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# Assessing the Challenges and Opportunities of Students Learning Online in Time of Covid-19 Pandemic

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**Abstract:** This study aims to assess the challenges and opportunities for Industrial Arts students learning online during the COVID-19 Pandemic. This study used a descriptive research design to evaluate the students' responses based on their personal feelings, perceptions, and experiences while enrolled in online learning. The respondents of this study were the 105 BTLED- Industrial Arts students of the Department of Technology and Teacher Education, College of Education, MSU-Iligan Institute of Technology, comprising 66 or 62.9% Female students and 39 or 37.1% Male students with family incomes ranging from 10,000 below - 30, 000. This study used an online survey questionnaire through Google form and was channeled through social networking sites like Facebook to gather the necessary data. Results show that the Industrial Arts students Moderately experienced the challenges in online learning during the COVID19-Pandemic.On the other hand, the opportunities they experienced in research and technological innovation were also Moderately Experienced, while they did Not experience the socio-economic interventions. Further, it was found that the family monthly income of the respondents is significantly related to their challenges and opportunities. This study concludes that the Industrial Arts students had encountered several changes in the educational system, the delivery of their teacher's instructions, and their learning experience that could affect their academic performance in online learning during the COVID19- Pandemic. Moreover, this study concluded that the family monthly income of the respondents is significantly related to the challenges and opportunities. However, sex is not significantly related to challenges and opportunities.

**Keywords:** Online learning, Challenges, Opportunities, Academic performance, COVID 19-Pandemic

## 1. Introduction

The COVID19 pandemic is a worldwide issue that must resolve, and it often appears on the research agenda of laboratories, higher education institutions, and other research and development organizations. The student's academic performance is likely to drop for the classes held for both year-end and internal examinations due to reduced contact hours for learners and lack of consultation with teachers when facing difficulties in

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learning/understanding (Sintema, 2020). Teachers, students, and parents will test online, which will involve trial and error and doubt and confusion. The methods used to administer the online exams vary depending on the teachers' convenience and experience and the students' compatibility. Educators in the field are also moving online on an unprecedented and untested scale; they also receive extensive training via webinars and online coaching to assist them in creating online classrooms in a distance learning mode. Ayebi-Arthur (2017) analyzed a case study of a New Zealand institution severely affected by seismic activity. She discovered in her research that following that terrible episode, the college became more resilient to online learning. During those challenging times, technology-assisted them in overcoming the obstacles. For online learning to successfully prepare people for any crisis, strict quality management procedures and continuous development are essential. "A successful transition to distance modes of education requires elements of readiness – technological, content, pedagogical, and home-based learning support, monitoring, and evaluation components" (UNESC, 2020; Hardman and Ntlhoi, 2021). In the study of (Hoftijzer et al., 2020), "the hallmark of TVET focuses on practical skills and work-readiness that makes remote learning particularly challenging. Students will acquire practical skills through learning-by-doing, which occurs in school-based workshops and laboratories or through hands-on experience at the workplace." Remote learning approaches are ineffective when practical tasks necessitate equipment or materials not readily available at home. However, the amount to which learning can still occur outside of the classroom, especially in TVET, is limited by a lack of energy, internet connectivity, gadgets or media, learning platforms, or poor instructor and student preparedness for remote education. Necessary steps must be taken now and in the coming months to guarantee that the change to distance and online learning serves immediate learning demands while also preparing us for more successful TVET and skill systems. The coronavirus epidemic has prompted widespread adoption of distant learning at all levels of education, and the mass shift will serve as a testbed for online learning. This paper aims to assess the challenges and opportunities experienced by Industrial Arts students while enrolled in an online learning program during this time of the pandemic.

*Covid-19 Pandemic*

Coronavirus disease (COVID19) is a recently discovered coronavirus-related virus. The detected COVID 19 started near Wuhan city, Hubei province, China, in late 2019. Johns Hopkins University stated on May 27, 2020: "The number of confirmed cases reported globally is gradually increasing, reaching 5.69 million and 355,575 deaths." COVID19 will be declared a pandemic (2020) by the World Health Organization (WHO) on March 11 due to its rapid spread. The COVID19 virus is primarily transmitted through saliva or nasal droplets when an infected individual coughs or sneezes; hence the breathing tag is critical.

Additionally, most people infected with the COVID19 virus will have mild to severe respiratory illness and recover without treatment. The coronavirus (COVID19) outbreak shows that pandemics and epidemics can cause severe damage to supply chains (CS) worldwide. According to Chew et al. (2004), "The contemporary world faces the challenge of unprecedented disease outbreaks, which have had a great negative impact on the whole of society." Although the disease has a profound global impact, its consequences and future mandatory activities to minimize the many effects remain unknown. For example, social distancing strategies are the most critical (incredibly immediate isolation of symptomatic people, suspension of mass gatherings, social distancing measures in the workplace, and actions in schools and closures), "ensure the public to take COVID19 seriously; in hospitals and long-term care Prevention and control of COVID19 in institutions, training of employees of all medical institutions, reasonable methods for limited resources and a surveillance system for the detection of cases and evaluation of

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community transmission" (Serpa and Jose'Sa 2020). In summary, the COVID19 pandemic has caused severe damage to social, economic, and cultural life worldwide.

*Digital Competence*

Digital competence, according to the Welsh government (2018), is defined as "skills, knowledge, and attitudes that enable people to use technology and systems safely, creatively, and critically." It's a collection of abilities that allows someone to be a safe digital citizen. Methods for interacting and collaborating, producing work digitally, and having confidence in data management and computational thinking (problem-solving)." Teachers are determined to reconsider and adapt old educational traditions as digital technology becomes a more integral component of daily work. Higher degrees of digitalization may cause students and teachers to fall behind in online learning. These concerns place tremendous demands on schools, including the developing techniques to deliver the digital skills required for high-quality instruction. Students and counselors must have basic computer literacy to succeed in an online environment. "The younger generation must comprehend and be able to make informed decisions about how to make meaningful use of digital technology in their daily lives" (Livari et al., 2020). We also feel that these technologies are to blame for the digital divide. The two disciplines of development and design are inextricably linked. Younger generations take a critical and proactive stance on digital technology that they should consider how it could and should be, rather than simply accepting its current state. For that purpose, the younger generation must learn how to create, design, program, manufacture, and construct digital technology. Not only are programming and computational skills and abilities crucial, but so are design and innovation skills and abilities.

*Assessment and supervisions*

Wiley Education Service defines assessment as "an important part of an online classroom." It allows students to understand their progress in the course, determine personal strengths and weaknesses, and ultimately serve as a standard to measure whether students have achieved the learning goals of the system. "In online learning, the assessment is based on the use of computer technology and the ability of the Internet to provide and score tests. Teachers need technical expertise to create quizzes, and online assessments are not offered to students. Teachers can choose to view students' lines. Think about their Answer. According to UNICEF (2020), "The premise of the distance education program is that a certain degree of autonomy has been established for students' self-study and self-motivation. In addition, the distance education project lacks a teacher evaluation mechanism and provides feedback and formative guidance to students. For example, the distance education program on TV or radio is a one-way interface. It does not allow the teachers to evaluate and correct students' learning paths. When students lack regular feedback from teachers, they may not be able to maintain their current level of learning, and it is difficult for them to develop new knowledge and skills through self- study as needed. The reopening of the school will make teachers and students uncertain about how to resume the usual teaching. The education system should seize the opportunity of the COVID crisis to transform existing assessment mechanisms and develop new practices from the setup to the classroom while developing a more powerful distance learning system. According to the findings of Alekseiva et al. (2021), more than half of the respondents believe that losing real-time contact with teachers and peers is a disadvantage, which is also a considerable problem in online learning, and students feel that they cannot demonstrate entirely and effectively in the assessment. Students also complained about not getting enough feedback and not enough time to complete the test questions. Few students openly admit that their teachers are unfamiliar with VLEs, and do not know how to use them effectively in assessments, which leads to inappropriate behavior in the exam. Most

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of the shortcomings indicate the need to train qualified teachers in e-learning design and evaluation.

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*Heavy workload*

From a theoretical point of view, not all courses are suitable for online learning. There are often concerns about the time required to prepare and maintain such a program, which motivates students, responds to the increased demand for an online program expected from students, and intellectual property issues. Students' workload may be somewhat under the university's expectations for self-paced online courses. Professors and lecturers are responsible for designing and delivering their programs online. "This large workload is expected to generate unforeseen financial and time costs" (Akkoyunlu and Soylu, 2006). "The heavy academic workload will produce tension and anxiety. If it lasts a long time, it will cause stress and affect the mental health of students." (Abracero et al., 2021). Most students have part-time jobs, work much longer than the standard full- time hours, and work hard to take care of themselves, have a social life, and perform any family responsibilities they may assume.

*Compatibility*

Traditional schooling, despite technological advancements, may still be the preferable option for those who thrive on face-to-face connections. According to (Hoftijzer et al., 2020), "Vocational and technical education and training are characterized by focusing on practical skills and work preparation, which makes distance learning particularly challenging." It means that online learning is not compatible with technical education courses.

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*Influence on Opportunities*

In this study, the opportunities are discussed. This part contains the following; Research Innovations, Technological Innovations, and Socioeconomic interventions.

Research innovations

The current closure of schools during the COVID19 pandemic is an emergency response to curb the spread of the coronavirus. Due to crises, distance teaching is a quick transition from teaching to an alternative model. "In research during the pandemic, we are talking with researchers and other key stakeholders involved in the fight against COVID19 around the world to understand better what they are doing and how it can contribute to the collective efforts of humans to find solutions. And, deciphering all aspects of the ongoing research to understand what it is, this is a human endeavor" (WHO, 2022). According to Coman et al. (2020), "The learning management system is a piece of software that runs and contains many services designed to help teachers manage their meetings and courses, and is created to monitor and evaluate students. For scoring, monitoring course attendance, or other management operations that educational institutions may require, these systems can be divided into Moodle open-source platforms and commercial or proprietary platforms, including platforms such as Blackboard. Moodle aims to provide students, teachers, and administrators with a system to help them create an enhanced and personalized learning atmosphere. It is a flexible, Web-based learning environment that promotes user collaboration. Through these platforms, teachers can upload and provide information and resources that students cannot get in face-to-face classrooms. Students can easily share information, express difficulties, and get feedback. Therefore, Moodle includes various functions, such as forums, chats, private messages, and higher education institutions can use it as an additional traditional education method or only for online learning."

Technological innovations

The coronavirus pandemic forces leaders, legislators, and ordinary people to think carefully about making communities healthy and resilient. Although the Covid19 pandemic has caused significant loss of life and severe economic disruption, there are still many reasons for hope in these times. One of the most important positive factors is how technological innovation can achieve better treatments and help people overcome this crisis. In many cases, technology companies and organizations can save lives and help slow the spread of the new coronavirus. Although we can be affected by social distancing and other preventive measures for a considerable time, understanding that technology is helping to mitigate the impact of Covid19 provides confidence and hope. "Digital health solutions have been used in many ways, from tracking applications to deep learning, to computer tomography image analysis or audio-based diagnosis and early symptom recognition" (Schuller et al., 2020). Blended learning aims to improve the level of construction of knowledge of students to develop their analytical skills. According to Kintu et al. (2017), "this is a great help for adopting innovation in digital learning." Therefore, it is necessary to carefully train innovative graduates who can meet employment needs through creativity and innovation. Technology has less impact on students, providing potential for blended learning design. Universities and other learning institutions should emphasize hybrid learning methods by installing learning management systems and a robust Internet to achieve effective learning through technology, especially in developing countries. "According to Joosten et al. (2020), "Teachers need time and funds to support their professional development using innovations. Fidelity in implementation can help or hinder any care planned and implemented within the institution and the curriculum.

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Socioeconomic interventions

From an economic point of view, Covid19 has affected different countries in different ways. At the beginning of the global COVID-19 pandemic, the Philippine government launched a large-scale social protection program and imposed strict community quarantine. Each town provides socioeconomic support, including food, school supplies, materials for online learning, and psychological and medical assistance for students and residents. According to Fishbane and Tomer (2020), "Some Internet Service Providers have indicated that they offer socioeconomic intervention programs, such as providing free broadband for American universities and K12 students. "In the study by Villanueva et al. (2020), based on the theory of human capital, this mechanism affects students' academic performance. "The family situation often limits the success of children from disadvantaged backgrounds; to the limited economic resources. The human capital theory explains that education is an important investment of human capital and the difference in resources. Children's educational attainment is mainly due to differences in investment in family education" (Li & Qiu, 2018). In the case of limited family resources, the family situation often limits children's success from disadvantaged backgrounds, affecting the limited economic resources that determine them.

*Objectives of the Study*

This study aims to assess the challenges and opportunities for Industrial Arts students learning online during this COVID-19 pandemic. Specifically, it seeks to answer the following issues:

- To clarify the challenges experienced by the Industrial Arts students during the COVID19-Pandemic in terms of technology, human & pet intrusions, digital competence, assessment and supervisions, heavy workload, and compatibility.
- To clarify the opportunities experienced by the Industrial Arts students during the COVID19-Pandemic in terms of: research innovations, technological innovations, and socio-economic interventions.

## 2. Methodology

*2.1 Research Design*

This study used a descriptive type using various research procedures to investigate variables. According to Shuttleworth (2008), "Descriptive research design is a scientific method that involves observing and describing the behavior of a subject without affecting it in any way." The researchers use a descriptive research design to assess the challenges and opportunities of students learning online during a pandemic through an online survey using Google forms containing the relevant questions to collect the necessary data needed in this research.

*2.2 Participants*

The respondents of this study were the 105 BTLED- Industrial Arts students of the Department of Technology and Teacher Education, College of Education, MSU- Iligan Institute of Technology, comprising 37 or 35. 24% first-year students, 37 or 35.24% sophomore students, and 31 or 29.52% junior-year students. This group of students was selected since they are more familiar with online learning. Regarding Sex, there were 66 or 62.9% Female students and 39 or 37.1% Male students. Regarding family income, 66 or 62.9 % belonged to 10,000 below, while 30 or 28. 6% belonged with income ranging from 10,000-to 20,000. There were 6 or 5.7% with income ranging from 25,000 to 30,000. Lastly, 3 or 2. 9% with income ranges from 35 000 and above.

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*2.3 Research Instruments*

The main instrument in this study is the survey questionnaire adapted from Adedoyin and Soykan's (2020) study entitled "COVID-19 Pandemic and Online Learning: The Challenges and Opportunities". In this study, the survey consists of 3 parts. It has 45 questions and is divided into two main categories; challenges and opportunities of online learning in this time of the pandemic. The first part of the survey is the Profile of the respondents in which the Name section is optional; meanwhile, the Sex and Parent's monthly income is required to be filled. The second part of the survey is the Challenges questions which consist of 5 questions in each of the following categories; technology, Human & pets intrusions digital competence, assessment, and supervision, heavy workload, and compatibility. And the third part of the survey is the opportunities questions which consist of 5 questions in each of the following categories; research innovations, technological innovations, and socioeconomic interventions. Meanwhile, the respondents have specified their level of agreement with a statement typically in 4 points: (4) Strongly Agree; (3) Agree; (2) Disagree; (1) Strongly disagree (Simms et.al., 2019).

*2.4 Research Procedure*

The researchers used a questionnaire in this study to obtain the necessary data. The questionnaire was converted into an online survey via Google forms and was channeled through a social networking site, specifically, Facebook. The researcher provided the Google form link in their messenger accounts in which the respondents confirmed their participation in the survey invitation. The respondents answered the open-ended questions about the challenges and opportunities they experienced during the COVID-19 pandemic.

*2.5 Data Analysis*

The quantitative data analysis was used to gauge a group of Industrial Arts students and assess their opportunities and challenges in online learning. Descriptive statistics (e.g. frequency, percentage, mean, standard deviation) and correlation person's R were used in order to explain Likert scale items of students' the challenges during the COVID19-Pandemic. The mean of each Likert scale item was interpreted regarding on the table 1.

Table 1: Criteria for mean of each Liker scale item interpretation

| Range of Means | Description | Interpretation |
|---|---|---|
| 3.26 - 4.00 | Strongly agree | Highly Experienced |
| 2.51 - 3.25 | Agree | Moderately Experienced |
| 1.76 - 2.50 | Disagree | Not Experienced |
| 1.00 - 1.75 | Strongly disagree | Highly Not Experienced |

## 3. Results and Discussion

The section clarified the challenges and opportunities for Industrial Arts students learning online during the COVID-19 Pandemic, and some significant relationship between the challenges and opportunities of the respondents in online learning.

*3.1 The Challenges Experienced by the Industrial Arts Students during the COVID19-Pandemic*

The challenges experienced by the Industrial Arts students during the COVID19-Pandemic were clarified in terms of technology, human and pets' intrusions, digital competence, assessment and supervisions, heavy workload, and compatibility.

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3.1.1 Students' Challenges in Technology

The respondents' experience in using various technology tools such as different gadgets like; laptops, smartphones, and desktops, among others, including the availability of internet connection. Their manipulative skills in using learning management platforms, specifically the MSU-IIT Online Learning Environment (MOLE), can be used to create better simulations and model examples, allowing teachers to understand the learning needs of students.

Table 2: Students' Challenges in Technology

| Statements | Mean | S.D. | Description | Interpretation |
|---|---|---|---|---|
| 1.Technology eases the pressure on me as a student | 3.00 | .062 | Agree | Moderately experienced |
| 2. Technology improves my learning of critical concepts and ideas. | 3.17 | .595 | Agree | Moderately experienced |
| 3. Technology promotes the development of my communication skills (e.g., writing and presentation skills) | 3.06 | .624 | Agree | Moderately experienced |
| 4. Technology motivates me to get more involved in learning activities | 2.87 | .689 | Agree | Moderately experienced |
| 5. Technology Increases my academic achievement (e.g., grades). | 2.87 | .660 | Agree | Moderately experienced |
| Overall mean | 2.99 | .488 | Agree | Moderately experienced |

Table 2 shows the mean and standard deviation of the challenges experienced by the respondents regarding technology. It can be noted that "Technology improves my learning of critical concepts and ideas." got the highest mean of 3.17, described as "agree" and interpreted as "Moderately Experienced." In contrast, "Technology motivatesme to get more involved in learning activities." and "Technology Increases my academic achievement (e.g., grades)." got the lowest mean of 2.87, both described as "Agree" and interpreted as "Moderately Experienced." An overall mean of 2.99 implies that the challenges experienced by the students with technology are "Moderately Experienced.

3.1.2 Students' Challenges in Human and Pet Intrusions

Students in online courses are more exposed to distractions than students in face- to-face sessions, which might influence their academic performance. Distractions such as someone making lunch, people or pets moving around can draw one's focus away from the subject at hand and reduce productivity.

Table 3: Students' Challenges in Human and Pet Intrusion

| Statements | Mean | S.D. | Description | Interpretation |
|---|---|---|---|---|
| 1.My dog barks when I have my online class | 2.90 | .985 | Agree | Moderately experienced |
| 2. An animal sound from a chicken disrupts my online class. | 2.98 | .898 | Agree | Moderately experienced |
| 3. Family arguments affect my classes online. | 2.86 | .941 | Agree | Moderately experienced |
| 4. Family distracts me by talking to me and innocently asking random questions. | 2.63 | .856 | Agree | Moderately experienced |
| 5. Some of my family members interrupt during my online tasks. | 2.80 | .913 | Agree | Moderately experienced |
| Overall mean | 2.83 | .672 | Agree | Moderately experienced |

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Table 3 shows the mean and standard deviation of the challenges experienced by the respondents in terms of human and pest intrusion. It can be noted that "An animal sound from chicken disrupts my online class." got the highest mean of 2.98, described as "agree" and interpreted as "Moderately Experienced.". At the same time, "My family distracts me by talking to me and innocently asking random questions." they got the lowest mean of 2.63 respectively, described as "Agree" and also interpreted as "Moderately Experienced." An overall mean of 2.83 implies that the challenges experienced by the students with human and pet intrusion are "Moderately Experienced." Background noises can be a significant hindrance in online learning. Students cannot concentrate in class due to interruptions from family members, pets roaming the house, barking dogs, or siblings listening to loud music.

3.1.3 Students' Challenges in Digital Competence

Digital competence refers to a collection of abilities that allows someone to be a safe digital citizen. Methods for interacting and collaborating, producing work digitally, and having confidence in data management and computational thinking (problem- solving).

Table 4: Students' Challenges in Digital Competence

| Statements | Mean | S.D. | Description | Interpretation |
|---|---|---|---|---|
| 1. I can identify, locate, retrieve, store, and analyze digital information, judging its relevance and purpose. | 2.99 | .470 | Agree | Moderately experienced |
| 2. I can communicate in digital environments, share resources, and collaborate on online collaboration platforms through digital tool and networks. | 3.14 | .488 | Agree | Moderately experienced |
| 3. I am exposed to a variety of digital tools used for editing, modifying, refining, and creating content. | 3.00 | .620 | Agree | Moderately experienced |
| 4. I can understand online threats and risks and demonstrate a balanced attitude regarding time spent online and offline. | 3.13 | .520 | Agree | Moderately experienced |
| 5. I am competent in problem-solving and willing to show a positive attitude to emerging digital technologies. | 2.92 | .689 | Agree | Moderately experienced |
| Overall mean | 3.03 | .395 | Agree | Moderately experienced |

Table 4 shows the mean and standard deviation of the Challenges Experienced by the respondents regarding digital competence. It can be noted that "I can communicate in digital environments, share resources, and collaborate through digital tools and networks on online collaboration platforms." got the highest mean of 3.14, which is described as "agree" and interpreted as "Moderately Experienced.". While "I am competent in problem-solving and willing to show a positive attitude to emerging digital technologies." got the lowest mean of 2.92 respectively, also described as "Agree" and interpreted as "Moderately Experienced." An overall mean of 3.03 implies that the challenges experienced by the students with digital competence are "Moderately Experienced." Thus, teachers must have realized that they can't expect students to perform the same things online at home as they do at school. As a result, digitally adaptable approaches that reflect the multi-situated nature of students' learning environments are required.

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3.1.4 Students' Challenges in Assessment and Supervisions

Assessment and supervision allow students to understand their progress in the course, determine personal strengths and weaknesses, and ultimately serve as a standard to measure whether students have achieved the learning goals of the system.

Table 5: Students' Challenges in Assessment and Supervisions

| Statements | Mean | S.D. | Description | Interpretation |
|---|---|---|---|---|
| 1. I am satisfied with my performance in online learning assessments such as the new instructional objectives through online tests, quiz, and examination. | 2.71 | .743 | Agree | Moderately experienced |
| 2. I can observe limited proxy supervision of our professors during our assessments to regulate and control cheating in our online exams. | 2.75 | .616 | Agree | Moderately experienced |
| 3. I feel that in online learning, assessments now are more complicated compared to the traditional assessment in face-to-face classes. | 3.03 | .771 | Agree | Moderately experienced |
| 4. I think the testing formats applicable to e-learning will lead to the development of the test items conducted by instructors virtually. | 2.97 | .489 | Agree | Moderately experienced |
| 5. I have difficulty figuring out instructions on my own during online assessments, and I like them explained orally first. | 2.95 | .656 | Agree | Moderately experienced |
| Overall mean | 2.88 | .384 | Agree | Moderately experienced |

Table 5 shows the mean and standard deviation of the Challenges Experienced by the respondents regarding assessment and supervision. It can be noted that "I feel that in online learning, assessments now are more complicated compared to the traditional assessment in face-to-face classes." It got the highest mean of 3.03, which is described as "agree" and interpreted as "Moderately Experienced." While "I am satisfied with my performance in online learning assessments such as the new instructional objectives through online tests, quizzes, and examinations," got the lowest mean of 2.71, respectively described as "Agree" and interpreted as "Moderately Experienced." An overall mean of 2.88 implies that the challenges experienced by the students with assessment and supervision are "Moderately Experienced." Supporting student learning suggests focusing on feedback rather than a score or grade regarding assessments. Teachers must clearly describe students' learning goals and the criteria they use to assess when they have met them due to the emphasis on feedback. Most importantly, they must devise alternative strategies for assisting students who do not grasp the material and ensuring that students understand that the primary goal of assessments is to verify what they have learned and identify any learning issues so that teachers can work together to solve them.

3.1.5 Students' Challenges in Heavy Workload

Heavy Workload refers to academic tasks given to the students that need to be attained in a certain period. Table 6 showed the mean and standard deviation of the Challenges Experienced by the respondents about a heavy workload. It can be noted that "I have a lot of online tasks that make me feel exhausted and mentally drained every day." It got the highest mean of 3.39, described as "strongly agree" and interpreted as "Highly Experienced." While "I can adapt to the quick digital transformation process of universities

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that have a huge workload on ICT units of institutions" got the lowest mean of 2.65, respectively described as "Agree" and interpreted as "Moderately Experienced." An overall mean of 2.94 implies that the challenges experienced by the students with heavy workloads are "Moderately Experienced." An overall mean of 2.94 implies that the challenges experienced by the students with Heavy workloads s are "Moderately Experienced." To prevent students from being exhausted and mentally drained in doing online tasks, teachers should assign less homework and tests and be more understanding of students' current mental and educational state. Also, students must have extended their free time by using their open schedule for school, for it is their responsibility to keep up with their workload.

Table 6: Students' Challenges in Heavy Workload

| Statements | Mean | S.D. | Description | Interpretation |
|---|---|---|---|---|
| 1. I have many online tasks that make me feel exhausted and mentally drained everyday | 3.39 | .686 | Strongly Agree | Highly experienced |
| 2. I feel that the course is "e-platform-friendly" for us learners. | 2.82 | .671 | Agree | Moderately experienced |
| 3. I feel very uncomfortable and have difficulty learning when a class is not highly structured | 3.10 | .663 | Agree | Moderately experienced |
| 4. I constantly received irrelevant loads of email messages that add stress in online learning. | 2.74 | .784 | Agree | Moderately experienced |
| 5. I can adapt in the quick digital transformation process of universities that has a massive workload on ICT units of institutions. | 2.65 | .704 | Agree | Moderately experienced |
| Overall mean | 2.94 | .398 | Agree | Moderately experienced |

3.1.6 Students' Challenges in Compatibility

Compatibility refers to the level of adaptability of technical education students towards the new mode of learning.

Table 7: Students' Challenges in Compatibility

| Statements | Mean | S.D. | Description | Interpretation |
|---|---|---|---|---|
| 1. Online learning cannot be effectively and efficiently applied in hands-on practical activities. | 2.99 | .837 | Agree | Moderately experienced |
| 2. I prefer face-to-face training methods, especially in enhancing technical skills and OJT requirements. | 3.73 | .576 | Strongly Agree | Highly experienced |
| 3. I feel that the augmented face-to-face training method is very effective in mastering my skills in my major subjects. | 3.60 | .613 | Strongly Agree | Highly experienced |
| 4. I am motivated by the material on the Internet for my hands-on activities. | 256 | .819 | Agree | Moderately experienced |
| 5. I can perform well in practical hands-on tasks with a series of practices and actual demonstration. | 3.28 | .716 | Strongly Agree | Highly experienced |
| Overall mean | 3.23 | .426 | Agree | Moderately experienced |

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Table 7 shows the mean and standard deviation on the Challenges Experienced by the respondents about compatibility. It can be noted that “I prefer face-to-face training methods especially in enhancing technical skills & OJT requirements.” got the highest mean of 3.73 which is described as “strongly agree” and interpreted as “Highly Experienced.” While “I am motivated by the material on the Internet for my hands-on activities” got the lowest mean of 2.56 respectively described as “Agree” and interpreted as “Moderately Experienced.” An overall mean of 3.23 implies that the challenges experienced by the students in terms of compatibility are “Moderately Experienced”. The student becomes a self-directed learner who can learn at any moment, both simultaneously and asynchronously. However, there are numerous disadvantages to e-learning, the most significant of which is obtaining knowledge solely on a theoretical foundation and putting what learners have learned into practice without applying practical skills.

3.1.7 Summary of the Students’ Challenges in Online Learning

The issues of challenge in online learning in section 3.1.1 – 3.1.6 revealed that the overall mean for all issues could be interpreted as moderately experienced. It can be noted that ‘’Compatibility’’ obtained the highest mean of 3.23, described as Agree, interpreted as moderately experienced. While the ‘’Human and Pet Intrusion’’ got the lowest mean of 2.83, also described as Agree analyzed as moderately experienced. An overall mean of 2.99 means that the students moderately experienced the challenges in online learning. As revealed through students' feedback, they encountered numerous online classes challenges, often a source of frustration for students in their academic state and viewed online instruction negatively. Students are more compatible and value face-to-face interaction, pre and post-class discussions, collaborative learning, and organic student-teacher bonding.

*3.2 The Opportunities Experienced by the Industrial Arts Students during the COVID19-Pandemic*

The opportunities experienced by the Industrial Arts students during the COVID19-Pandemic were clarified in terms of research innovations, technological innovations, and socio-economic interventions.

3.2.1 Students’ Opportunities in Research Innovations

Research innovation refers to the development imposed by school researchers to fill the educational gaps of students to relate to any technological advancement. Table 9 showed the mean and standard deviation on the Opportunities Experienced by the respondents about research innovations. It can be noted that “The University must have an effective design of an online learning model that will reduce the workload on the students and instructors.” It got the highest mean of 3.36, which is described as “strongly agree” and interpreted as “Highly Experienced.” While “The university, facilitators, and students can adapt with the quick digital transformation of their educational activities flexibly.” got the lowest mean of 2.96 respectively described as “Agree” and interpreted as “Moderately Experienced.” An overall mean of 3.15 implies that the opportunities experienced with research innovations are “Moderately Experienced.” Administrators may show a genuine commitment to online learning by investing in the facilities and resources needed to support the digital transformation of education.

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Table 8: Students' Opportunities in Research Innovations

| Statements | Mean | S.D. | Description | Interpretation |
|---|---|---|---|---|
| 1. The university, facilitators, and students can adapt with quick digital transformation of their educational activities flexibly. | 2.96 | .634 | Agree | Moderately experienced |
| 2. The university must have and effective design of online learning model that will reduce the workload on the students and instructors. | 3.36 | .502 | Strongly Agree | Highly experienced |
| 3. Schools and universities need to provide models to accommodate the contemporary changes in online learning. | 3.28 | .513 | Strongly Agree | Highly experienced |
| 4. Online learning provides research avenues for researchers' collaboration that produces positive results to technological innovations. | 3.18 | .455 | Agree | Moderately experienced |
| 5. The urgent research innovations brought opportunities for the students in their course. | 3.00 | .554 | Agree | Moderately experienced |
| Overall mean | 3.15 | .351 | Agree | Moderately experienced |

3.2.2 Students' Opportunities in Technological Innovations

Technological innovation is a new or better product or procedure with significant technical differences from previous versions that will expand the use of continuous, formative, and integrated assessments.

Table 9: Students' Opportunities in Technological Innovations

| Statements | Mean | S.D. | Description | Interpretation |
|---|---|---|---|---|
| 1. The university (MOLE) online facilitators have provided practical solutions and technological assistance for students and professors. | 3.24 | .568 | Agree | Moderately experienced |
| 2. MOLE and other educational sites are easily accessible for data users and make prior adjustments for slow-internet connections. | 2.84 | .756 | Strongly Agree | Highly experienced |
| 3. Professors have integrated educational technology in giving students online quizzes, activities and exams by interactive gamification. | 3.08 | .482 | Agree | Moderately experienced |
| 4. I became more efficient in using online platforms and have expanded digital skills independently. | 3.07 | .599 | Agree | Moderately experienced |
| 5. I have enhanced critical thinking skills and developed a broad range of resources in conducting research. | 2.92 | .615 | Agree | Moderately experienced |
| Overall mean | 3.03 | .417 | Agree | Moderately experienced |

Table 9 showed the mean and standard deviation on the Opportunities Experienced by the respondents about technological innovations. It can be noted that "The university (MOLE) online facilitators have provided effective solutions and technical assistance for students and professors." got the highest mean of 3.24, which is described as "Agree" and

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interpreted as “Moderately Experienced.” While “MOLE and other educational sites are easily accessible for Data users and make prior adjustments for slow-internet connections.” got the lowest mean of 2.84 described as “Agree” and interpreted as “Moderately Experienced.” An overall mean of 3.03 implies that the opportunities experienced with technological innovations is “Moderately Experienced”. Having effective solutions and technical assistance such as making online resources available and providing internet connection for both teachers and students could be evidence that learning online can be more effective in several ways.

3.2.3 Students’ Opportunities in Socio-economic Interventions

A Socio-economic intervention refers to the government support that ensures vulnerable students to have access to extra services such as scholarship and financial-educational support.

Table 10: Students’ Opportunities in Socio-economic Interventions

| Statements | Mean | S.D. | Description | Interpretation |
|---|---|---|---|---|
| 1. Able to receive financial-educational support from the government (e.g., UnifasTes, CHED, scholarships) in this time of the pandemic. | 2.82 | 1.023 | Agree | Moderately experienced |
| 2. Our Barangay SK provide educational supplies for students. | 1.80 | .964 | Strongly Agree | Highly experienced |
| 3. Using social media to seek financial support from others and collect educational devices (e.g., Laptop, Android Phone) for online classes. | 2.16 | .981 | Disagree | Not experienced |
| 4. Our university organization provide monthly free data load to students to reduce financial burden of internet data subscription. | 2.13 | .889 | Disagree | Not experienced |
| 5. Student councils provide (e.g., food items, clothes, financial support) for the stranded students during unexpected lockdowns. | 2.59 | .967 | Agree | Moderately experienced |
| Overall mean | 2.03 | .673 | Agree | Not experienced |

Table 10 shows the mean and standard deviation on the Opportunities Experienced by the respondents about socio-economic interventions. It can be noted that “Able to receive financial-educational support from the government (e.g., UnifasTES, CHED, scholarships) in this time of the pandemic.” has the highest mean of 2.82, which is described as “Agree” and interpreted as “Moderately Experienced.” While “Our Barangay SK provides educational supplies for us students.” got the lowest mean of 1.80, respectively described as “Disagree” and interpreted as “Not Experienced.” An overall mean of 2.30 implies that the opportunities experienced with socio-economic interventions are not experienced by the students. Suppose the government ensures vulnerable students have access to extra services, it can make a significant difference in students’ lives from low socioeconomic backgrounds and help prevent rising educational gaps.

3.2.4 Summary of the Students’ Opportunities in Online Learning

The issues of opportunities in online learning in section 3.2.1 – 3.2.3 indicated that students’ opportunities in research innovations and technological innovations were interpreted as moderately experienced. Unlike, the issue of students’ opportunities in socio-economic interventions was interpreted as not experienced.

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*3.3 Relationship between the Challenges and Opportunities of the Respondents in Online Learning and the Respondent's Profile in Terms of Sex and Socio-economic Status*

The question was raised if a significant relationship between the challenges and opportunities of the respondents in online learning and the respondent's profile in terms of sex and socio-economic status.

3.3.1 Relationship between Sex Versus Challenges and Opportunities in Online Learning

Table 11 showed the correlation between the challenges and opportunities experienced by the students and their sex. On the challenges, it can be noted that Sex is significantly related only to technology. At the same time, it has no significant relationship to the rest of the variables under the respondents' challenges in online learning. It implies that Sex plays a significant role in determining the intention of accepting new technology in online learning. Meanwhile, it can also be noted that sex is not significantly related to the opportunities experienced by the students in all its variables. The result further revealed that sex is significantly related to the challenges and opportunities experienced by the students in online learning. Thus, the null hypothesis stating that there is no significant relationship between the challenges and opportunities of the students in online learning and their Sex is accepted. It means that the challenges and opportunities students face in learning online are unaffected by their sex.

Table 11: Correlation between the challenges and opportunities experienced by the students and their sex

| Independent Variable | Dependent Variable | r | p | Interpretation |
|---|---|---|---|---|
| Sex | **Challenges** | **.081** | **.415** | **Not Significant** |
| | Technology | .046* | .664 | Significant |
| | Human & pets intrusions | .168 | .088 | Not significant |
| | Digital Competence | -.079 | .420 | Not significant |
| | Assessment and supervisions | .131 | .183 | Not significant |
| | Heavy workload | .052 | .599 | Not significant |
| | Compatibility | -.118 | .232 | Not significant |
| | **Opportunities** | **.144** | **.143** | **Not significant** |
| | Research innovations | .054 | .582 | Not significant |
| | Technological innovations | .057 | .498 | Not significant |
| | Socio-economic interventions | .136 | .168 | Not significant |

3.3.2 Relationship between Socio-economic Status Versus Challenges and Opportunities in Online Learning

Table 12 shows the correlation between the students' challenges and opportunities experienced by students and their parents' monthly income. On 63 of the challenges, it can be noted that parents' Monthly Income is significantly related to digital competence (r=-.033, p=.736) with a negative correlation which means that the decrease and increase of the parent's monthly income will inversely affect the students" digital competence. On the other hand, a parent's monthly income is significantly related to the Assessment and Supervision (r=0.44, p=.183) of the students, which means that as the parent's monthly income increases, the level of assessment and supervision of the students also increases. The result further revealed that Parent's Monthly Income is significantly related to the challenges and opportunities experienced by the students in online learning; thus, the null hypothesis states that there is no significant relationship between the challenges and opportunities of the students in online learning and their Parent's Monthly Income is

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Rejected. Results revealed that challenges and opportunities negatively correlate with parents' monthly income. The correlation coefficient is calculated as 0.043 and 0.049. This negative correlation means that as parents' monthly income decreases, the challenges and opportunities students experience increase. This means that during this pandemic, the students' parents' monthly income significantly impacted their online learning experience. The study by Drajea and O'Sullivan (2014), entitled "Influence of Parental Education and Family Income on Children's Education in Rural Uganda," shows that low family income has a variety of effects on students, including the absence of learning habits and experiences at home, a lack of access to computers, a lack of self-esteem due to inappropriate interactions with parents, poor housing, an unhealthy diet, and possible mental health issues within the family.

Table 12: Correlation between parent's monthly income and challenges and opportunities

| Independent Variable | Dependent Variable | r | p | Interpretation |
|---|---|---|---|---|
| Parent' s monthly income | **Challenges** | **-.043*** | **.661** | **Not Significant** |
| | Technology | -.089 | .399 | Significant |
| | Human & pets intrusions | -.072 | .456 | Not significant |
| | Digital Competence | -.033* | .736 | Significant |
| | Assessment and supervisions | .044* | .183 | Not significant |
| | Heavy workload | .592 | .059 | Not significant |
| | Compatibility | -.118 | .232 | Not significant |
| | **Opportunities** | **-.049*** | **.620** | **Significant** |
| | Research innovations | -.004* | .969 | Significant |
| | Technological innovations | -.050* | .610 | Significant |
| | Socio-economic interventions | .136 | .168 | Not significant |

## 4. Conclusion

Based on the study's findings, it was concluded Industrial Arts students had encountered several changes in the educational system, the delivery of their teacher's instructions, and their learning experience that could affect their academic performance in online learning during the COVID19-Pandemic. It is also concluded that the family monthly income of the respondents is significantly related to their challenges and opportunities. However, Sex is not significantly related to challenges and opportunities.

## References

Abracero, A. D., Alejandro, R. L., Therese, R., Joyce, E., and Beltran, U. G. R. (2021).Optimizing Students: "Workload and its Effects on their Mental Health during COVID-19 Pandemic. *International Journal of Academic Multidisciplinary Research (IJAMR)*, 5(1): 118 – 122.

Adedoyin, O. B., Soykan, E. (2020) Covid-19 Pandemic and Online Learning: The challenges and opportunities: *Interactive Learning Environments*.1-13. doi.org/10.1080/10494820.2020.1813180

Akkoyunlu, B. and Soylu, M. Y. (2006). A study on students' views on blended learning environment. *Turkish Online Journal of Distance Education*. 7(3): 43 – 56.

Alekseeva, L., Azar, J., Gine, M., Samila, S., Taska, B. (2021). The demand for AI skills in the labor market. Labour Economics, 71, 102002.

Ayebi-Arthur, K. (2017). E-learning, resilience, and change in higher education: Helping a university cope after a natural disaster. *E-Learning and Digital Media*, 14(5), 259–274. https://doi.org/10.1177/2042753017751712

Chew, L.D., Bradley, K., and Boyko, E. (2004). Brief Questions to Identify Patients With Inadequate Health Literacy. Family Medicine, 36(8): 588 – 594.

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Coman, C., Țîru, L. G., Meseșan-Schmitz, L., Stanciu, C., & Bularca, M. C. (2020). Online teaching and learning in higher education during the coronavirus pandemic: students' perspective. *Sustainability*, 12(24), 10367.

Drajea, A. J., and O'Sullivan (Influence of Parental Education and Family Income on Children's Education in Rural Uganda. *Global Education Review*, 1 (3). 149-166.

Fishbane, L., & Tomer, A. (2020, March 20). As classes move online during COVID-19, what are disconnected students to do?Brookings. https://www.brookings.edu/blog/the-avenue/2020/03/20/as-classes-move-online-during-covid-19-what-are-disconnected-students-to-do/

Hardman, J., & Ntlhoi, T. (2021). Online Quizzes as Mediating Tools for Teaching Information Communication Technology to First Year Students at a College of Education in the Developing Context of Lesotho. *Asia Research Network Journal of Education*, 1(2), 50–60.

Hoftijzer, M., Levin, V., Santos, I., & Weber, M. (2020). TVET (Technical and Vocational Education and Training) in the times of COVID-19: Challenges and Opportunities. Retrieved from: https://blogs.worldbank.org/education/tvet-technical-and-vocational-education-and-training-times-covid-19-challenges-and

Joosten, T., Lee-McCarthy, K., M.A., Harness, L., Paulus, R., M. A. (2020). Digital Learning Innovation Trends. Retrieved from: https://files.eric.ed.gov/fulltext/ED603277.

Kintu, M. J., Zhu, C., & Kagambe, E. (2017). Blended learning effectiveness: the relationship between student characteristics, design features, and outcomes. International Journal of Educational Technology in Higher Education, 14(1), 1-20

Livari, N., Sharma & S., Olkhonnen, L. (2020). Digital transformation of everyday life – How COVID-19 pandemic transformed the basic education of the young generation and why information management research should care? doi:10.1016/j.ijinfomgt.2020.102183

Li, Z., & Qiu, Z. (2018). How Does Family Background Affect Children's Educational Achievement? Evidence from Contemporary China. *The Journal of Chinese Sociology*, 5, 13. https://doi.org/10.1186/s40711-018-0083-8

Schuller et al., (2020). Structural insights into the nucleic acid remodeling mechanisms of the yeast THO-Sub2 complex. *Elife.* 16, doi: 10.7554/eLife.61467.

Serpa and Jose'Sa (2020). The COVID-19 Pandemic as an Opportunity to Foster the Sustainable Development of Teaching in Higher Education. *Sustainability*. 2020, *12*(20), 8525

Shuttleworth, M. (2008). Descriptive Research Design. Retrieved Dec 30, 2022 from Explorable.com: https://explorable.com/descriptive-research-design

Simms, L. J., Zelazny, K., Williams, T. F., & Bernstein, L. (2019). Does the number of response options matter? Psychometric perspectives using personality questionnaire data. *Psychological Assessment, 31*(4), 557–566. https://doi.org/10.1037/pas0000648

Sintema, E. J. (2020). Effect of COVID-19 on the Performance of Grade 12 Students: Implications for STEM Education. *Eurasia Journal of Mathematics, Science and Technology Education*, 16, 1-6.

UNESCO (2020). Distance learning strategies in response to COVID-19 school closures. Retrieved from: https://unesdoc.unesco.org/ark:/48223/pf0000373305

UNICEF (2020). Learning Recovery: Post-COVID-19. Retrieved from: https://www.unicef.org/eap/media/10886/file/Learning%20Recovery:%20Post-COVID%2019.pdf

Welsh government (2018). Digital Competence Framework – your questions answered. Retrieved from: https://hwb.gov.wales/storage/85f69bca-0134-426d-bff1-c46b4c1d067b/digital-competence-framework-your

Villanueva, P., Cardenas, L., Uxo, J., and Alvarez, I. (2020). The role of internal devaluation in correcting external deficits: The case of Spain. *Structural Change and Economic Dynamics*, 54: 282 – 296.

World Health Organization. (2022). COVID-19 Research and Innovation. Retrieved from: https://cdn.who.int/media/docs/default-source/blue-print/achievement-report-_grif_web_finalversion15.pdf

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