

https://doi.org/10.31261/IJREL.2021.7.2.03

Ana Cristina Matoso Bento Saraiva

Universidade Lusíada, Lisboa, Portugal https://orcid.org/0000-0002-6989-5274

Nuno Sotero Alves Silva

Universidade Lusíada, Lisboa, Portugal https://orcid.org/0000-0003-0157-0710

The COVID-19 Impact on Online Education – Opportunities and Challenges in a SWOT Analysis

Abstract

The outcomes of the COVID-19 pandemic are having an impact on all areas, with the educational sector being one of the most impacted sectors to be taken into account. The purpose of this article is to identify the main opportunities and challenges of online education as a result of the COVID-19 pandemic, through a selective bibliography providing advice on information sources, and databases. The research methodology was achieved by performing a systematic literature review of what exists on subject, in order to retrieve the main categories for a SWOT analysis, from the points of view of teachers, students and the parents themselves.

Finally, it attempts to cover the main contributors to the study domain. For each weakness and challenge, teachers and students can create an opportunity in online learning.

The authors also have seen that this type of education is providing a great environment for learning innovation and to face-to-face teaching.

K e y w o r d s: Online Education; COVID-19; SWOT; Opportunities; Challenges

Introduction

The impact of the COVID-19 pandemic on the lives of people is essentially translated into an increase of anxiety, an adoption of new habits and a loss of optimism. In education, we realize a significant change in the routines of students, teachers and parents (Kushni et al., 2020).

We can actually see an articulation between education and family, where the digital network is the platform that supports it due to school closures. So, they should all be prepared to face new challenges by adapting a new strategy according to learners.

On student's perspective, we can see a reluctance in online learning as they do not feel that this type of education is suited to their needs (Almaiah, Al-Khasawneh & Althunibat, 2020).

Regarding the teacher's perspective, we understand a dedication in the exploration of new tools for education and instruction that would provide development in their teaching careers (Escobar & Morrison, 2020). Also, this pandemic has created the background to new developments on the sustainable progress of higher education in the case of the individual and collective actors, as the stakeholders in education (Sá & Serpa, 2020).

Essentially, we should distinguish in what ways this pandemic changed educational paradigms. As we have seen, resulting from the lockdowns, many educational institutions have had to change their learning methods as this process is to be conducted at home. So, a new online educational environment appeared, modifying the interaction between students and teachers.

The main subject of the article is the research engaged in a SWOT analysis of topmost opportunities and challenges of COVID-19 and bringing their impact on education, as the upsurge of distance learning commenced and has, at present, yet to abate. The non-academic debate on this matter is intense, but there is a gap in the theoretical analysis that the authors are attempting to fill by performing a systematic literature review of what exists on subject, with the main goal to partially fill a gap in the scientific body of knowledge on the subject.

Problem Statement

The impact of COVID-19 in education are not yet fully understood (eLearning Inside, 2021; Zhao & Watterston, 2021). Moreover, this article focuses on the re-

search of this impact which has not yet been developed and will be summarized in a SWOT analysis.

Many people are taking advantage of this unique opportunity to implement innovative changes in education (Bird & Bhardwaj, 2020). As we can see, although there is a lot of information about the opportunities and weaknesses of education in the face of COVID-19, there is a lack of selected research to get to the core of strategic issues.

The main research questions that this article addresses are to help us provide a better understanding of how we can provide a better understanding of:

- 1. the current challenges for education facing this pandemic (Piotrowski & King, 2020; Openo, 2020; Longhurst et al, 2020; Dias et al, 2020; Cheng, 2020; Almaiah et al, 2020);
- 2. which opportunities are provided by COVID-19 in education (Yang & Huang, 2020; Reis & Grady, 2020; Adedoyin & Soykan, 2020);
- 3. the major challenges that online education is facing (Smith, 2020; Resnick et al, 2020; Beech & Anseel, 2020);
- 4. and strengths that can provide opportunities by this condition (Sá & Serpa, 2020; Milovanovic et al, 2020; Hut et al, 2020; Brammer & Clark, 2020; Bodenheimer & Leidenberger, 2020; Bird & Bhardwaj, 2020; Alim et al, 2020).

An attempt is made to define what characteristics each author gives to the subject, selecting them by the questions described above, with the aim of developing and dividing the information with a SWOT analysis.

Finally, this article intends to divide and select the amount of information on this subject into more workable subdivisions, covering the research gap and providing a body of knowledge for the forthcoming research.

Research Methodology

In order to conceive a better understanding in the field of challenges and opportunities of COVID-19 in education, the authors conducted a systematic literature review (Rajendran et al., 2020; Kitchenham & Charters, 2007), followed the PRISMA framework (Preferred Reporting Items for Systematic reviews and Meta-Analyses), and selected databases (e.g. B-ON Collections (https://www.b-on.pt/en/collections/#Contents)).

Despite the fact that systematic reviews were developed within medical science as a way to synthesize research results in a transparent and reproducible

method, it could be defined as a research method. In fact, it includes the process to identify and critically evaluate relevant research, and to collect and analyze data from that research in order to identify all empirical evidence that matches predefined inclusion criteria to answer a specific research question or hypothesis (Snyder, 2019).

This research method intends to summarize the numerous researches on this study. It is supposed to establish a summary measure of the impact of the studies, based on the assumptions created by the findings (Hammersley, 2020).

The main goal of this review is to identify key frameworks, in theoretical and/ or methodological terms, or to highlight the gaps in the literature or questions to be addressed, rather than to establish the answer to a specific research question (Hammersley, 2020). In some cases, a research question requires a more extensive data collection. In such instances, an integrative research can be useful when the aim of the review is not to cover all articles ever published about the subject, but to match up the different perspectives to create new theoretical models (Snyder, 2019).

Finally, this is a way to complete a body of knowledge, which uses a clear definition of methodology to identify, analyze and interpret all possible findings of a specific research question (Tranfield, Denyer and Smart, 2003). The main goal is to summarize and provide the background of the challenges, threats, strengths and opportunities of the impact of COVID-19 in online education.

Some steps need to be followed and action taken to ensure the review is accurate, precise, and trustworthy (Snyder, 2019).

A strict review must be systematic in a further methodological approach, explicit in explaining the procedures by which it was conducted, comprehensive in its scope of including all relevant material, and hence reproducible by others who would follow the same approach in reviewing the topic (Okoli and Schabram, 2010).

Hence, Okoli (2015) suggest an eight-step guide to conducting a systematic literature review; by (1) identify the purpose, (2) draft protocol and train the team (planning), (3) apply practical screen, (4) search for literature (selection), (5) extract data, (6) appraise quality (extraction), (7) synthesize studies, (8) write the review (execution); and we attempt to follow these guidelines, as described below:

The authors focused on keywords *Education; COVID-19; Opportunities; Challenge and Teaching.*

The chosen database was B-On¹, and limitations were used to the searched disciplines (since the main theme is education and COVID-19, it would make sense

¹ (the online knowledge library), that has full texts from over 16,750 scientific international publications from 16 publishers.

to bound the subject areas within the related themes as *Education*, *Information Technology*, *Social Sciences & Humanities*, *Social Work* and *Sociology*); to a timespan (as the coronavirus was identified in 2019 (WHO, 2020), the selected timeline in the research engine was from 2019 until the current date – 2021).

The articles searched by the authors were also only peer reviewed and with full text only, as we limited the search to academic journals.

The selection by the authors was made by only choosing the articles that were related to the pandemic COVID-19 and the ones that seem more relevant to the issue. This selection was also made after eliminating identical results.

Table 1 Search equations

Results	Selection
4.136	8
18.270	8
23.300	10
70.919	6
1.129	3
2.312	2
1.416	3
9.609	2
6.776	2
8.640	1
146.507	45
	4.136 18.270 23.300 70.919 1.129 2.312 1.416 9.609 6.776 8.640

Note: Own elaboration.

As we can see, there are numerous articles referring to the research, which is why it is important to select and distinguish the articles from approaches.

As we could see from the research, some authors advocated the advantages of online learning (Resnick et al., 2020; Xie et al., 2020; Hut et al., 2020), from the perspective of students in online education (Kushni et al., 2020; Bayram, 2020; Brammer & Clark, 2020; Beech & Anseel, 2020; Xie et al., 2020; Reis & Grady, 2020).

The barriers to students with special needs (Smith, 2020) are an issue that deserves to be mentioned as it is a major challenge to online education.

The articles also focused on the perspective of educators to this pandemic and how they are dealing with the new ways of teaching. Some of the authors focused on sports education (Hodges & Martin, 2020), chemistry (Huang, 2020; Aydemir & Ulusu, 2020), higher education (Molchanova et al., 2020; Kamsker et al., 2020; Piotrowski & King, 2020), management education (Beech & Anseel, 2020; Brammer & Clark, 2020) and doctoral research (Aydemir & Ulusu, 2020; Reis & Grady, 2020), to research the impact of these new ways.

Besides analyzing the challenges and the opportunities in virtual education (Escobar & Morrison, 2020; Molchanova et al., 2020; Adedoyin & Soykan, 2020), they researched how to improve the methods of distance learning (Yang & Huang, 2020; Milovanovic et al., 2020).

The sustainability in education in the face of the pandemic is viewed as an opportunity (Sa & Serpa, 2020; Milovanovic et al., 2020; Bodenheimer & Leidenberger, 2020), or a strategy of education (Zhao et al., 2020; Govender et al., 2020; Resnick et al., 2020), and as the measures and politics to fight against the COVID-19 pandemic in the institutions (Yang & Huang, 2020; Longhurst et al., 2020; Cheng, 2020; Govender et al., 2020; Hodges & Martin, 2020).

As far as the future of online education after COVID-19 is concerned, it is very important to know how the educational atmosphere is going to change, and what are the opportunities hidden behind the pandemic. This subject is explored in many articles, e.g.: (Dobrila, 2020; Piotrowski & King, 2020; Alsheikhidris, 2020; Dias et al., 2020; Openo, 2020; Crosby et al., 2020; Tseng & Chen, 2020; He et al., 2021).

To identify the threats and weaknesses in the subject, we selected the articles that pointed to all the external environmental factors of the subject, like:

- political factors (Bird & Bharwaj, 2020; Longhurst et al., 2020);
- economic factors (Beech & Anseel, 2020);
- social factors (Bayram, 2020; Milovanovic et al., 2020; Tseng & Chen, 2020):
- technological factors (Hodges et al., 2020; Resnick et al., 2020; Smith, 2020; Xie et al., 2020; He et al., 2021);
- environmental factors (Adedoyin & Soykan, 2020; Alim et al., 2020);
- legal factors (Cheng, 2020).

Strengths

The time of quarantine, if managed effectively, could be an advantage for all interested parties. For PhD students, for example, reading books, developing new experiments, analyzing and writing items from previous investigations, producing papers and expanding their scientific horizons can turn this pandemic into a chance to increase their career (Aydemir & Ulusu, 2020).

This period can be used to spend more time with their family, which, combined with their educational subject, is a strengthening university-school-family partnership (Hodges & Martin, 2020).

We can see some advantages in the use of online learning, like the flexibility of time and place on various platforms (Kushni et al., 2020), and the reduced cost of learning activities. This can lead to a significant innovation in the universities regarding the practices and schedules of academic control (Brammer & Clark, 2020).

Xie et al (2020) lists some of advantages of online education:

- 1) flexibility;
- 2) information accessibility;
- 3) global reach;
- 4) equity;
- 5) innovation;
- 6) efficiency.

So, online education has many strengths to take advantage of, especially if combined with face-to-face education. It is important to know how to capitalize on all the resources that this type of education can offer.

Weaknesses

As can be seen from previous texts, some disadvantages in online education reflect that many teachers were not yet familiarized with online learning, which implies that this kind of learning is not still in line with the student's expectations, and they do not agree that online learning is an effective effect of increasing their knowledge (Kushni et al., 2020).

As we can see in the survey by Kushni et al (2020), only 28,02% of students agree about how to continue using online learning from the aspects of feeling comfortable, being used continuously in future, feeling happy, creating enthusiasm and being motivated in learning.

Other surveys consider the distance education method in university as a hard and distressing process (31,37% of respondents), (Bayram, 2020).

In the results, both parts value that they could adjust to different environments, ambiguous situations, solve difficulties, learn from experience and have a positive perspective from the results of the COVID-19 quarantines (Escobar & Morrison, 2020).

Other weaknesses can be the trauma associated with the loss of social networks among students (Hodges & Martin, 2020), or the reduction of the quality of the student experience as consequence of online teaching (Beech & Anseel, 2020).

A loss of publication outcomes for academics was noticed, as a reduction of conferences and group meetings occurred because of the lockdowns associated with the pandemic (Beech & Anseel, 2020). This aspect could be seen as a lack of a sense of fitting in and connectedness due to the presence of distractions and to a lack of commitment (Xie et al., 2020).

This author also introduces some of the threats in online education:

- 1. network instability and technological constraints;
- 2. lack of a sense of belonging and connectedness;
- 3. presence of distractions;
- 4. lack of engagement.

There are some visible weaknesses referred to online education that could be transformed into opportunities to create new and different strategies of education.

Opportunities

This pandemic creates new opportunities and challenges, and researchers could embrace this by 1) providing models to adapt to the new changes, 2) reconsidering the process of the digital renovation of institutions, 3) creating news and more personalized online learning models, 4) adapting new models so they can reduce the workload on the instructors, 5) recreating the learning process (Adedoyin & Soykan, 2020).

This scenario also provided a chance to expand "traditional professional knowledge and skills developed in ITE programs", a new approach of teaching, and a way that teachers can optimize, develop, strengthen and complement the abilities of face-to-face planning (Escobar & Morrison, 2020) with technology. With this in mind, building a training system of information, which is a good opportunity to improve online education, and educators could provide accessibility to all students in an educational online environment. This approachability could be prepared by incorporating academic content in other alternatives like public television, radio and podcasts.

From a teacher's perspective, we can see an increase in the use of digital platforms, like interactive meeting tools – Zoom, Skype, Google Meet or Microsoft Teams. We could see that lecturers are continuing to support their teaching by using these online method tools, creating a reciprocally beneficial atmosphere to all stakeholders (Hodges & Martin, 2020). The fact of having to know how to deal with new tools and new IT (information technology) software that they have not been acquainted with before was a "learning opportunity", boosting them to get out of the comfort zone (Escobar & Morrison, 2020).

Regarding the students, a prospect to develop new online resources was highlighted by 71% of universities and 50% of academic collaboration (Longhurst et al., 2020).

The pandemic is a good opportunity to ensure that students with special needs have access to all educational opportunities during the pandemic, and that more consistent guidance to special educational services was provided (Smith, 2020).

Providing education concerning emergencies could be a good opportunity to face this pandemic and minimize the impact of disasters or situations like this in the future. This type of education (like disaster simulations, preparedness, seminars about the subject and training) could help to minimize the impact of a disaster and will help students comprehend the course of mitigation and recuperation.

Training and teaching people to deal with disasters is an opportunity to be considered as an effective guidance that can prevent from or reduce the consequences of some disasters, and people with knowledge can better protect themselves and others (Alim et al., 2020).

To researchers that understand the recurrence of the disaster, exploring the crisis implications, evaluating the impacts, highlighting the financial consequences of this pandemic and how they might be mitigated, and modelling the development of policy interventions are important aspects to ascertain its impact (Brammer & Clark, 2020).

To better protect and to promote the health of people, institutions should exploit this moment to increase education in public health with the aim to "improve our educational effectiveness and lead the charge in shaping future public health leaders" (Resnick et al., 2020).

Other opportunities as the 1) flexibility, 2) interactivity, 3) self-pacing and 4) engagement of the major stakeholders in education can create an innovative market for instructional release (Adedoyin & Soykan, 2020), and accelerate the globalization of higher education, including the improvement of online education into an education at a lower cost (Yang & Huang, 2020).

Threats

As we know, distance learning will not appear to be as effective as face-to-face learning.

One of the challenges of online learning during the COVID-19 pandemic is the ability to use technology to improve the quality of online learning, addressed to teachers and aimed at making turn learning media more interactive, (Kushni et al., 2020).

Other challenges that we can highlight is the lack of practice in online training, the unreadiness of teachers in the virtual education program and the absence of experts from both sides (Escobar & Morrison, 2020).

Adedoyin & Soykan (2020) appointed other factors related to 1) technology (where they explain that if online learning is totally related to technological equipment it can be a serious problem if the Internet, technological devices or the access does not work perfectly), 2) socio-economic factors (inequality of socioeconomic status or poverty have an impact on the fact that a student can afford a good broadband connection or good technological equipment which implicates an additional challenge to other students/teachers), 3) human and pets' intrusions (any interruption by another human or pets during online education affects the learning process as well as for other students and/or teachers), 4) digital competence (knowledge and skills of how to deal with efficiency and competence with online devices is a challenge for online learning), 5) assessment and supervision (the fact that there is a lack of supervision and lack of assessment to measure learning activities that can directly disturb the learning process), 6) a too heavy workload (the loads of emails and the amount of irrelevant information causes unforeseen financial and time costs, as stress to the students), 7) compatibility (some disciplines like sports sciences, engineering and medical sciences incompatible with online learning, which creates a challenge to education in the face of this pandemic).

To combat this pandemic, some universities (as we can see the case of Tsinghua University, for example) apply measures to fight against the threat of COVID-19, like establishing a skeletal workforce, postponing the opening of the university, starting to operate with online teaching and learning and providing clear communication between students and teachers. These measures provided a reduced uncertainty for educational institutions, and they transformed the crisis into an opportunity to develop education (Yang & Huang, 2020).

On the other hand, 57% of universities highlight the time investment associated with the development of new resources to replace lectures and practical classes (Longhurst et al., 2020).

SWOT analysis

In order to synthesize, identify and prioritize the main strengths, weaknesses, opportunities and threats of online education and to offer an answer to problem questions, the authors developed a SWOT analysis to provide a body of knowledge focusing on a strategic planning process. This analysis is extremely useful for understanding the literature review, and creating a structure with the most crucial points that influence the improvement on this new type of education.

In the figure below, the authors present a SWOT analysis containing the strengths, weaknesses, opportunities and threats of online education as a consequence of the COVID-19 pandemic.

Strenghts

- . development of new online resources
- . upskilling in new technologies and resources
- . university-school-family partnership
- . flexibility of time
- . Reduced cost of learning activities

Weaknesses

- . time and technological constraints
- . lack of practical sessions
- . issues with assessment
- . presence of distractions
- . lack of engagement

SWOT

Opportunities

- . academic collaboration and working remotely
- . incorporation of blended learning in future curriculum development
- . create an innovative market for instructional release . accelerate the globalization of higher education

Threats

- . reduced student engagement
- . reduced teacher-student relationship
- . limitation of the study
- . heavy workload
- . compatibility

Figure 1. SWOT Analysis

Note: Own development.

The presented analysis was an outcome of the strengths, weaknesses, opportunities and threats presented above.

According to the literature review, the topmost strengths of online education are related to economic, temporal and social factors (like the reduced cost of learning activities, the flexibility of time spent and the partnership with university-school-family), and many of these opportunities are associated with technology and innovation (as we can see that to improve online learning, we have to deal with a better technology, and to create a new industry for this type of education, we need to create new strategies and new methods for innovation).

On the other hand, weaknesses are related to technological constraints (like opportunities, because there is a chance to improve), and to social factors (when we have to learn in our home, the environment where we live starts to increase in importance). The threats for online education, as can be seen from the literature review, are related to technological problems (a too heavy workload), social factors (reduced teacher-student relationship and reduced student engagement), and the compatibility of certain disciplines, certain courses or certain types of teaching (for example, disciplines of physics, sports and laboratorial experiments are very hard to conduct online. Some courses, like medicine and sports or certain types of teaching, like those methods associated with students with special needs have

become almost impossible to do behind a screen, or without the support of family members).

So, online education, as a part of reducing the cost of the delivery of educational services and operations, can provide the background for the creation and discovery of knowledge, sharing of ideas, combined learning and prompt innovation in research (Xie et al., 2020).

Conclusions

The COVID-19 pandemic and the resulting quarantine has changed the face of modern education, turning technologies into a more viable way of teaching. For that reason, there are some different viewpoints and some challenges to face.

Clearly, online education is a viable way for students to explore a greater set of information than they have in face-to-face classes.

The SWOT analysis reports useful issues regarding the amount of quality information about the team. This report identifies the most important points in the literature review, as well as the main opportunities, challenges, strengths and weaknesses provided by the body of existing knowledge.

The authors selected the data from articles regarding Education, COVID-19, Opportunities, Challenges, Teaching and Students, to conclude the main opportunities, challenges, strengths and weaknesses in the online learning environment as presented in the SWOT analysis.

From the perspective of PhD students, the time of the quarantine served to improve their scientific horizons. However, we could also see from the authors that there has been a decrease of academic publications and conferences.

Another issue that concerns the authors is the online teaching of students with special needs, as this type of education is exceedingly difficult without help.

Concerning several disciplines, some authors have shown that dealing with disasters could be a great warning to provide education during these types of emergencies.

Regarding the perspective of education, we saw two different points of view from different authors. The point of view of the students, defended the idea that online learning is a strengthening of the university-school-family partnership, an opportunity to increase their career, and that they have more time for themselves and their family.

On the other hand, this type of education is not in line with their expectations due to the teacher's lack of competences in this new way of teaching, the problems

The COVID-19 impact on online education – opportunities and challenges in a SWOT analysis

with technological devices (crucial in online learning), and the presence of disturbances while they are learning.

Many of them consider developing new online resources essential.

Teacher's perspective is in agreement with university-school-family partnership as the flexibility of time provided by online education.

They also admit that they stepped out of their comfort zone, by increasing the use of technological equipment in their learning methods.

On the other hand, they agree with the students that there was a major challenge in dealing with the technological equipment, and that could affect the quality of online learning.

Through online teaching, they claim that it became quite difficult to supervise and monitor the students' progress.

Finally, it is up to the teachers to take advantage of the opportunities of this type of instruction, however, the family needs to provide the right environment for the student to learn.

Recommendations

As we established during the study, the collected information was very extensive, even without so much of technological advancement. Most of it was not applicable to smaller countries or developing countries. One of the possible recommendations is to adapt the study to specific locations and tools. It would be interesting to verify which are the threats and opportunities of education in each country in the face of the COVID-19 pandemic, as well as its evolution.

The university-school-family partnerships influences this topic greatly, so a more in-depth study on the subject would be recommended.

Limitations

As we could see, the amount of information was the background of this study. This theme contains such a load of content and articles that it was difficult to select the most suitable information. A limitation on this study was needed to fill the database to make the information fit within the framework of the article's opportunities, threats, strengths and challenges.

Regarding the systematic review, one of the limitations is the fact that the target is the definition of the key literature instead of the result of a detailed study (Hammersley, 2020).

Future research

It has become important to rethink education to face this pandemic. The strategies and tools we are learning to use can help transform our schools into flexible

hubs that use a variety of methods and strategies to meet the needs of all students (Bird & Bhardwaj, 2020).

The contribution of this study was to inform the right materials future researchers could work with if they wanted to specifically examine the opportunities, challenges, threats and strengths of this subject.

Having provided the right framework, it will be worthy to deepen the studies in question, and may, in a future research project, focus on topics such as sustainability, digital transformation, and the transformations that will occur as a result of the use of each of these interlinked aspects.

References

- Adedoyin, O., & Soykan, E. (2020). COVID-19 pandemic and online learning: The challenges and opportunities. *Interactive Learning Environments*, 114(1), 1–13.
- Alim, A., Rahmayanti, H., Husen, A., Ichsan, I., Marhento, G., Alamsyah, M., Susilo, Babu, R., Udhaya, M. & Rahman, M. (2020). Environmental disaster education at university: An overview in new normal of COVID-19. *International Journal for Educational and Vocational Studies*, 2(8), 714–718.
- Almaiah, M. A., Al-Khasawneh, A., & Althunibat, A. (2020). Exploring the critical challenges and factors influencing the E-learning system usage during COVID-19 pandemic. *Education and information technologies*. 22 May. Retrieved from https://link.springer.com/article/10.1007/s10639-020-10219-y (20/03/2021)
- Alsheikhidris, M. (2020). Challenges for moving Chinese language courses online. *Education Ouarterly Reviews*, 3(3), 300–312.
- Aydemir, D. & Ulusu, N. (2020). Commentary: Challenges for PHD students during COVID-19 pandemic: Turning crisis into an opportunity. *Biochemistry and Molecular Biology Education*, 48(5), 428–429.
- Bayram, A (2020). Analysis of University Students' opinions on the COVID-19 process and the distance education method applied in this process: The sample of mus Alparsian University. *African Educational Research Journal*, 8(2), 344–352.
- Beech, N. & Anseel, F. (2020). COVID-19 and its impact on management research and education: Threats, opportunities and a manifesto. *British Journal of Management*, *31*(3), 447–449.
- Bird, C. & Bhardwaj, H. (2020). From Crisis to Opportunity: Rethinking Education in the Wake of COVID-19, *Child & Youth Services*, 41(3), 228–230.
- Bodenheimer, M. & Leidenberger, J. (2020). COVID-19 as a window of opportunity for sustainability transitions? Narratives and communication strategies beyond the pandemic. *Sustainability: Science, Practice & Policy, 16(1),* 61–66.
- Brammer, S. & Clark, T. (2020). COVID-19 and management education: Reflections on challenges, opportunities, and potential futures. *British Journal of Management*, 31(3), 453–456.
- Cheng, X. (2020). Challenges of "school's out, but class's on" to school education: Practical exploration of Chinese schools during the COVID-19 pandemic. *Science education Frontiers*, 5(2), 501–516.

- Crosby, S., Howell, P. & Thomas, S. (2020). Teaching through collective trauma in the era of COV-ID-19: Trauma-informed practices for middle level learners. *Middle Grades Review*, 6(2), 1–7.
- Dias, M., Almodóvar, M., Atiles, J., Vargas, A., Zúñiga, L. & Irma, M. (2020). Rising to the challenge: Innovative early childhood teachers adapt to the COVID-19 era. *Childhood Education*, 96(6), 38–45.
- Dobrila, M. (2020). Legal aspects regarding online learning process for students at university and digital education in European Union: Different life, challenges and the ability to continue education during the pandemic caused by Coronavirus (COVID-19). *Romanian Journal for Multidimensional Education. Supplement, 12(1),* 130–137.
- eLearning Inside (2021). How COVID-19 Has Changed Education and How to Adapt. *eLearning Inside*, 08 January. Retrieved from https://news.elearninginside.com/how-covid-19-has-changed-education-and-how-to-adapt/ (25/03/2021)
- Escobar, P. & Morrison, A. (2020). Online teaching placement during the COVID-19 pandemic in Chile: Challenges and opportunities. *European Journal of Teacher Education*, 43(4), 587–607.
- Govender, P., Naidoo, D. & Van, W. (2020). A 3Ts (teaching in trouble times) response to COVID-19 in South Africa. *The Clinical Teacher*, 17(4), 427–429.
- Hammersley, M. (2020). Reflections on the Methodological Approach of Systematic Reviews. In: Zawacki-Richter O., Kerres M., Bedenlier S., Bond M., Buntins K. (eds). Systematic Reviews in Educational Research. Springer VS, Wiesbaden. https://doi.org/10.1007/978-3-658-27602-7
- He, W., Zhang, Z. & Li, W. (2021). Information technology solutions, challenges, and suggestions for tackling the COVID-19 pandemic. *International Journal of Information Management*. Retrieved from https://pubmed.ncbi.nlm.nih.gov/33318721/ (24/03/2021)
- Hodges, L. & Martin, A., (2020). Enriching work-integrated learning students' opportunities online during a global pandemic (COVID-19). *International Journal of Work-Integrated Learning*, 21(4), 415–423.
- Hodges, T., Kerch, C. & Fowler, M. (2020). Teacher Education in the time of COVID-19: Creating digital networks as university-school-family partnerships. *Middle Grades Review*, 6(2), 1–10.
- Huang, J. (2020). Successes and challenges: Online teaching and learning of chemistry in higher education in China in the time of COVID-19. *Journal of Chemical Education*, 97(9), 2810–2814.
- Hut, R., Pols, C. & Verschuur, D. (2020). Teaching a hands-on course during Corona lockdown: From problems to opportunities. *Physics Education*, 55(6), 065022.
- Kamsker, S., Janschitz, G. & Monitzerm S. (2020). Digital transformation and Higher education: A survey on the digital competences of learners to develop higher education teaching. *International Journal for Business Education*, 160(1), 22–41.
- Kitchenham, B., & Charters, S. (2007). Guidelines for performing systematic literature reviews in software engineering. *EBSE 2007-001*. (Joint Report). Keele University and Durham University. Retrieved from: http://userpages.uni-koblenz.de/~laemmel/esecourse/slides/slr.pdf (08/04/2021)
- Kushni, S., Sudji, M. & Mochamad-Bruri, T. (2020). Students 'perceptions toward vocational education on online learning during the COVID-19 pandemic. *Internacional Journal of Evaluation and Research in Education*, 9(4), 881–886.
- Longhurst, G., Stone, D., Dulohery, K., Scully, D., Campbell, T. & Smith, C. (2020). Strengh, weakness, opportunity, threat (SWOT) analysis of the adaptations to anatomical education in the United Kingdom and Republic of Ireland in response to the COVID-19 pandemic. *Anatomical Sciences Education*, *13*(2), 301–311.
- Milovanovic, A., Kostic, M., Zoric, A., Dordevic, A., Pesic, M., Bugarski, J., Todorovic, D., Sokolovic, N. & Josifovski, A. (2020). Transferring COVID-19 challenges into learning potentials: Online workshops in architectural education. *Sustainability*, 12(17), 1–21.

- Molchanova, E., Kovtoniuk, K. & Savych, O. (2020). COVID-19 presents new challenges and opportunities to higher education. Romanian Journal for Multidimensional education. Supplement SI, 12(2), 168–174.
- Okoli, C., & Schabram, K. (2010). A guide to conducting a systematic literature review of information systems research. *Sprouts: Working Papers on Information Systems*, 10(26).
- Okoli, C. (2015). A Guide to Conducting a Standalone Systematic Literature Review. *Communications of the Association for Information Systems*, 37 (43), 879–910.
- Openo, J. (2020). Education's response to the COVID-19 pandemic reveals online education's three enduring challenges. *Canadian Journal of Learning & Technology*, 46(2), 1–13.
- Piotrowski, C. & King, C. (2020). COVID-19 pandemic: Challenges and implications for higher education. *Education*, 141(2), 61–66.
- Rajendran, D.K., Rajagopal, V. & Alagumanian, S. (2020). Systematic literature review on novel corona virus SARS-CoV-2: a threat to human era. *VirusDiseare*, 31(2), 161–173.
- Reis, T. & Grady, M. (2020). Doctoral advising in COVID-19: Opportunity for change. *International Journal of Multidisciplinary Perspectives in Higher Education*, *5(1)*, 136–140.
- Resnick, B., Mui, P., Bowie, J., Kanchanaraksa, S., Golub, E. & Sharfstein, J. (2020). The COVID-19 pandemic: An opportunity to transform higher education in public health. *Public Health Reports*, *136(1)*, 23–26.
- Sá, M. & Serpa, S. (2020). The COVID-19 pandemic as an opportunity to foster the sustainable development of teaching in higher education. *Sustainability*, 12, 8252.
- Smith, C. (2020). Challenges and opportunities for teaching students with disabilities during the COVID-19 pandemic. *International Journal of Multidisciplinary Perspectives in Higher Education*, 5, 167–173.
- Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. Journal of Business Research, 14, 333–339.
- Tranfield, D., Denyer, D. & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management, Vol. 14*, 207–222.
- Tseng, C. & Chen, T. (2020). Impact of web-based teaching on the learning performance of education and training in the service industry during COVID-19. Contemporary Educational Technology, 12(8525), 277.
- Yang, B. & Huang, C. (2020). Turn crisis into opportunity in response to COVID-19: Experience from a Chinese university and future prospects. *Studies in Higher Education*, 46(1), 121–132.
- World Health Organization (WHO). (2020). Archived: WHO Timeline COVID-19. 17 April. Retrieved from https://www.who.int/news/item/27-04-2020-who-timeline---covid-19 (18/01/21)
- Xie, X., Siau, K. & Fui-Hoon Nah, F. (2020). COVID-19 pandemic Online education in the new normal and the next normal. *Journal of Information Technology Case an Application Research*, 22(3), 175–187.
- Zhao, N., Zhou, X., Liu, B. & Liu, W. (2020). Guiding teaching strategies with the education platform during the COVID-19 epidemic: Taking GuiYang No. 1 Middle school teaching practice as an example. *Science Insights Education Frontiers*, *5*(2), 531–539.
- Zhao, Y., Watterston, J. (2021). The changes we need: Education post COVID-19. *Journal of Educational Change*, 22(1), 3–12.

The COVID-19 impact on online education – opportunities and challenges in a SWOT analysis

Ana Cristina Matoso Bento Saraiva, Nuno Sotero Alves Silva

Uwarunkowania oddziaływania COVID-19 na edukację online – szanse i wyzwania w analizie SWOT

Streszczenie

Rezultaty pandemii COVID-19 warunkują oddziaływaniena wszystkie obszary, przy czym sektor edukacyjny jest jednym z najbardziej dotkniętych sektorów, które należy wziąć pod uwagę. Celem niniejszego artykułu jest zidentyfikowanie głównych możliwości i wyzwań edukacji online w wyniku pandemii COVID-19, poprzez selektywną bibliografię zawierającą wskazówki dotyczące źródeł informacji i baz danych. Metodologia badań została osiągnięta poprzez dokonanie systematycznego przeglądu literatury przedmiotu, w celu wyłonienia głównych kategorii do analizy SWOT, z punktu widzenia nauczycieli, uczniów i rodziców.

Wreszcie, próbuje się objąć główne czynniki przyczyniające się do dziedziny z badania tematu badawczego. Dla każdej słabości i wyzwania, nauczyciele i uczniowie mogą stworzyć szansę w nauczaniu online.

Autorzy zauważyli również, że ten rodzaj edukacji zapewnia doskonałe środowisko dla innowacji w nauczaniu i jest doskonałym uzupełnieniem nauczania twarzą w twarz.

Słowa kluczowe: Edukacja online; COVID-19; SWOT; Szanse; Wyzwania

Ана Кристина Матозо Бенто Сарайва, Нуно Сотеро Алвес Силва

Обусловливание воздействия COVID-19 на образование онлайн – возможности и проблемы в рамках анализа SWOT

Резюме

Результаты пандемии COVID-19 обусловливают воздействие на все сферы, при этом образовательный сектор является одним из наиболее пострадавших секторов, на которые следует обратить внимание. Цель данной статьи — определить основные возможности и проблемы онлайн-образования в результате пандемии COVID-19 с помощью выборочной библиографии, содержащей рекомендации по источникам информации и базам данных. Методология исследования была достигнута путем проведения систематического обзора литературы по теме, чтобы извлечь основные категории для SWOT-анализа с точки зрения преподавателей, студентов и родителей.

Наконец, в исследовании предпринята попытка охватить основные факторы, способствующие изучению темы исследования. Для каждой слабости и проблемы учителя и ученики могут создать возможность в онлайн-обучении.

Авторы также убедились в том, что этот вид образования создает прекрасную среду для инноваций в обучении и является отличным дополнением к очному обучению.

Ключевые слова: Он-лайн образование; COVID-19; SWOT; Возможности; Вызовы

Ana Cristina Matoso Bento Saraiva, Nuno Sotero Alves Silva

COVID-19 impacto en la educación en línea – Oportunidades y desafíos en un análisis SWOT

Sumario

Los resultados de la pandemia de COVID-19 están teniendo un impacto en todas las áreas, siendo el sector educativo uno de los más impactados a tener en cuenta. El propósito de este artículo es identificar las principales oportunidades y desafíos de la educación en línea como resultado de la pandemia de COVID-19, a través de una bibliografía selectiva que proporciona asesoramiento sobre fuentes de información, y bases de datos. La metodología de la investigación se logró realizando una revisión bibliográfica sistemática de lo que existe sobre el tema, para recuperar las principales categorías para un análisis DAFO, desde los puntos de vista de los profesores, los alumnos y los propios padres.

Finalmente, se intenta abarcar los principales contribuyentes al dominio con un estudio del tema de investigación. Para cada debilidad y desafío, los profesores y alumnos pueden crear una oportunidad en el aprendizaje en línea.

Los autores también han visto que este tipo de educación está proporcionando un gran entorno para la innovación en el aprendizaje y es un gran complemento a la enseñanza presencial.

Palabras clave: Educación en línea; COVID-19; SWOT; Oportunidades; Retos