

**How to Cite:**

Dakhi, O., Irfan, D., Jama, J., Ambiyar, A., Simatupang, W., Sukardi, S., & Zagoto, M. M. (2022). Blended learning and its implications for learning outcomes computer and basic networks for vocational high school students in the era of COVID-19 pandemic. *International Journal of Health Sciences*, 6(S4), 11177–11186. <https://doi.org/10.53730/ijhs.v6nS4.10976>

## **Blended learning and its implications for learning outcomes computer and basic networks for vocational high school students in the era of COVID-19 pandemic**

**Oskah Dakhi**

Universitas Negeri Padang

**Dedi Irfan\***

Universitas Negeri Padang

\*Corresponding author

**Jalius Jama**

Universitas Negeri Padang

**Ambiyar**

Universitas Negeri Padang

**Wakhinuddin Simatupang**

Universitas Negeri Padang

**Sukardi**

Universitas Negeri Padang

**Maria Magdalena Zagoto**

Universitas Negeri Padang

**Abstract**--The Covid-19 pandemic is increasing, and the online learning system can facilitate learning and make it easier for students and teachers. This research intends to assess the effects of Blend Learning on the learning outcomes of Computer and Basic Network courses during the Covid-19 Pandemic. This study employs literature research, with data collected from various publications and books assessed in light of existing issues. According to the findings of this study, there are a number of issues from the perspectives of teachers, students, and parents. During the current pandemic, teachers must be able to adapt to blended learning methods. Changes to the learning environment will impact students' psychological issues. Students

suffer the stigma that learning activities school must take place at educational facilities; if they occur at home, it is assumed that they are on vacation. It is difficult and time-consuming to adapt to the fact that not all parents are able to use IT and internet-based work gadgets. Due to the fact that each student has a distinct learning style, this obstacle can be circumvented through the use of a combination of learning material. As educators or parents, we cannot compel pupils to learn in the environment and manner we want, because each student or individual has his or her own learning type or style.

**Keywords**---blended learning, learning outcomes, computer, basic networks, COVID-19 pandemic, vocational high school.

## **Introduction**

On March 11, 2020, Covid-19 erupted as a countrywide outbreak in Indonesia, impacting numerous areas, including the economy, transportation, and education. The education sector is through a period of adjustment that includes online learning (Achmad, 2020; Delima, 2022). Online learning is media-based learning. Until now, the teaching and learning process has been conducted normally in face-to-face (offline) classes. However, since the ninth grade, education has taken place on laptop screens, computers, and cellphones. Distance learning is also known as offline learning and online learning. The Covid-19 pandemic has mostly contributed to the technological revolution and restructuring of the worldwide education system, particularly in Indonesia, without the need for face-to-face contact (Suharyat, 2022).

The most obvious consequence of the epidemic in the field of education is the bewilderment of educators attempting to implement teaching and learning activities despite limited mobility and facilities. The implementation of the National Examination (UN) in 2020 and face-to-face learning activities by issuing Circular Letter 4 of 2020 concerning the Implementation of Education in the Coronavirus Disease (Covid-19) Emergency Period is one of the government's policies to reduce the spread of covid-19. The entire community is encouraged to work, study, and worship from their homes. Consequently, learning activities are conducted online or online. In this online era, educators are beginning to reintroduce alternate teaching strategies. Obviously, this is not simple, given that this process must be completed in a short amount of time.

The learning technique involves applying the learning strategy's existing plan. With the chosen learning approach, it is hoped that learning objectives would be reached as efficiently and effectively as feasible. It is easier to employ face-to-face strategies in the learning process. Students and teachers can have space, time, and proximity during one-time teaching and learning activities. Students will have an easier time asking questions, expressing ideas, interacting with the actual world, and obtaining educationally valuable role models. During the Covid-19 spread period, the online learning system can be utilized for the protection of students and teachers, as well as for the facilitation of learning (Awwaliyah,

Purnamasari & Mushafanah, 2022; Hendrika, 2022). Blended learning is one of the most effective online learning models throughout the epidemic. Blended learning mixes classroom instruction with online study (Astuti, 2021).

Blended learning is a method for enhancing online learning during a pandemic so that the learning experience is productive and efficient (Purnama, 2020). According to Nurhadi (2020), blended learning and its consequences in the era of pandemics could save money. In addition, Dihamri et al. (2021) highlighted that blended learning could boost teachers' and students' motivation to study and comprehend in the field of technology. Consequently, blended learning is an effective learning strategy in the period of the Covid19 pandemic. In order to build a blended learning model, teachers must study current learning trends, particularly those associated with learning methodologies and material (Dwiyo, 2018). There is a tendency for teaching strategies to shift from traditional teaching methods to modern teaching, also known as the Age of Knowledge, in which students can learn anywhere, anytime, and with anyone, i.e., there are a variety of learning resources available to students, i.e., teachers, experts, practitioners, or society in various ways. Moreover, students can utilize learning media such as the Internet, radio, television, laboratories, and their own experiences (Medina, 2018).

The findings of Dwiyo's research (2018) indicate that the contribution of blended learning components shows that assignments, textbooks, face-to-face presentations, and face-to-face lectures with teachers contribute the most to blended learning. Online learning videos contribute to learning, whereas online textbooks contribute to learning on average. Students believe that they occasionally use online videos and texts to learn, despite their relatively minor contribution to education (Dakhi et al., 2020). Teachers, students, educational institutions, and parents face a wide variety of obstacles and difficulties during the online implementation process. One of these issues is the lack of technology or the inability to master it, searching for and providing a variety of methods or materials for students to use that are not monotonous but can generate inventive learning (Astuti, 2021). Every student faces the difficulty of internet quotas, and by going online, many quotas are consumed. Even in places far from urban centers that lack internet connectivity, students must trek several kilometers to have access to the web (Dakhi et al., 2020).

Thus, when carrying out learning in the pandemic era, technological support can be utilized in the design and planning of the learning process, the implementation of the learning process, and the evaluation of the learning process, but the application of learning and learning technology presents numerous challenges. A combination is required in the learning process in order to avoid creating new issues, as there are numerous impediments, particularly network restrictions, which surely render the learning process ineffective. Specifically, blended learning must be integrated in the learning process for effective online education.

## **Research Methods**

The purpose of this study is to examine online learning during the pandemic, including the media that are widely used in the learning process, the

characteristics of online learning, as well as the benefits and challenges associated with its implementation. A well-known literature review is employed as the method. This literature review refers to theoretical studies and other references pertaining to the values, socioculture, and norms that arise in the investigated social environment. This form of research will therefore collect and evaluate scientific literature (Sugiyono, 2018).

After identifying the research subjects, the authors gathered the relevant data for this study from national and international research journals, government regulations connected to learning at home during the pandemic, publications, newspapers, and other supporting material. Consequently, the examination of technical data is qualitative using the Miles and Huberman approach (Sugiyono, 2018: 45), which involves four stages of analysis. The first step is data collection, which entails scouring literature, research journals, government rules on the learning process throughout the pandemic, articles, and newspapers for data. The second step in data reduction entails summarizing and selecting the most significant aspects of the collected data. In this research library, the third stage of data display (data presentation) is carried out through the use of narrative text descriptions. The final phase is conclusion drawing and verification. Specifically, the next phase is picking essential material from the relevant literature and describing it in descriptive form. The formulation of the problem or research findings on the analysis of online learning during the pandemic will be depicted at this stage.

## **Research Results and Discussions**

### **Blended Learning Concept**

The expression blended learning Blended learning is composed of two words: blended and learning. The term "blend" refers to a mixture intended to improve quality or the formulation of a harmonious combination or mixture (Kutsiyah, 2021). While "learning" has a general meaning, it also encompasses the comprehension of learning patterns that are mixed or combined into a single pattern. Dziuban & Moskal (2011) show that blended learning can improve student outcomes and lower school levels compared to fully online learning. We also found that blended-based learning models are superior to face-to-face learning. Learning is a process of behavior change (cognition, emotion, psychomotor) and is relatively permanent for practice and experience (Dihamri et al., 2021). Students and teachers/facilitators work together to improve the quality of learning. The purpose of blended learning is to create opportunities for different characteristics of students, so that independent, continuous, and lifelong learning occurs learning becomes more effective and efficient.

Blended learning is divided into three types of learning, namely, classroom learning, offline and online. Personal learning is a traditional learning model that brings teachers (teachers or lecturers) with students in the same teaching room. Face-to-face teaching is a series of activities to support students' in-person learning. The face-to-face learning model emphasizes the introduction and demonstration of learning and requires participants to continue to meet and interact every week in the context of learning (Ceylan & Kesici, 2017). Face-to-face

learning focuses more on student activities. Face-to-face learning allows teachers to know the limitations of students. Offline learning is often equated with learning using computer-based media without an internet network. One of the offline learning models is the use of multimedia. Abroto et al. (2021) suggest that changes in the teaching and learning process by introducing multimedia technology in education are inevitable. Nurhadi (2020) suggested that students look for many ways to gain knowledge, including maximizing computers.

According to Dwiyoogo (2018), the multimedia components are: (1) there must be a computer that coordinates what we see and hear, and that interacts with us, (2) there must be a connection that connects us with 3) we are browsing network information networks, (4) Multimedia offers a place where we can collect, process and transmit our information and ideas (Susanti & Prameswari, 2020). Online learning is the result of teaching that is taught electronically using computerized media and is often accessed through the internet network that helps students achieve specific results (Astuti, 2021). In online learning, the teaching and learning process remains more flexible regarding time and location (Tull et al., 2017). Teaching and learning activities carried out online combined with face-to-face events impact students' final grades (Dziuban & Moskal, 2011). Nurhadi (2020) explains four things that have implications for online learning, namely:

1. Students must expressly determine what will be produced so that they can decide what study choices they have.
2. Students must be able to assess the success or failure of online learning independently.
3. Teaching materials must have appropriate stages to support learning, stages from simple to complex, easy and difficult.
4. Students should be familiar with the feedback to monitor their performance and correct their mistakes.

According to Dakhi et al., (2020), there are advantages and disadvantages in the implications of blended learning, namely: Advantages of blended learning: (a) Learning takes place independently and conventionally, where both have advantages that can complement each other, (b) Learning is more effective and efficient, (c) better accessibility. Blended learning makes it easier for students to access learning materials. Blended learning has the following disadvantages:

1. The required media is exceptionally diverse, making its implementation difficult if the necessary infrastructure and facilities are not in place.
2. Students' access to computers and the internet varies; In contrast, adequate internet access is required for blended learning, and insufficient networks make it difficult for participants to engage in self-paced online learning.
3. A lack of public knowledge about the use of technology.
4. Inconsistent student properties such as computers and internet access.

### **Blended Learning Computers and Basic Networks in Vocational High Schools**

The best alternative during the current Covid19 pandemic is blended learning (Syarif, 2012). Due to the lack of time to meet face-to-face in the classroom and conduct learning in general, digital technology is the only option for continuing

the learning process. This case will describe the problem and implementation of Computer and Basic Network Lessons during the pandemic at SMKN Amandraya, South Nias, using blended learning techniques.

This Learning From Home (LFH) activity is a challenge for teachers, students, and the elderly because they have never experienced it before. Collaboration between teachers and parents is the primary key to its success (Abroto et al., 2021; Muhardi, 2018). Researchers believe this excellent cooperation will have a good impact on all aspects, including the study of Computers and Basic Networks. The problem of Distance Learning is not only experienced by one party, but also felt by teachers, students, and parents (Septiani & Putra, 2020).

### **Problems on the part of the Teacher**

1. Teachers are required to be able to adapt to blended learning models during the current pandemic. With the use of IT devices little by little, teachers must be able to master providing online learning,
2. Teachers should create the latest curriculum so that learning can adjust to the situation in the online learning system.
3. Teachers must also be creative in providing material so that students do not experience boredom during the learning process through Google Meet. The teacher must be able to vary the platform so that students are not monotonous in the learning process.
4. This persistence results in the teacher's urgency with the students having a distance so that the teacher cannot guide directly to the students, which results in many students who have not yet prepared the material when doing a Google meet.

### **Problems from the students side**

1. Changes in the learning environment will affect students' psychological problems. The problem faced by students is in the form of stigma that learning activities (school) must take place in educational institutions; if, at home, it means they are on vacation. Changing children's habits and perspectives on schooling becomes quite a stressful problem for parents, mainly if the child is not used to regular schooling at home. In addition, children are often reluctant to study with their parents because parents do not necessarily have the same skills as teachers at school.
2. Students' eye health can be disturbed because students are "forced" to be in front of cellphone screens, laptops, or other devices because the learning system is changed from face-to-face to virtual face-to-face (via Google Meet) from 07.30-11.30 WIB.
3. Student saturation. Students are saturated because their daily routine has changed. Every day students have to study in front of a monitor or cellphone screen and do independent tasks, and there is no interaction with friends and teachers.

### **Problems from the side of parents**

1. Parents as central actors in home education are also not spared from various problems. When students study from home, parents have, in addition to their primary jobs, as clerks, merchants, and health workers. Not all parents can take the time to accompany their children to study and do other tasks (Kutsiyyah, 2021).
2. Not all parents have the skills to use IT and internet-based work tools; this is a challenge and takes time to adapt. However, most parents are already well acquainted with electronic devices (tablets, laptops/computers, and smartphones) and actively use social media such as Facebook, YouTube, and Line. Therefore, only a tiny part of it will encounter obstacles and need support in fulfilling their role as a companion to the child in learning at home.
3. The learning system that requires Shiva to use electronic devices such as smartphones, tablets, laptops, or computers allows parents to provide such facilities. The thing that is an obstacle is that if at home there is more than one child who goes to online school, then the IT device must also be adjusted.
4. Regarding financial issues, parents must allocate their funds to use wifi and internet quota to support the student's learning process during online learning.

The use of blended learning in Computer and Basic Network lessons in secondary education will complement learning models that were previously only used in face-to-face teaching. Activities are expected to be more interactive between teachers and students, as well as with fellow students. Blended learning is a tool for students whose learning needs are below average. Blended learning can attract students' attention because it makes learning more interesting (Purnama, 2020).

The implementation of learning can be designed through a combination of learning media because each student's learning style is different. As educators or parents, we cannot force students to learn in the atmosphere and way we want because each student or individual has his type or style of learning. One of the ways that blended learning can be achieved is a combination of distance learning and interactive multimedia or audiovisual media to achieve offline learning (Dwiyoogo, 2018). Educators need to compile appropriate learning steps in a Learning Implementation Plan based on these competencies in developing learning both through the application of blended learning and conventionally. The development of learning steps that use blended learning must also be appropriately designed so that students do not experience technical difficulties in learning. Therefore, educators need to prepare everything needed, the material to be delivered or discussed, the platform that will be used in learning with blended learning, and tutorials on how to use blended learning.

This learning system can run as expected in developed countries with good management. On the contrary, if not careful preparation, there will be more losses than the positive value of online learning, as explained by Dhawan (2020) in their research on online learning in Romanian higher education institutions. However,

in natural conditions in the field, there are several significant and fundamental obstacles to this online learning during the pandemic. As is often found by students, many students are not active during the learning process, such as not conveying their aspirations and opinions so that what is felt is that the learning is saturated and not "alive" as face-to-face. This fact is also in line with research conducted by (Kutsiyyah, 2021) which states that in online learning, students tend not to play an active role in learning, so learning feels boring and decreases students' enthusiasm and interest in learning. The above facts illustrate that online learning cannot fully meet the needs of education. There are many experiences to be taken from face-to-face learning. So some educational institutions also take a mixed model to gain more experience in learning. Blended learning represents a combination of face-to-face experiences and online learning experiences. Online and face-to-face learning experiences will help offer opportunities to achieve further educational goals.

Blended learning is a learning concept that combines online and face-to-face learning. This model can be used as an alternative and answer the problem of fully online learning (e-learning) that cannot reach all regions and some aspects of education that cannot be delivered only online (Rianto, 2020). Then, Blended learning is the answer to the weaknesses that exist in online learning. It can also be a solution for face-to-face learning that is always tied to place and time so that it can become more flexible and reach a wide range of learning experiences. On the other hand, there are essential things in the world of education that cannot be conveyed online, such as moral values that need role models and practicums that need guidance, facilities, and honest work.

## **Conclusion**

During the Covid-19 pandemic, online learning is a new trend in the world of education, according to various literary sources and empirical studies. Blended learning is one of the current online learning methodologies. This is due to the convenience and practicality of conducting the learning process independently through digital media such as the Internet and social media. Community-familiar media is a popular option that can facilitate the learning process, especially during a pandemic. The adaptability of online education is not without drawbacks. Because it is internet-based and requires independent learning, educational actors face issues such as internet quotas, networks that are difficult to access, the skills of teaching staff and parents, and a lack of student motivation to achieve the best possible results. Blended learning is one of the solutions to the obstacles that many students, teachers, and parents encounter but do not deny the benefits and advantages of online learning. This can also be an opportunity for additional research to examine blended learning as a new hope for the future of education.

## **References**

- Abroto, A., Maemonah, M., & Ayu, N.P. (2021). Pengaruh Metode Blended Learning Dalam Meningkatkan Motivasi dan Hasil Belajar Siswa Sekolah Dasar. *Edukatif: Jurnal Ilmu Pendidikan*, 3(5), 1993-2000. DOI: <https://doi.org/10.31004/edukatif.v3i5.703>



- Achmad, W. (2020). Pendidikan Agama Islam Dalam Keluarga Sebagai Strategi Pendidikan Anak Usia Dini Saat Pandemi Covid-19. *JCE: Journal of Childhood Education*, 4(1), 71-83. DOI: <https://doi.org/10.30736/jce.v4i1.271>
- Astuti, E. R. P. (2021). Penerapan Pembelajaran Blanded Learning Prodi Teknologi Pendidikan Di Masa Pandemi. *Lentera Pendidikan Indonesia: Jurnal Media, Model, Dan Pengembangan Pembelajaran*, 2(4), 178-184. <https://doi.org/10.36312/lpi.v2i4.57>
- Awwaliyah, I. Z., Purnamasari, I., & Mushafanah, Q. (2022). Pelaksanaan Pembelajaran Jarak Jauh Di Masa Pandemi Covid-19. *Educativo: Jurnal Pendidikan*, 1(1), 54–59. <https://doi.org/10.56248/educativo.v1i1.9>
- Ceylan, V. K., & Elitok Kesici, A. (2017). Effect of blended learning to academic achievement. *Journal of Human Sciences*, 14(1), 308–320. <https://doi.org/10.14687/jhs.v14i1.4141>
- Dakhi, O., Jama, J., Irfan, D., Ambiyar, Ishak. (2020). Blended Learning: A 21st Century Learning Model At College. *International Journal Of Multi Science*, 1(8), 50-65.
- Delima, A. A. (2022). Gambaran Kepatuhan Anak Terhadap Protokol Kesehatan Dalam Menjalankan Ibadah di Era Pandemi COVID-19. *Educativo: Jurnal Pendidikan*, 1(1), 106–111. <https://doi.org/10.56248/educativo.v1i1.15>
- Dhawan, S. (2020). Online Learning: A Panacea in the Time of COVID-19 Crisis. *Journal of Educational Technology Systems*, 49(1) 5–22. <https://doi.org/10.1177/0047239520934018>
- Dihamri, D., Haimah, H., Sugandi, W., Zairin, Z., & Srifitriani, A. (2021). Blended Learning Alternatif Pembelajaran Pada Pendidikan Tinggi Era New Normal. *Jurnal Georaflesia: Artikel Ilmiah Pendidikan Geografi*, 6(1), 1-10. DOI: <https://doi.org/10.32663/georaf.v6i1.2025>
- Dwiyogo, Wasis D. (2018). Developing a Blended Learning-Based Method for Problem-Solving in Capability Learning. *Turkish Online Journal of Educational Technology - TOJET*, 17(1), 51-61.
- Dziuban, C., & Moskal, P. (2011). A Course Is A Course Is A Course: Factor Invariance In Student Evaluation Of Online, Blended And Face-To-Face Learning Environments. *The Internet and Higher Education*, 14(4), 236-241. <https://doi.org/10.1016/j.iheduc.2011.05.003>
- Fajra, M., Ambiyar, A., Rizal, F., & Dakhi, O. (2020). Pengembangan Model Evaluasi Kualitas Output Pembelajaran Teknik Komputer dan Jaringan di SMK Kota Padang. *Cakrawala: Jurnal Pendidikan*, 14(1), 1-9. <https://doi.org/10.24905/cakrawala.v14i1.1480>
- Hendrika, D. S. (2022). Gambaran Self-Regulated Learning Pada Mahasiswa Di Masa Pandemi Covid-19. *Educativo: Jurnal Pendidikan*, 1(1), 60–66. <https://doi.org/10.56248/educativo.v1i1.10>
- Intriago, C. Z., & Posligua, T. I. Q. (2020). Telecommunications and virtualization in times of pandemic: impact on the electrical engineering career. *International Journal of Physical Sciences and Engineering*, 4(3), 38–44. <https://doi.org/10.29332/ijpse.v4n3.630>
- Khidoyatova, M. R., Kayumov, U. K., Inoyatova, F. K., Fozilov, K. G., Khamidullaeva, G. A., & Eshpulatov, A. S. (2022). Clinical status of patients with coronary artery disease post COVID-19. *International Journal of Health & Medical Sciences*, 5(1), 137-144. <https://doi.org/10.21744/ijhms.v5n1.1858>
- Kutsiyyah, K. (2021). Analisis Fenomena Pembelajaran Daring Pada Masa Pandemi (Harapan Menuju Blended Learning). *Edukatif: Jurnal Ilmu*

- Pendidikan, 3(4), 1460-1469. DOI: <https://doi.org/10.31004/edukatif.v3i4.580>
- Medina, L. C. (2018). Blended learning: Deficits and Prospects In Higher Education. *Australasian Journal of Educational Technology*, 34(1),42-56. <https://doi.org/10.14742/ajet.3100>
- Muhardi, M. (2018). Aplikasi Pengenalan Kompetensi Dasar Teknik Komputer Dan Jaringan Berbasis Android Sebagai Media Belajar Siswa (Studi Kasus Smkn 1 Pangakalan Kerinci). *Riau Journal of Computer Science*, 05(01), 65-73.
- Nurhadi, N. (2020). Blended Learning dan Aplikasinya di Era New Normal Pandemi Covid-19. *Agriekstensi*, 19(2), 121-128.
- Purnama, M. (2020). Blended Learning Sebagai Sarana Optimalisasi Pembelajaran Daring Di Era New Normal. *Scaffolding: Jurnal Pendidikan Islam Dan Multikulturalisme*, 2(2), 106-121. <https://doi.org/10.37680/scaffolding.v2i02.535>
- Rianto, A. (2020). Blended Learning Application in Higher Education: EFL Learners' Perceptions, Problems, and Suggestions. *Indonesian Journal of English Language Teaching and Applied Linguistics*, 5(1), 55-68.
- Sari, R. A., Patmanthara, S., & Soraya, D. U. (2019). Perbedaan Keaktifan Dan Hasil Belajar Komputer Dan Jaringan Dasar Karena Penerapan Model Pembelajaran Problem Solving Dibandingkan Dengan Model Pembelajaran Discovery Learning Pada Siswa Kelas X Di SMK Islam 1 Blitar. *Jurnal Ilmiah Edutic*, 5(2), 1-8.
- Septiani, M., Putra, D. D. (2020). Penerapan Blended Learning Pada Mata Kuliah Dasar-Dasar Pengembangan Kurikulum. *Educate: Jurnal Teknologi Pendidikan*, 5(1), 96-109. DOI: 10.32832/educate.v5i1.2020
- Sugiyono. (2018). *Metode Penelitian Bisnis Pendekatan Kuantitatif, Kualitatif dan R & D*. Bandung: Alfabeta.
- Suharyat, Y., & Desssesio, R. (2020). Pengaruh Model Pembelajaran Blended Learning Dalam Pendidikan Agama Islam Terhadap Kecerdasan Emosional Siswa Di SDN Satria Jaya 02 Tambun Utara. *Jurnal Cakrawala Ilmiah*, 1(9), 2203-2208.
- Suryasa, I. W., Rodriguez-Gámez, M., & Koldoris, T. (2021). The COVID-19 pandemic. *International Journal of Health Sciences*, 5(2), vi-ix. <https://doi.org/10.53730/ijhs.v5n2.2937>
- Susanti, D. I., & Prameswari, J. Y. (2020). Adaptasi Blended Learning di Masa Pandemi COVID-19 untuk Pembelajaran Bahasa Inggris di Sekolah Dasar. *Lingua Sastra*, 1(2), 50-61. DOI: <https://doi.org/10.24036/ls.v1i2.8>
- Syarif, I. (2012). Pengaruh Model Blended Learning Terhadap Motivasi Dan Prestasi Belajar Siswa SMK. *Jurnal Pendidikan Vokasi*, 2(2), 234-249. DOI: <https://doi.org/10.21831/jpv.v2i2.1034>
- Tull, S. P. C., Dabner, N., & Ayebe-Arthur, K. (2017). Social Media And E-Learning In Response To Seismic Events: Resilient practices. *Journal of Open, Flexible and Distance Learning*, 21(1), 63-76.