashion Trends
- ☐ Computer Technology for Fashion and Textile
- ☐ None of the above

6) Are you a local, mainland China or international student?*

- ☐ Local student
- ☐ Mainland China student
- ☐ International student

7) Your CGPA falls into:*

- ☐ Below 3
- ☐ 3 - 3.5
- ☐ 3.5 above

Section 2—About Existing OER material

8) Do you have any OER usage experience for improving your knowledge?*

- ☐ Yes
☐ No (no need to answer questions 9 and 10)

9) How to get to know OER?

- ☐ From friends
☐ From the tutors
☐ From the university's OERs
☐ Via different search engines
☐ Other (please give your answer here): _____

10) What is your purpose for using OER? (May select more than one option)

- ☐ A better understanding of the subject discussed in the lesson
☐ To gain knowledge on advanced topics related to the subject
☐ To satisfy curiosity
☐ To solve the question after the lesson

11) What is the frequency of using OER?*

- ☐ Monthly
☐ Weekly
☐ Daily
☐ Many times per day
☐ Before the exam/submission of the assignment/project works
☐ Never (no need to answer Q12)

12) Which is your most frequently used OER content? (Can select multiple options YouTube/other videos)

- ☐ Online free books
☐ Online study materials
☐ Other (please give your answer here): _____

13) Have you ever used the OER which was recommended by the tutor of this subject?*

- ☐ Yes
☐ No

14) How the OER helps you to understand the topic?*

| | | | | | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

15) How does the OER encourage you to study?*

| | | | | | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

16) What is the quality of the OER in the lesson?*

| | | | | | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

17) Which of the following part you like most in the OER? (may select multiple answers)*

- ☐ Text content
- ☐ Video content
- ☐ Discussion
- ☐ All of the above
- ☐ None of the above

18) Which of the following area(s) need to improve the video of the existing OER developed for these subjects? (may select multiple answers)*

- ☐ The content of the video
- ☐ The length of the video
- ☐ The photos of the video
- ☐ The step of demonstration can be more detail
- ☐ Difficult to understand
- ☐ The speed of the speaker
- ☐ The accent of the speaker
- ☐ Other (please give your answer here): _____
- ☐ None of the above

Section 3—Compare online lessons with face-to-face lesson

19) Choose the best option which is suitable for the statement (please tick the boxes)*

| | Online lesson | Face-to-face lesson |
|--|---------------|---------------------|
| Easy to understand | | |
| Higher efficiency | | |
| Save time | | |
| Improved attendance | | |
| Can better coordinate with the teacher | | |
| Study or learn on your own convenient time | | |
| Have a better learning experience | | |
| More interesting | | |

Section 4—Compare online lessons with OER materials against face-to-face lesson

20) OER with online lesson substitute face-to-face lesson

- ☐ Strongly agree

- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

21) Is OER enhance the quality of online learning?*

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

22) Can the OER substitute the demonstration of a face-to-face class?*

- ☐ Strongly agree
- ☐ Agree
- ☐ Disagree
- ☐ Strongly disagree

Section 5—Compare the newly developed OER and the existing OER

23) Which OER materials are more suitable for your “Woven Fabric Design Project” subject? (Please tick the boxes)*

| | The newly developed OERs | Existing OERs |
|--|--------------------------|---------------|
| Solve the question during studies | | |
| Easier to understand | | |
| Easier to find the related information | | |
| Help more understand the subject | | |
| Inspired by the design of the theme | | |
| Clearer explanation | | |
| Have a variety of example | | |
| Can better support my study | | |

This is the end of the survey. Thank you