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Promoting the full potential of Open Educational Resources (OER) in the Lebanese educational community

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ABSTRACT

The worldwide use of open educational resources (OER) has highly increased during the recent years. However, there is no clear idea about how these resources are utilized by teachers in Lebanon. Hence, this study aims at examining the extent to which the concept of OER is well known among the teachers. It also investigates the practices of OER users and explores the barriers to powerful use and sharing of OER among teachers. Nevertheless, this is quantitative research designed for analyzing the data collected from 308 teachers through an online questionnaire. The results showed that 60% of the respondents have heard about OER. Moreover, they revealed that OER users showed misunderstanding of the concept of OER due to their lack of knowledge about the open licenses. Hence, a national policy for e-learning is needed to leverage open education and ignite the power of OER by encouraging teachers to be producers of knowledge.

Keywords: open education, OER, practices, open licenses, national policy, producers of knowledge

INTRODUCTION

The shift towards remote learning due to the COVID-19 pandemic imposed global changes in education as openness became a crucial feature in such a field. In this paradigm shift, sharing digital resources among teachers and students highly increased and the popularity of open educational resources (OER) rapidly grew. This term, which was first introduced at a conference hosted by UNESCO in 2000, was defined as "digitized materials offered freely and openly for educators, students and self-learners to use and reuse for teaching, learning and research" (OECD, 2007).

Moreover, implementing differentiated instruction with K-12 students requires teachers to look for educational resources beyond their traditional textbooks (Tang, 2020). Hence, utilizing OER in K-12 curricula can be a feasible option for teachers (Hilton et al., 2019). As such, it became imperative to assess the awareness of the educational staff towards OER and their willingness to participate in producing as well as sharing knowledge in the global paradigm (Rolfe, 2012). This encourages the open educational practices (OEP) defined as a broad descriptor for "creation, use, and reuse of OER as well as open pedagogies and open sharing of teaching practices" (Cronin, 2017, p. 16).

Moreover, it has become necessary to look for evidence that shows the impact of OER use on the teaching-learning process. This impact evidence, which is still deficient in research, (Harley, 2008; McGill et al., 2008) is essential for future developments and improvements of OER for the sake of attaining sustainability. In fact, the UNESCO OER recommendation (2019) identifies five areas for action: capacity building to create, access, reuse, adapt, and redistribute OER, supportive policy for OER, inclusive and equitable access to quality OER, sustainability models for OER, and international cooperation. Hence, in order not to break the continuity of the OER cycle, and to support the production as well as the use of these resources in education, many sustainability models were suggested by Tlili et al. (2020). Such models include public funding, donations, OER networks, reliance on OER authors, and on demand producing OER.

Despite the remarkable increase in the use of OER in recent years, there are no studies that describe the actual situation regarding the awareness of OER in Lebanon, or their practices within the teacher communities. Therefore, the aim of the present study is to examine the dissemination of the concept of OER in the Lebanese teachers' community and investigate the culture of openness in education through using and sharing resources.

In this sense, the researchers scrutinized the deep understanding of OER users through questions specifically assessing their knowledge about open licenses such as the creative commons (CC) attributions.

Moreover, this study inspects the advantages and the challenges of using OER in the teaching-learning context. Furthermore, it explores the source of teachers' knowledge about OER as well as the impact of the COVID-19 pandemic on the frequency of using them. The willingness of teachers to be participants in producing and sharing knowledge was also assessed. This study helps to provide a general overview about the level of understanding of the notion of OER and its practices by users.

Finally, the results of this paper indicate the necessity of taking the initiatives for encouraging the use of OER with good practices respecting the CC attributions.

LITERATURE REVIEW

The UNSECO recommendation (2019) has defined OER as "learning, teaching and research materials in any medium–digital or otherwise–that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions." This definition goes hand in hand with that of openly licensed educational resources that were stated by the U.S. Department of Education in the 2017 national education technology plan. These digital openly licensed resources are diverse, and they can include complete online courses, modular digital textbooks as well as more granular resources such as images, videos, and assessment items (National Center on Accessible Educational Materials, 2021).

OER were originally developed to address the inequities among learners by ensuring education for all (SDG4) due to the high cost of producing educational materials which could not be affordable for many countries. Nevertheless, the use of OER encounters many challenges which determine their quality. Hence, the major concerns of the user are the credibility of the resources in addition to intellectual copyrights problems (National Center on Accessible Educational Materials, 2021).

There is no doubt that the success of online learning during and after COVID -19 pandemic was related to the accessibility of high-quality digital resources that meet the needs of teachers and learners. So, for leveraging open education, there should be a national policy for online and blended learning; ensuring the shift from OER adoption to implementing open education practices that enhance learning outcomes and teacher professional development. According to Ehlers (2011), OEP are defined as practices which support the production and (re) use of OER, promote innovative pedagogical models, and respect and empower learners as co-producers of the knowledge during their lifelong learning paths.

As a matter of fact, digital resources are essential throughout all the steps of the teaching-learning process, including preparing the lessons, delivering the content, assessing students, and providing extra practices for them. So, regardless of whether the purpose is developing OER from scratch or converting existing teaching materials into OER, there is a need to assess the value and the usefulness of OER when released. Such feedback is useful to determine the impact of OER on teaching and learning (Harley, 2008; McGill et al., 2008). In this respect, Hilton (2019) studied the impact of OER on students' efficacy and user perceptions by synthesizing the results of research papers published between 2015 and 2018. The author deduced that more than 95% of the studies indicate that using OER as an alternative to commercial textbooks (CT) in higher education does not lead to lower student learning outcomes. On the contrary, the vast majority of students and faculty who tried using both OER and CT found out that OER are of equal or higher quality than CT, the fact which makes it difficult to explain the high prices of textbooks. Moreover, Georgiadou and Kolaxizis (2019) declared that students want to use OER in their film studies, but many of them are neither aware that such resources exist nor that they are offered by reputable worldwide institutions and universities. Christoforidou and Georgiadou (2022) stated that this lack of awareness among undergraduate graphic arts students is probably due to students' vague knowledge of what OER are and how they could be used for learning. Additionally, the authors declared that the biggest obstacle for students to adopt OER is the lack of a portal that accommodates OER for this discipline. More specifically, Georgiadou and Kolaxizis (2019) reported that according to 85% of higher education film students, the most important criterion to use OER is their richness in additional content for the subject examined, for 75% of them, it is the validity/credibility, as they are offered by highly recognized educational institutions, for 70% of them, it is the good quality of content presented by these resources, for 67%, it is the clarity of the presented content which is aligned with the course objectives, and for 37%, it is the interactive content.

At the national and regional levels, there are few initiatives to increase the awareness about OER in the educational community by dismantling the barriers to sharing OER. Tlili et al. (2020) conducted a study to investigate the current status of OER in 22 Arab regions belonging to the Arab League Educational, Cultural and Scientific Organization (ALECSO) including Lebanon. The respondents were 735 stakeholders (teachers, policy makers, government agents, etc.) who are interested in OER use and adoption; knowing that only six of them were from Lebanon.

The results showed that the OER progress is unbalanced within the Arab countries and Lebanon is among the several Arab countries that are still behind when it comes to the integration of OER at universities and schools. In many Arab countries such as Saudi Arabia (Tlili et al., 2020), many initiatives and programs were set to promote the use and development of OER especially in higher education while in Bahrain, a popular OER repository "my digital library" which contains resources for primary and secondary students was created.

At the national level, the Lebanese Ministry of Education and Higher Education (MEHE) implemented the *National Educational Technology Strategic Plan* (2012) for employing and harnessing information and communications technology (ICT) to support teaching and learning in the digital age. One of the recommended actions to be executed during the period between 2012 and 2017 was to adopt a concerted approach towards developing, procuring, and using high-quality digital content. Moreover, it was recommended as an action plan to build a national repository for publishing the resources which are either produced or curated in alignment with the Lebanese curriculum. These resources would be classified according to specific metadata and later on made accessible for all the educational community. However, this was not executed until March 2020 as a response to COVID-19. So, on

the digital library, few resources were published and made openly accessible for a limited time without the possibility of being downloaded or shared (Assaf & Nehmeh, 2022; Nehmeh & Assaf, 2022).

In fact, MEHE's response to the COVID-19 pandemic was focused on training teachers on the use of ICT; namely the utilization of various platforms such as Microsoft Teams, E-school, and Google Meet as communication channels for delivering their online courses and creating a virtual environment for collaborative learning. Moreover, few lessons were broadcast on the Lebanese official TV (TL) and later on posted on YouTube. Furthermore, in 2016, a Lebanese private university, Notre Dame University (NDU), started to adopt OER as part of a university-wide strategic decision towards increasingly more "open education". The aim was the use of digital OER instead of traditional and costly textbooks (Abdelnour, 2017).

The present study aims to analyze the situation of OER use in Lebanon by addressing the challenges encountered by OER users and encouraging the policy makers to design a national planning policy framework that outlines the country's sustainable development goals. One of these goals is to ensure the transition from the adoption of OER to the adoption of open practices. In this sense, this present study investigates the teachers' knowledge of OER and their understanding of their terms of uses through addressing the following research questions:

1. What sources of the materials do the respondents use in their teaching process? What knowledge do they have about the copyrights of the resources they use? How likely are they to share their own teaching materials with other teachers?
2. What definition do the respondents attribute to the term "open educational resources (OER)"? What types of OER do they usually look for? In what specific ways do they benefit from OER? How easy is it for them to find OER that they need?
3. What are the advantages and the drawbacks of OER in the teaching-learning process from their perspectives? How did their frequency of using OER change after starting online teaching?
4. What was the source of knowledge about OER? Did they receive training on them? If yes, what organization conducted that training?
5. What does the creative commons attribution (CC by) mean to them?

MATERIALS AND METHODS

Research Design

This is a descriptive research design study since the authors seek to collect information that helps systematically describe the situation of OER use among Lebanese teachers. More specifically, this research type allows the authors to answer the "what" and "how" research questions.

The researchers followed the quantitative method in collecting and analyzing the quantitative data even though two short open-ended questions were asked to the teachers who stated that they have no idea about the concept of OER. For these questions, the researchers used thematic content analysis to examine qualitative data.

Data Collecting Tool

The tool used to collect data was an online questionnaire prepared on Google Forms. It is designed based on the concept of OER as stated by the UNSECO (2019). This questionnaire consists of five sections, where section A sought to collect demographic information about the respondents including their gender, the type and location of their educational institution, the grade level, and the main subject matter they teach, the language of instruction they use and the years of their teaching experience.

In section B, the teachers were asked about the sources of the materials (lesson plans, videos, images, documents, exercises, tests, etc.) they use in the teaching process, the copyrights of the resources taken from the internet, their willingness to share resources with others and their prior knowledge about OER. The respondents who were OER users were guided to go to sections C and D while those who admitted non-prior knowledge about OER were guided to go to section E.

Section C examined teachers' understanding of OER, the types of OER they use, the way they use them in the teaching process and the ease of finding the resources they need by surfing the internet. Moreover, in this section, the advantages, and the disadvantages of using OER were explored based on teachers' perceptions as well as the rate of using them while teaching online.

In section D, the researchers examined the source of respondents' knowledge of OER and whether they received training sessions on this concept or not. Moreover, since the CC licenses are strongly related to the OER definition, this section also examines the teachers' knowledge about the open licenses.

The teachers in section E were asked to reflect on their definition of OER as well as their interest in knowing about them.

Data Analysis

After cleaning data and sorting responses by question, the researchers conducted a range of statistical analyses using SPSS (version 23). Tables of frequencies and percentages were used. Moreover, multiple response tables (cross tables) were generated by the custom table option for variables with multiple responses.

Based on the findings, the research questions were answered, conclusions were drawn, and recommendations were made.

Validity and Reliability

To check the questionnaire validity, it was sent to three raters: two university professors to test it pedagogically–in terms of whether the questions measure what they are intended to measure, and a statistician to test it statistically. The three raters made

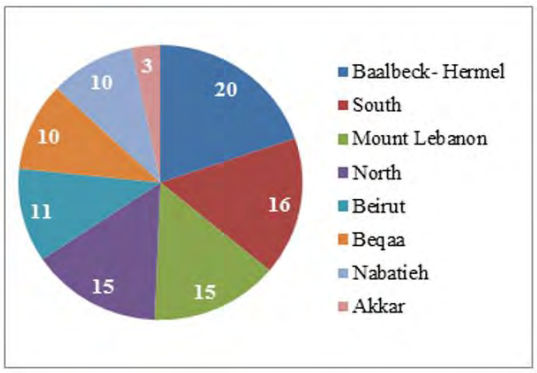

Figure 1. The distribution of teachers across the provinces

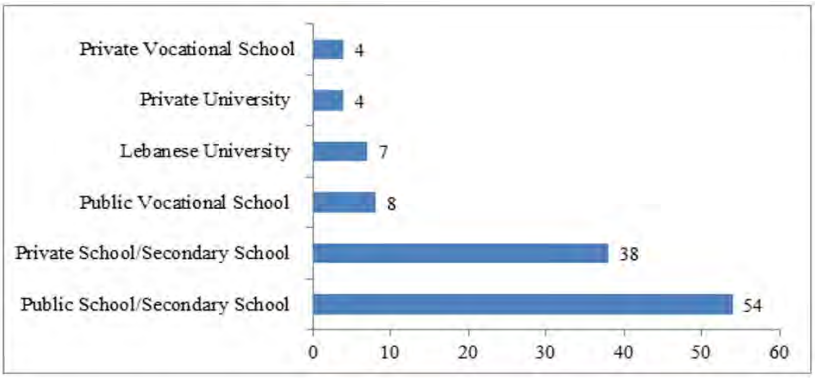

Figure 2. The distribution of the teachers according to the type of their educational institutions

sure that the questionnaire indicators are sensible and that they measure the target concepts, that each indicator covers the full range of intended meanings, and that the questionnaire measures exactly what it intends to measure. To estimate the reliability coefficient, five teachers–who were not a part of the study–were selected to fill the questionnaire so that the researchers could find the correlation between their scores.

Research Procedures

After the necessary modifications were made based on the comments of the raters, the questionnaire was disseminated online through different social media. As such, because the authors opted to collect data from a larger group, the questionnaire was distributed through teacher WhatsApp groups, Telegram groups, and Facebook pages. So, the questionnaire was shared randomly with school teachers who in turn, shared it with their colleagues to encourage a broader group of respondents. In the introduction, the respondents were informed clearly that the collected data will be used exclusively for the purpose of the research. The questionnaire was open for one week: from the 27th of November till the 4th of December 2021.

The Sample

The questionnaire was distributed to public and private teachers in different types of educational institutions (schools, universities, and vocational schools). Hence, 308 responses were randomly collected. In sections A and B, all the participants responded to the questions, and then they were guided to go to the corresponding section based on their response to the last question in section B. The teachers who stated that they know about OER (n=186), were guided to go to section C and then to section D while those who had no idea about this concept (n=122) were directed to go immediately to section E.

FINDINGS

From the research questions distributed across section A through section E and which were obligatory, the data were collected and analyzed. The profile of the respondents was determined in section A. The results of Q1 showed that 84% of the participants were females (n=259) whereas 16% were males.

Since Lebanon is a small country and teachers can move from one province to another to give teaching sessions, the researchers investigated in Q2 of section A about the province where each participant teaches. As displayed in **Figure 1**, the results showed that the participants were reasonably distributed among all the provinces except for those who teach in Akkar governorate as they were underrepresented.

The Lebanese education system is divided into public and private sectors and the teachers can teach in both sectors. So, in Q3 of section A, a multiple response question, participants were asked to specify the type of their educational institution. The results are illustrated in **Figure 2**.

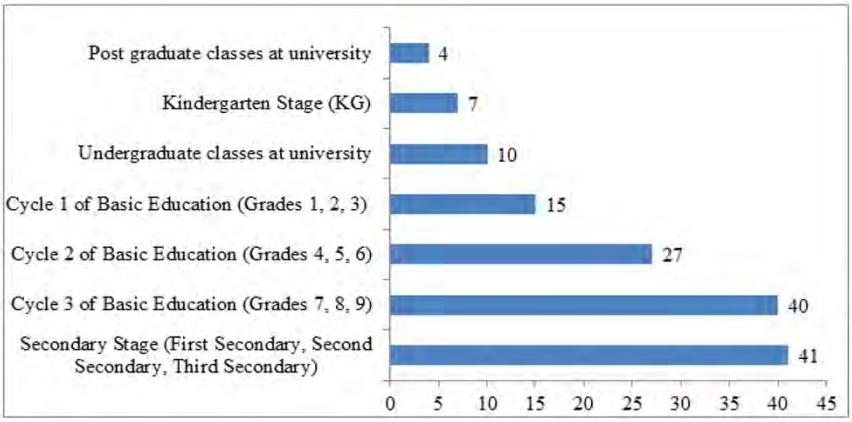

Figure 3. The distribution of the teachers according to the cycles or the stages they teach

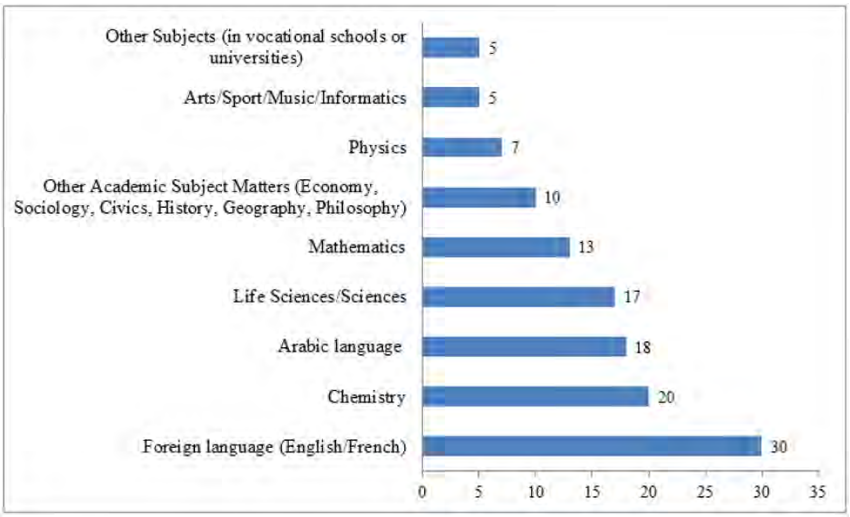

Figure 4. The distribution of teachers according to the main subject matter(s) they teach

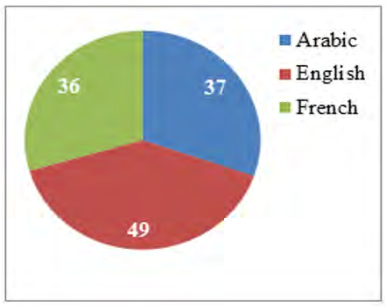

Figure 5. The distribution of teachers according to the language of instruction

Since teachers can teach classes in different stages or cycles, in Q4 of section A, another multiple question response, the participants were asked to mention the classes they teach. The results are represented in **Figure 3**.

In Q5 of section A, a single response question, the participants were asked about the main subject matters they teach. The results are displayed in **Figure 4**, where the term "other subjects" represents the main subject matters taught in vocational schools as well as courses given to undergraduate and postgraduate university students. Nonetheless, the subject matters such as civics, philosophy, economy, geography, sociology, and history that are taught in academic schools, vocational centers, and universities are classified under the term "other academic subject matters".

In Q6 of section A, a multiple question response, the participants were asked about the language of instruction. The results are represented in **Figure 5**.

Data about the teachers' years of experience were collected from Q7 of section A, a single question response, and the results are presented in **Figure 6**.

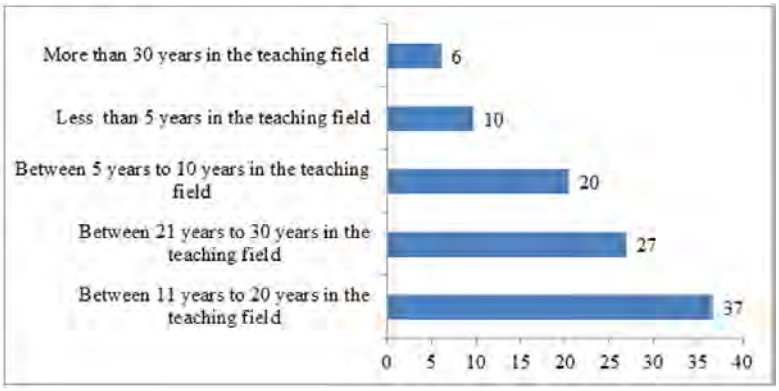

Figure 6. The distribution of the respondents based on their years of teaching experience

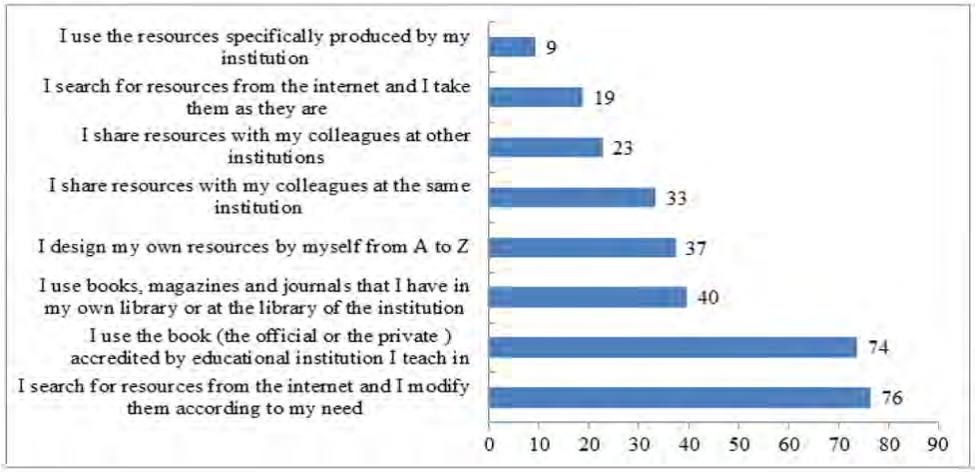

Figure 7. The sources of the materials that the participants use in their teaching

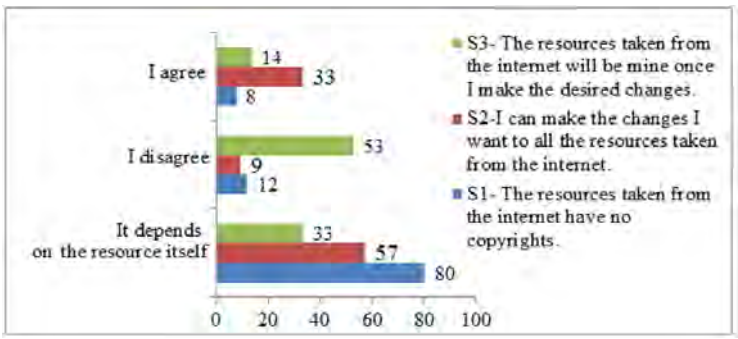

Figure 8. Teachers' responses to each of the three statements of Q2

In Q1 of section B, a multiple response question, the researchers investigated the type of the educational materials (lesson plans, videos, images, documents, exercises, tests, etc.) used by the teachers. As illustrated in **Figure 7**, the two primary sources of materials are the book accredited by the institution and the internet resources after making the necessary modifications.

In Q2 of section B, the researchers examined the respondents' knowledge about the intellectual property, or the copyrights of the resources taken from the internet. So, for each of the statements which are listed below, the participants had to select one of three categories "I agree", "I disagree", or "It depends on the resource itself".

1. **Statement 1 (S1):** "The resources taken from the internet have no copyrights."
2. **Statement 2 (S2):** "I can make the changes I want to all the resources taken from the Internet."
3. **Statement 3 (S3):** "The resources taken from the internet will be mine once I make the desired changes."

The results of this single response question are displayed in **Figure 8**.

In order to avoid possibility that teachers select their responses randomly, custom tables were created for S1, S2, and S3 of Q2 and the results are displayed in **Figure 9**.

In Q3 of section B, the participants were requested to state how likely they are to share their own teaching materials with other teachers. The respondents had to select one answer from a four-point Likert scale as it is illustrated in **Figure 10**.

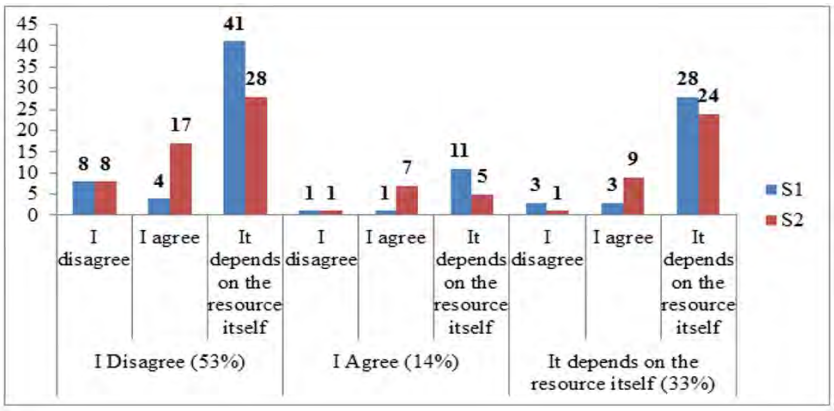

Figure 9. Custom tables results of teachers' responses on Q2

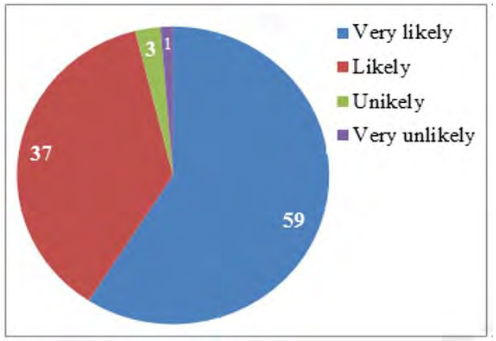

Figure 10. The distribution of teachers according to how likely they are to share resources

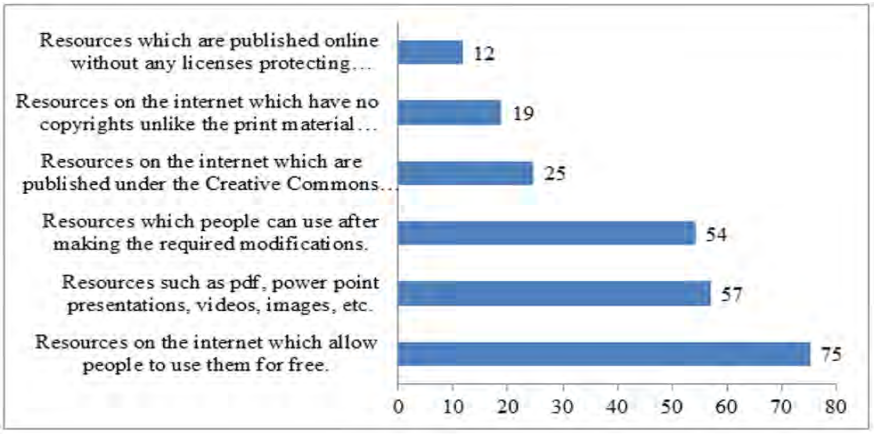

Figure 11. Participants' responses according to the definition attributed to OER

Q4 of section B examined whether the respondents have heard about the term: "open educational resources (OER)". Based on the results, 60% (n=186) of the participating teachers selected the item "Yes, I heard about OER, and I have an idea about them". These respondents were directed to section C then to section D of the questionnaire.

The item "No, I have not heard about OER" was chosen by 40% (n=122) of the participants who were guided to move to section E.

The purpose of sections C and D was to examine in depth the understanding of the concept of OER by the participants.

Q1 in section C required the participants to state how they understand the term "open educational resources (OER)". The results are displayed in **Figure 11**.

For this multiple response question, the following two statements violate the concept of OER:

1. "Resources on the internet which have no copyrights unlike the print material (books, magazines)."
2. "Resources which are published online without any licenses protecting intellectual rights."

Table 1. The level of misunderstanding the concept of OER

	Resources on the Internet, which allow people to use them for free	Resources on the Internet, which are published under the CC licenses
Resources, which are published online without any licenses protecting intellectual rights	10%	4%
Resources, which people can use after making the required modifications	41%	15%
Resources on the Internet, which have no copyrights unlike the print material (books & magazines)	14%	6%

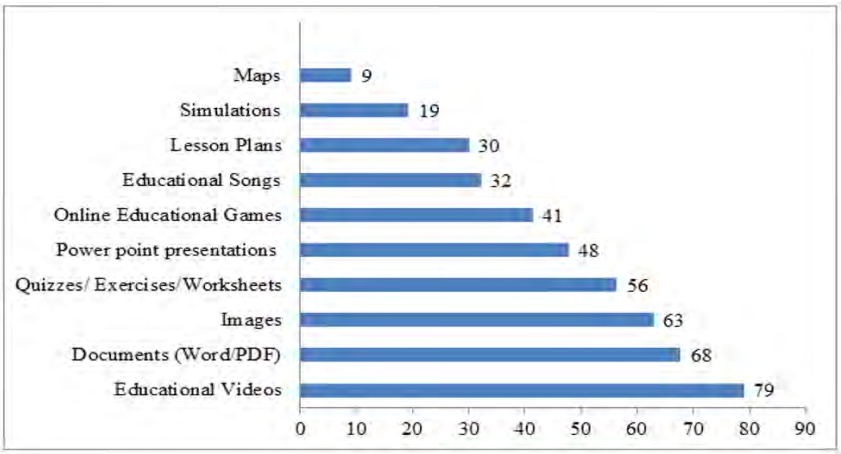

Figure 12. The types of OER that teachers look for

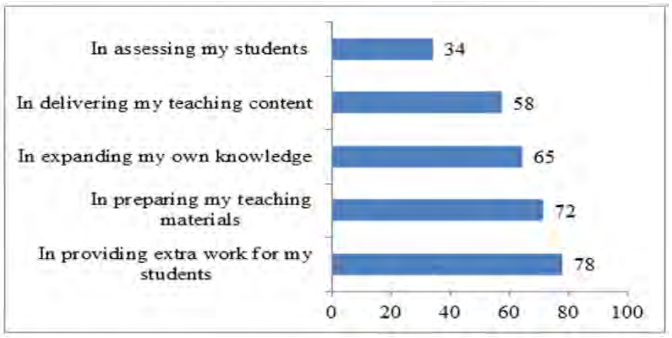

Figure 13. The ways in which teachers benefit from OER

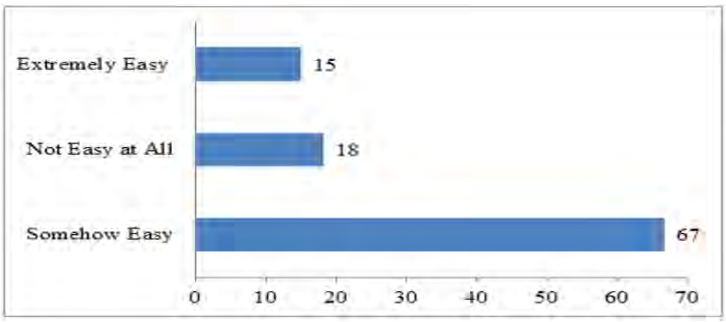

Figure 14. The level of ease to find OER that meet teacher's needs

A custom table was built with the options of Q1 and the results are displayed in **Table 1**.

In Q2 of section C, teachers were asked: "What types of OER do you usually look for? The results of this multiple response question are displayed in **Figure 12**.

For the "other" option, few teachers added types of OER such as programming codes and articles.

In Q3 of section C, the teachers were asked to indicate the ways in which OER would benefit them. The results, as displayed in **Figure 13** showed that providing extra work for students is the main reason why teachers use OER.

In Q4 of section C, the participants were asked: "How easy is it for you to find OER that you need? From the perspectives of the teachers, looking for OER that meet their needs is an easy task as it is displayed in **Figure 14**.

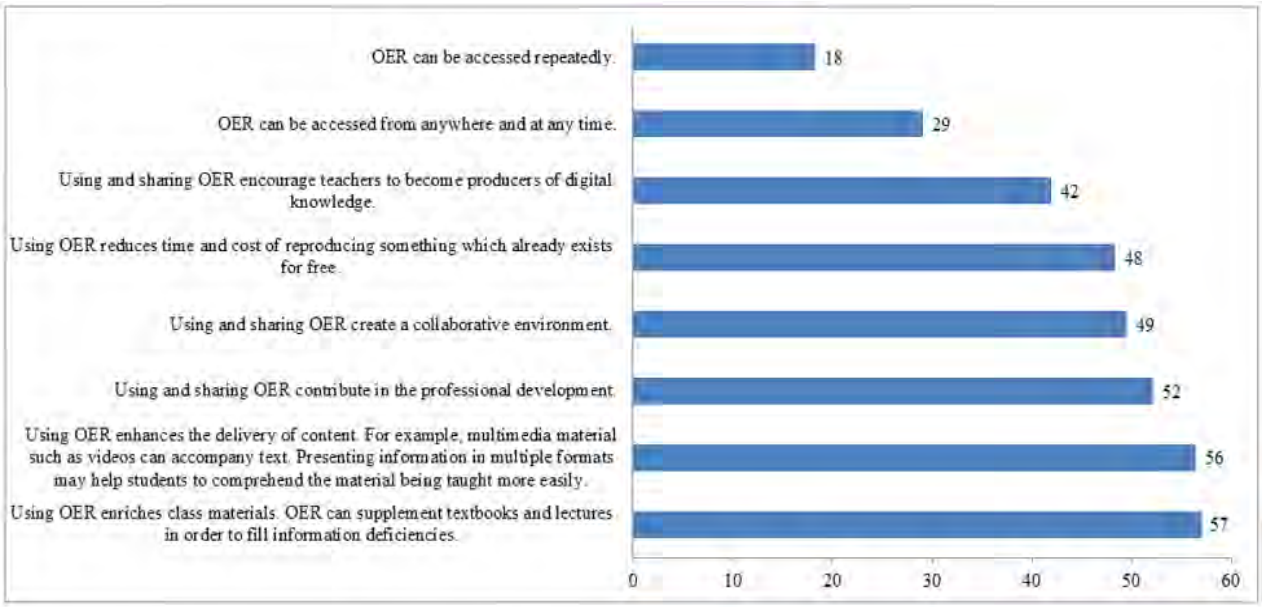

Figure 15. The advantages of using OER

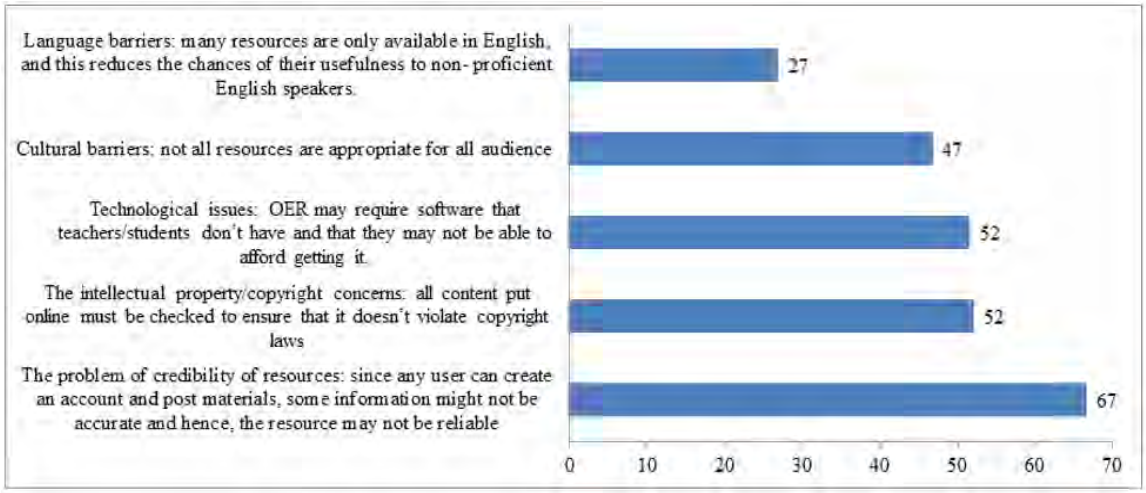

Figure 16. Teachers' responses on the drawbacks of using OER

Table 2. The relation between the subject matters and the language and cultural barriers

Subject matters	Language barriers (%)	Cultural barriers (%)
Chemistry	13	21
Life sciences/sciences	13	21
Physics	14	14
Mathematics	15	10
Arabic language	17	28
Foreign language (English/French)	11	31
Other academic subject matters	28	34
Other subjects	13	27
Arts/sport/music/informatics	40	33

Q5 in section C examined the teachers' perspectives regarding the advantages of using OER in the teaching-learning process. The results of this multiple response question are displayed in **Figure 15**.

The items "they can be accessed from anywhere and at any time" and "they can be accessed repeatedly" were selected by a little percentage of participants. This may be due to the fact that they were considered by the teachers as obvious properties for OER.

Q6 in section C investigated the teachers' perspectives about the disadvantages of using OER in the teaching-learning process. The results, as displayed in **Figure 16**, showed that the problem of credibility was a major concern for teachers.

The relation between the subject matters taught by teachers and the drawbacks such as the language and cultural barriers is illustrated in **Table 2**.

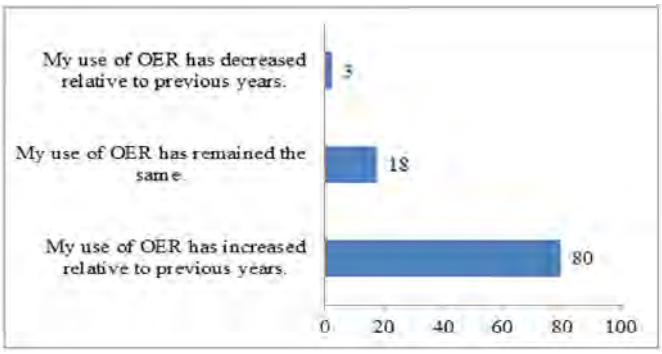

Figure 17. The rate of using OER by the teachers during online teaching

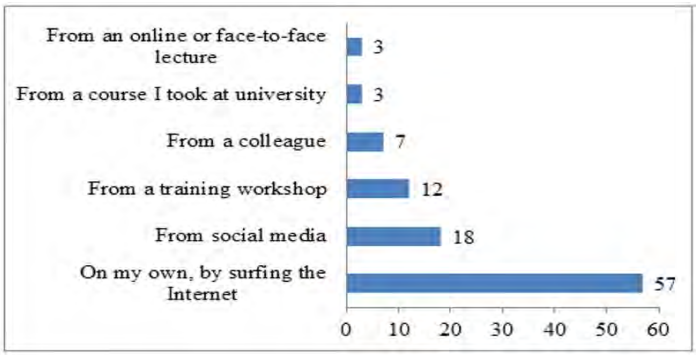

Figure 18. The origin of teachers' knowledge of OER

In Q7 of section C, the researchers investigated the rate of teacher's use of OER since March 2020 due the COVID-19 pandemic and the shift to online learning. The results of this single response question are displayed in **Figure 17**.

In Q1 of section D, the teachers were asked: "How did you hear about OER?" The results of this single response question are presented in **Figure 18**.

In Q2 of section D, teachers were asked about whether they received training on the concept of OER and to mention the organization through which they received the training.

The results showed that 86% (n=160) of the respondents did not receive any training on OER while only 14% (n=26) did.

Among those who had the opportunity to be trained on OER, 13 participants mentioned the educational institutions that conducted the training.

One participant received training through Direction d'Orientation Pédagogique et Scolaire (DOPS), and three were trained through the Pre-service and In-service Training Bureau (PITB) at the Center for Educational Research and Development (CRDP). Both of these public institutions are directly linked to the Minister of Education and Higher Education, who exercises guardianship over them.

Moreover, other teachers were trained by international organizations such as Qitabi (n=1), Hachette (n=1), and local organizations such as learning land (n=2), Savoir et Pouvoir (n=1), and Global (n=1). Besides, one participant received training through the Lebanese university, another one through the American University of Beirut while a third one attended an online webinar about OER.

In Q3 of section D, the participants were asked a multiple response question:

"As you surf many educational websites, you see this statement: The content on this website is licensed under the creative commons attribution (CC) at the bottom. What does the following statement mean to you?" The results are displayed in **Figure 19**.

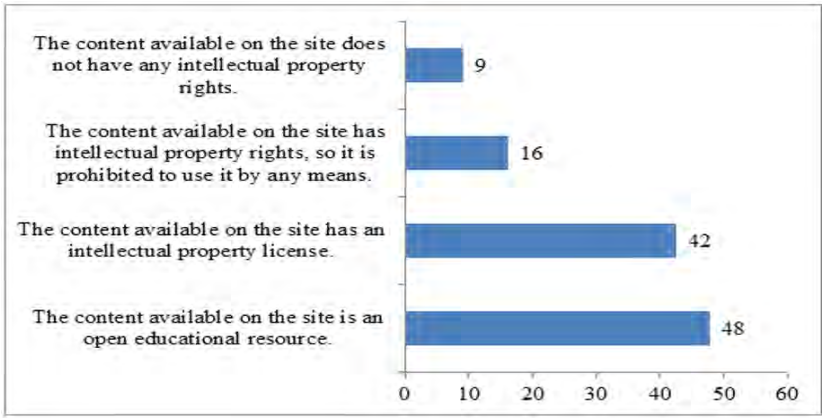

Figure 19. Participants' understanding of the creative commons licenses

Table 3. Teachers' understanding of a creative commons license attributed to an educational website

	The content available on the site is an open educational resource
Content available on site has an intellectual property license.	9%
Content available on site has intellectual property rights, so it is prohibited to use it by any means.	2%
Content available on site does not have any intellectual property rights.	2%

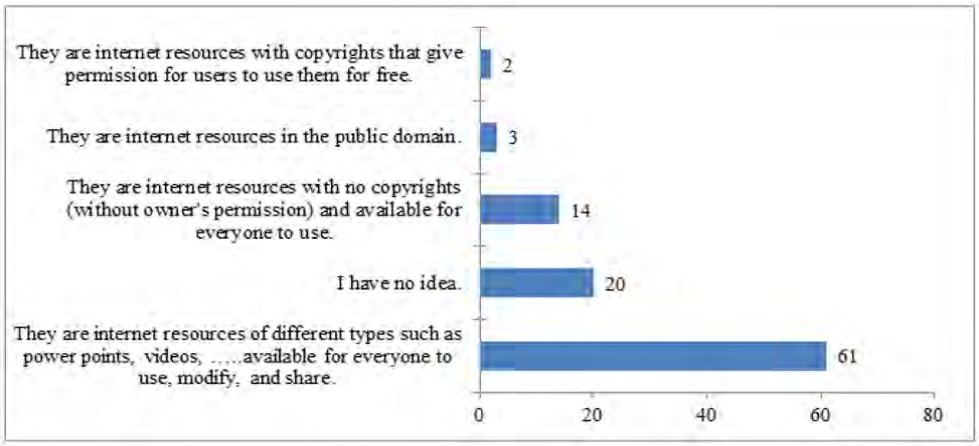

Figure 20. Teachers' answers concerning their understanding of the term OER

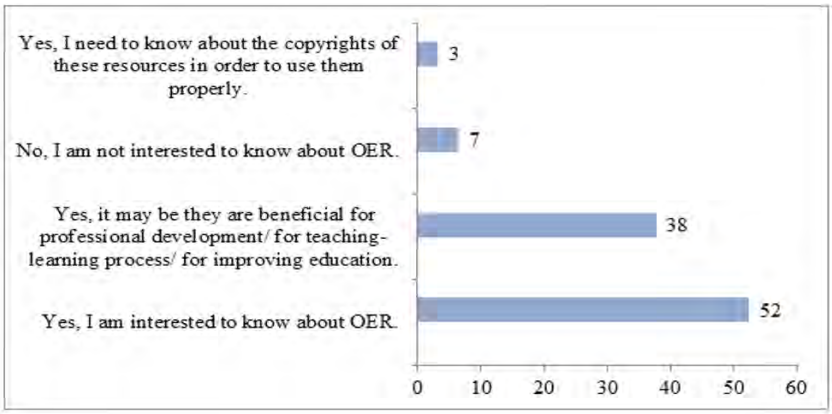

Figure 21. Teachers' responses regarding their willingness to learn about OER

For this question' options, a custom table was created, and the results are displayed in **Table 3**.

Section E was restricted to the teachers (n=122) who stated that they have no idea about OER. This section includes two short questions. For Q1 "What do you think OER are?" responses of teachers were classified into five categories as shown in **Figure 20**.

In Q2 of section E, the teachers were asked: "Would you be interested to learn about them? Why or why not?"

The responses of the teachers were classified into four categories and the results are displayed in **Figure 21**.

DISCUSSION

The aim of this paper is to provide information about the current situation of using OER by Lebanese teachers and to highlight the barriers to implementing open education. Hence, assessing the practices of OER users will help decision makers to invest in open education as this assessment guides them while setting out a national policy for e-learning.

The results of section A describe the profiles of the participating teachers. The dominance of females (84%) in the sample (n=308) is also reflected in the Lebanese educational sector from K-12, where females represented 81% of the teachers working in the public and private institutions during the academic year 2020-2021 (CRDP, 2021).

The sample represents all the Lebanese provinces even though the teachers from Akkar are underrepresented. Since the questionnaire addresses all educators who teach in all types of educational institutions, the participants were distributed according to these institutions. The percentage of the teachers who teach in public secondary schools was the highest 54% (n=165) while teachers who teach in private secondary schools 38% (n=118) came in the second place.

At the university level, 34 participants teach at the Lebanese university and other private universities while 38 participants teach at vocational schools. Furthermore, 16% (n=50) of the respondents teach in two or more types of institutions.

The results also revealed that K-12 Lebanese teachers were distributed according to all cycles and stages in the study sample. In fact, the current Lebanese educational system, which has been adopted since 1994, includes three stages: preschool, basic, and secondary. The stage of preschool education, which is not compulsory, begins at the age of three. The stage of basic education is compulsory, and it begins at the age of 6 and continues till the age of 14. It includes the elementary level which combines cycle 1 (grades 1 to 3) and cycle 2 (grades 4 to 6) as well as the intermediate level or cycle 3, which comprises grades 7 to 9. Finally, the secondary stage includes grades 10 to 12 and ends with an official secondary certificate (UNESCO-UNEVOC International Centre, 2019).

So, in the sample, the results showed that 7% of teachers teach in preschool, 15% teach in cycle 1, 27% teach in cycle 2, 40% teach in cycle 3, and 41% teach in secondary classes. At the university level, 10% of the teachers teach undergraduate courses while 4% teach postgraduate courses. Moreover, the results indicated that 42% (n=130) of the participants teach different grades that belong to more than one cycle or stage.

The results also proved that the responding teachers teach different subject matters. The percentage of the teachers who teach foreign languages (French and English) was the highest (30%) followed by those who teach chemistry (20%), Arabic language (18%), life sciences (17%), and mathematics (13%).

The results further showed that 49% of the responding teachers deliver their materials in the English language while 37% use Arabic and 36% use French as the language of instruction. Hence, although the Arabic language is the official Language of the country and the native language of its citizens, according to the Lebanese curriculum (Aljaafil & Beyhan, 2021), most scientific subject matters are taught either in French or in English.

The results also revealed that the participants having between 11 and 20 years in the teaching field represented the highest percentage (37%) followed by those who have between 21 to 30 years (27%) and between 5 to 10 years (20%). On the other hand, the percentage of the respondents who have less than five years of teaching experience was 10% and that of those who have more than 30 years of teaching experience was 6%.

In fact, the non-digitized Lebanese national textbooks, which were issued in 1997 without being renewed or developed until today, (Aljaafil & Beyhan, 2021) are still adopted by all the public educational institutions (schools and secondary schools) and in many private schools. This explains why the majority of the teachers stated in Q1of section B that they rely heavily on the book accredited by their institution (74%). Moreover, a high percentage of teachers (76%) declared that they use internet resources after modifying them to align with their needs while few respondents (19%) confirmed that they adopt the internet resources as they are.

This sheds light on the practices of teachers while using internet resources specifically in terms of respecting the intellectual property or the copyrights. Furthermore, 37% of participants stated that they design their resources by themselves from A to Z. According to Tlili et al. (2020), 73% of the participants agree that the process of creating and publishing OER is a difficult process in the Arab region whereas 26% consider it as a challenge with the absence of motivation.

In China, for example, the government gave bonuses to teachers who contributed to enriching the national OER repositories with their own OER (Tlili et al., 2019). Hence, the initiatives or programs that encourage citizens to be producers of knowledge and participants in open education have to be clearly stated in the future policy to ensure the sustainability of producing and publishing OER. Furthermore, 33% of the teachers declared that they share resources with colleagues at the same institution and 23% asserted that they share resources with colleagues at other institutions. This indicates that the culture of openness exists among teachers, but the culture of sharing has to be dictated in the policy since sustainability requires support from all the partners. Over and above that, the knowledge of teachers about the open licenses such as the public domain and the CC, which are attributed to OER was examined.

The results of Q2 in section B showed that 12% of the participants responded correctly to statement 1: “The resources taken from the internet have no copyrights” by selecting the item “I disagree” whereas 80% of the teachers selected the item “It depends on the resource by itself”. So, in this case, the researchers considered it as a correct answer assuming that the teachers meant the public domain materials.

The results also proved that only 9% of the participants responded correctly to statement 2 “I can make the changes I want to all the resources taken from the internet.” by choosing the item “I disagree”: For those who selected the item “It depends on the resource itself” (57%), their answer also was considered true by the researchers.

For statement 3: “The resources taken from the internet will be mine once I make the desired changes.”, the results showed that 14% of the participants responded correctly by choosing the option “I agree”; suggesting that the license attributed to such resources gives the users the permission to make modifications. However, 53% of the teachers responded wrongly by selecting the item “I disagree”.

To avoid random choices by the participants, a custom table was built from the results of Q2. The results revealed that out of the teachers who selected “I agree” for statement 3 (14%), only 1% chose the correct answer for statements1 and 2. This percentage increased to 11% and 5 % respectively for Statements 1 and 2 with the item “It depends on the resource itself” being selected as shown in **Figure 9**. In fact, in order to understand OER and use them potentially, it is crucial that OER users know that the resources published online are protected by intellectual property rights. Hence, open licenses such as the CC attributions and the public domain are an essential component of the OER definition. They respect the intellectual property rights of the copyright owner and provide permissions granting the public the right to access, re-use, repurpose, adapt, and redistribute educational materials (UNSECO, 2019). Hence, the results proved that most teachers do not have enough knowledge about the notion of open licenses and this in turn leads to misunderstanding and consequently misusing OER. Since the concept of sharing resources is essential for the openness cycle in education and for maintaining sustainability especially in OER, the researchers examined in Q3 of section B whether the participants had the initiatives to share the resources with colleagues and to what extent.

The results showed that the majority of the teachers (96%) have no problem in sharing their own teaching materials with their colleagues while only 4% of the participants are unwilling to share resources with others. This reveals that the Lebanese context promotes the culture of openness. Accordingly, decision-makers are requested to take initiatives that elaborate strategies to foster this culture.

Q4 of section B tests whether teachers have heard about OER and at this point of the questionnaire, the participants were asked to go to different sections based on their answers. Based on the results, it was evident that 60% (n=186) of the participants are familiar with OER, so they were asked to go to sections C and D. The remaining participants (n=122) who had no prior knowledge about OER were asked to go to section E. In the study conducted by Tlili et al. (2020), 43% (n=313) of the participants reported that OER is not being used in their country.

The results of Q1 in section C showed that 75% of the participants defined OER as resources on the internet which allow people to use them for free while 54% understood the term OER as resources which allow the users to make the modifications they desire. Moreover, to examine deeply the understanding of open resources by OER users and their practices, a custom table (**Table 1**) was built with the items of Q1 related to the definition of OER.

Table 1 showed that among the 25% of the teachers who selected the item “Resources on the internet which are published under the creative commons licenses (CC)”, 10% selected the items “Resources which are published online without any licenses protecting intellectual rights” and “Resources on the internet which have no copyrights unlike the print material (books, magazines)”. The selection of the items that violate the CC licenses indicates that some of OER users among participants selected the items randomly. Moreover, among the 75% of the teachers who understood OER as “Resources on the internet which allow people to use them for free”, 24% selected the two above items that violate the CC licenses. Hence, the misunderstanding of the open licenses attributed to OER consequently led to bad practices while utilizing OER.

Q2 in section C showed that granular resources such as educational videos were the most common types of OER that teachers (79%) look for followed by documents (Word/pdf) (68%) and images (63%). These types of OER also proved to be preferred by the Arab participants since they consider that video lectures and pdf/ppt courses could be easily reused in any educational setting to enrich the learning experience (Tlili et al., 2020). Moreover, in the present study, 56% of the teachers stated that they search for quizzes/exercises/worksheets to deliver more opportunities for learners to practice while 30% proved to be interested in searching for lesson plans. According to Tlili et al. (2020), the types of OER needed by the Arab participants are open e-books. In their viewpoint, this could help reduce the cost of purchasing textbooks and demolish one of the factors that could be a barrier against the achievement of the SDG4 since many Arab families cannot afford to buy textbooks. In fact, implementing OER rather than just using traditional textbooks showed students’ satisfaction at NDU (Abdelnour, 2017).

The results of Q3 in section C showed that teachers use OER in all steps of the teaching-learning process as well as for expanding their own knowledge. Hence, 78% of the teachers use OER for providing extra work for learners while 34% invest such resources for assessing students’ learning. In fact, the primary goal is to make OER accessible and to use them in a structured way for effective open teaching and collaboration. Shenoda (2021) evaluated quantitatively and qualitatively the effectiveness of implementing OER in an engineering technology course for university students. He mentioned that the benefits of such implementation can only be met when the instructor uses a framework to assess the performance of the course both quantitatively and qualitatively.

The results of Q4 in section C indicated that for 82% of OER users, searching for resources aligned with their needs as teachers is an easy task. More particularly, 15% of the teachers claimed that looking for OER which meet their needs is extremely easy, 67% of them reported that it is somehow easy while only 18% were against this opinion. In fact, online Arabic resources in general (not only OER) represent merely 3% of the overall Internet content (Al Arabiya News, 2013). Furthermore, 85% of the Arab participants stated that they prefer to look for OER in the Arabic language followed by English (75%) and French (25%) languages (Tlili et al., 2020).

The advantages of OER from the perspectives of Lebanese OER users were investigated in Q5 of section C. The results showed that 57% of the participants selected "Using OER enriches class materials. OER can supplement textbooks and lectures in order to fill information deficiencies." The item "Using OER enhances the delivery of content. For example, multimedia material such as videos can accompany text. Presenting information in multiple formats may help students to comprehend the material being taught more easily." was selected by 56% of the teachers. However, the item "Using and sharing OER contribute to the professional development" was selected by 52% of the teachers.

Contrary to resources produced by commercial publishers, many OER are the crowd content disseminated based on user or peer reviews (National Center on Accessible Educational Materials, 2021). Hence, the major concerns of the user are the credibility of the resource and the accuracy of the content especially when the author is not well known. This was shown in the results of Q6 in section C since 67% of the respondents chose the problem of credibility of resources from the list of challenges of using OER. Moreover, the intellectual property/copyright concerns and the technological issues were equally selected by 52% of the participating teachers. According to Tlili et al. (2020), for 20% of the Arab participants, copyright problems are among the barriers against producing and publishing OER.

In fact, the ethical problem of copyrights and intellectual property is a very demanding task because the violation is easy online. So, OER users have to be aware especially when the metadata of the resources are not available (National Center on Accessible Educational Materials, 2021). Moreover, OER users have to check well the content of these resources to ensure that they are bias-free and fair in their treatment of gender and national issues.

The results presented in **Table 2** showed that for 34% of the respondents, who teach "other academic subject matters", the cultural barrier was one of the drawbacks in using OER. These subject matters include economy, sociology, civics, history, geography, and philosophy. Moreover, 28% of the respondents who teach these subject matters stated the language barriers as a drawback in using OER. Since these subject matters are taught in Arabic language and they are deeply related to the culture of the country, it is difficult for the teachers of these subject matters to find adequate online resources that align with the Lebanese curriculum.

The results of Q7 in section C showed that 80% of the respondents increased their rate of using OER after they started online teaching due to the COVID-19 pandemic and this is justified with the adoption of a curriculum that is not digitized yet **(**Aljaafil & Beyhan, 2021**).** Even with the school lockdowns and the shifting to online learning, 18% of the teachers stated that their use of OER remained the same.

The results of Q1 in section D showed that 57% of the respondents have heard about OER through their own surfing of the Internet, 18% have heard about them from social media while 12% have heard about them during a training workshop. This correlates with the results of Q2 in section D where only 14% (n=26) of OER users proved to have received training on OER. So, even after two years of implementing online learning due to the pandemic; great efforts are still needed to leverage open education in general and to shift towards the knowledge economy.

Q3 in section D assesses the understanding of OER users about the CC licenses. So, when asked about the meaning of the terms of use of an educational website which stated that its content is licensed under the CC attribution, 16% selected the item "The content available on the site has intellectual property rights, so it is prohibited to use it by any means" and 9% selected the item "The content available on the site does not have any intellectual property rights." Moreover, the results presented in **Table 3** showed that among the 48% of the teachers who chose the statement "The content available on the site is an OER.", only 9% selected the item: "The content available on the site has an intellectual property license." Hence, it is clear that there is a misunderstanding of the concept of OER and consequently a misuse of them since the teachers are ignorant about the open licenses; an essential component of OER definition. Although the notion of CC has been launched since 2002 and it is currently the most used open license for OER, 48% of the Arab participants do not know about CC while 24% have limited information about such a notion (Tlili et al., 2020). This reveals that the Arab region participants, including those who come from Lebanon, have little awareness about open licenses and this reflects the reason behind their concern about copyright issues.

Q1 of section E showed that only 2% of the respondents gave the right definition of OER: "They are internet resources with copyrights that give permission for users to use them for free." However, 61% of the respondents defined OER as "internet resources of different types such as power point presentations, videos, etc. available for everyone to use, modify and share." In conclusion, the misunderstanding of the OER concept exists among both groups of teachers: the OER users and those who have not heard about them before.

The results of Q2 in section E showed that 93% of the teachers were interested in learning about OER. The interest of 38% of the participants, in knowing about OER is to benefit from them either at the professional level or in the teaching-learning process. The concern of using OER properly was the target of 3% of the teachers who stated that they need to know about the copyrights of these resources. According to Tlili et al. (2020), most of the Arab participants agreed on the positive impact of OER on learning outcomes.

In a nutshell, and despite the small sample size, the authors of the present study managed to describe the current situation in terms of integrating OER in the teaching-learning process. They also succeeded in revealing the necessity to take initiatives for unveiling the power of OER by training educators and encouraging them to be producers of knowledge rather than mere consumers.

Limitations

This study aims at describing the situation of Lebanese educators whose misunderstanding of the concept of OER leads to misusing such resources in the teaching-learning process. Hence, it fills the gap in the research by reflecting on the current

situation of using OER in Lebanon even if at a small scale. The limitation of this study refers to the fact that the results might not be reproducible if a larger sample of educators was taken respecting the representations of gender, governorates, and types of educational institutions. Therefore, more data must be collected to examine the impact of using OER in the teaching- learning process from different stakeholders such as learners, teachers, and administrators.

CONCLUSION

The present study aims at exploring the understanding of the OER concept by the Lebanese teachers and to scrutinize their practices in using these resources in the teaching-learning process. The results proved that 74% of the participating teachers depend on the book accredited by their institutions and that 76% of them search for resources from the internet and tailor them according to their needs. Moreover, 78% of OER users stated that they use these resources to provide extra work for their students whereas 79% of these users usually use OER to look for educational videos. According to 67% of teachers, the main challenge in using OER is their credibility while according to 52% challenges include copyright issues and technological problems. Furthermore, for the majority of OER users, searching for resources aligned with their needs is a somehow easy task. In addition, the majority of them stated that their frequency of using OER increased as they started teaching online.

Although 96% of OER users declared their willingness to share their resources with others, the majority showed a misunderstanding of the concept of OER due to their ignorance of open licenses attributed to these resources. This may be referred to the fact that 57% of them acquired the OER concept by themselves while only 14% received training. Based on the findings, we recommend the following suggestions.

Suggestions at the Pedagogical and Strategic Levels

Today, more than ever, it is time to leverage open education as an emergency response to Lebanon's complex situation. Since October 2019, Lebanon has been encountering economic and banking crises which started squeezing the academic institutions months before the COVID-19 outbreak (Carrascal, 2020). Hence, there is an urgent need for the country to integrate the knowledge economy in education and to benefit from the culture of sharing.

The main reason behind the need to adopt the policy of openness in education by using OER is to establish equity and to make learning accessible for all (UNESCO, 2019). However, in the Arab countries and particularly in Lebanon, there are still various systemic challenges that need to be addressed in order to realize the full potential of OER for all learners, including those with disabilities. Hence, many initiatives are required from the Lebanese decision-makers to raise teachers' awareness on the efficacy of OER and enhance their abilities to be producers of knowledge. So, it has become imperative to set out a policy for OER and for open education in general in addition to executing new e-learning strategies that involve the proper use of OER.

One of the national policy goals is to ensure that all the learning and supporting materials produced by the MEHE adopt the CC BY-NC license as stated in the Bahrain policy (Miao et al., 2019, p. 39). Moreover, a national repository is needed for publishing the resources which are either produced or curated in alignment with the Lebanese curriculum.

According to Tlili et al. (2020), 49% of the participants reported that Arab region governments support OER, but without a clear vision in contrast to 28% who stated that their countries do not support OER. Furthermore, the concept of sharing resources enhances the sustainability of knowledge since these resources are transmitted beyond the borders of the country if they are posted online. Hence, permanent initiatives to encourage people to create and share their resources must be recognized. Besides, the adoption of OER in the form of open textbooks and digital lessons could reduce the cost of education. Moreover, OER may serve as an important pillar for designing and constructing curricula especially for subject matters which involve international concepts such as sciences and mathematics. In addition, there is a need to assess the impact of OER on teaching and learning at the national level. So, both quantitative and qualitative evidence are needed in order to collect data about users' needs and the difference that OER make. This has to be stated in the National OER policy.

Hence, MEHE has to create a framework which ensures the quality of OER. This framework aims to describe the workflow and process of producing OER used in the public domain. Such a framework is the CORRE framework which was created by the University of Leicester which decided to transform existing teaching materials produced by the university academic staff into OER (Nikoi, 2011). This framework consists of four stages: content, openness, re-use, and re-purpose and evidence.

The content stage focuses on collecting the existing teaching materials while the openness stage deals with the legal, pedagogical, and technical aspects of transforming academic teaching materials into OER.

Re-use and re-purpose are the third stage of the CORRE evaluation process. In this stage, opinions are gathered internally and externally from OER stakeholders to establish fitness for purpose in terms of the reuse and re-purposability in other learning contexts. The fourth stage is the evidence process which makes it possible to know who uses these resources, in what way they use them and whether they use them as they are or after adapting them (Harley, 2008; McGill et al., 2008). The assessment of OER quality and usability is assured via an online and web-based questionnaire to establish whether the OER achieved what they were supposed to achieve or not.

Furthermore, to reach the inclusion goal for all learners including those with disabilities (UNESCO, 2019), an inclusive pedagogy based on universal design for learning has to be implemented along. So, the full potential of OER could be acquired when they truly reach all learners and support the varied ways in which learners consume content.

Finally, for a smooth transition to online and blended learning, the understating of the best use of OER by the educational staff is a must. Thus, for the proper training on OER, an action plan has to be set out in order to reach the education community at a

large scale. To reach to this point, the OER Competency Framework (Lesperance, 2017) has to be adopted. This framework was developed by ALECSO-OER project, and it consists of five domains (International Organisation of La Francophonie, 2016): D1: Becoming familiar with OER, D2: Searching for OER, D3. Using OER, D4: Creating OER, D5: Sharing OER.

Moreover, MEHE has to ensure the implementation of OER practices by students. Tlili et al. (2020) stated that using OER in schools and universities can help students learn digital literacy by offering them the opportunity to review, evaluate and modify the learning material.

As a final stage, OER competency framework has to be integrated with the UNESCO ICT-Competency framework for teachers (ICT-CFT) (UNESCO, 2018) that is adopted by MEHE during the process of teacher training.

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