STUDENT ENGAGEMENT AND TEACHING COMPETENCE

IN RELATION TO THE IMPLEMENTATION

OF ONLINE DISTANCE LEARNING

Analyn S. Clarin, Esther L. Baluyos

ABSTRACT

Student engagement and teaching competence are tenets of effective online education. This study determined the level of student engagement, teaching competence, and the effectiveness of online distance learning in the Basic Education Department of Misamis University, Ozamiz City. The study utilized a descriptive-correlational design. A total of 51 teachers and 306 students who served as respondents were chosen through purposive and random sampling, respectively. Online Student Engagement Questionnaire and Online Teaching Effectiveness Questionnaire were used to gather data. Secondary data was used to measure the teaching competence in online classes. Mean, Standard Deviation, T-test and Pearson Product Moment Correlation Coefficient were the statistical tools used in the study. Results showed that the students have a high level of engagement in online distance learning and teachers have very satisfactory teaching competence. The implementation of online distance learning is effective. A difference in the teachers' and students' perceptions on the level of engagement of students in online distance learning is in terms of interaction with the teachers. The students' level of engagement in terms of community support and the level of effectiveness of online distance learning and the teachers' teaching competence influenced the effectiveness of the implementation of online distance learning in terms of active learning, prompt feedback, high expectations, and diverse talents and ways of learning. Teachers' teaching competence greatly affects the effectiveness of the implementation of online distance learning.

Keywords: competence, connection, engagement, effectiveness, online distance learning,

INTRODUCTION

One of the cornerstones of good online training is student engagement; thus, paying close attention to how it provides value to student learning is critical and worth the time and effort to improve learning results (Everett, 2015). With ongoing discussions about the nature, complexity and criticism regarding the depth and breadth of theorizing and operationalization within empirical research, the concept of student engagement turned out to be something of a mystery

for educators and academics (Bond, & Bedenlier, 2019). Engagement is made up of personal attitudes, thoughts, behaviors, and interactions with others. Student engagement is defined as students investing time, energy, thought, effort, and, to some extent, sentiments in their learning (Dixson, 2015); and participation in activities and situations that are likely to produce high-quality learning (Ball & Perry, 2011). The amount to which students are involved in active learning is a fundamental issue in describing student engagement. Students' engagement in creating new information and understanding encourages active learning (Ball & Perry, 2011).

While we have a good grasp of student involvement in the compulsory education sector in face-to-face settings, the same cannot be said for online and remote learning environments (Louwrens, & Hartnett, 2015). A study investigating student involvement in an online middle school in a New Zealand distance education context addresses this research gap. According to the findings, students tended to engage behaviorally (that is, do what was expected of them) in all required activities. The giving and receiving of feedback, the interest, and the relevance that specific exercises provided for learners all demonstrated cognitive engagement (i.e., students' personal investment in their learning). The activities' design and facilitation, as well as the continual creation of a learning community in which students felt comfortable to contribute, aroused emotional engagement (Louwrens & Hartnett, (2015).

Users can now contact family, friends, colleagues, and pupils through online social networks (Akbari, Naderi, Simons, & Pilot, 2016). In addition, teachers are increasingly using mobile digital technologies in the classroom (Perry & Steck, 2015). As a result, curricular interventions incorporating blended learning technology and pedagogies should assist instructors in their daily work (Riel, Lawless, & Brown, 2016). Blended course model includes graded online facilitation, motivated by the understanding that teaching assistants and faculty are

increasingly needed to teach online or blended, is one noteworthy change (i.e., combining face-to-face and online) courses (Sheffield, McSweeney, & Panych, 2015).

While online courses are becoming more common, administrators, staff, teachers, and students all have different ideas about operating (McGee, Windes, & Torres, 2017). Teaching in online and mixed environments necessitates a different set of abilities than traditional teaching (Pulham & Graham, 2018). The faculty who have previously taught in traditional face-to-face classrooms suddenly find themselves in a completely different situation when teaching online. They are discovering that shifting face-to-face classes to the Internet is not as simple as they thought. The faculty cannot be assumed to know intuitively how to develop and deliver excellent online classes since online teaching necessitates specialized skills and competencies (Schmidt, Tschida, & Hodge, 2016).

An instrument was created based on important attributes and skills required for proficiency in online teaching in three areas: online teaching experience and attitudes, learning management system competency, and access to technology (Rhode, Richter, & Miller, 2017). A paper set out to discover what activities and interaction channels might be expected to lead to more highly engaged students. The findings show that there is no single activity that can automatically increase student engagement in online classes. However, the findings imply that various communication channels may be linked to increased engagement. Both student-student and instructor-student communication are linked to higher overall student involvement with the course (Gray & DiLoreto, 2016). On the other hand, researchers developed analytics tools that transform discussion forum data into information for students to promote student debate in online classes (Chen, Chang, Ouyang, & Zhou, 2018).

Incorporating mobile digital technology into the classroom is becoming more common. The impact of using iPads in a secondary-level geometry class on academic achievement, student engagement, self-efficacy, and meta-cognitive self-regulation was investigated in a study. Compared to the non-iPad group, students in the iPad-using classroom had lower levels of geometry proficiency, higher levels of off-task behaviors, and equivalent levels of self-efficacy and meta-cognitive self-regulation (Perry & Steck, 2015).

Another study looked at how online teacher education programs may help teachers and students use ICT to create new teaching and learning methods (ICT). Even while online teacher education programs are effective outlets for encouraging teachers and student teachers to develop digital competence for pedagogical objectives, the study found that this component is poorly integrated into the existing programs, despite some fascinating examples. This showed that there is still a long way to develop creative solutions and professional digital skills in online teacher education programs (Tømte, Enochsson, Buskqvist, & Kårstein, 2015).

In addition, an essay compares K-12 blended teaching capabilities to K-12 online teaching capabilities, based on a synthesis of reports and studies. This evaluation brings together eight blended learning publications and ten online learning documents. Seven global themes identified in both competency domains are (1) pedagogy, (2) management, (3) assessment, (4) technology, (5) instructional design, (6) dispositions, and (7) improvement. Flexibility and personalization, mastery-based learning, data usage and interpretation, learning management system usage, online discussion facilitation, and software management are among the top 20 blended teaching skills (Pulham & Graham, 2018).

Well-trained, motivated, imaginative, and student-friendly faculty members, as well as forward-thinking administrators who devote sufficient resources to training, technology, and

course design, are critical components of successful online teaching and learning. Those schools with the most success in online education, providing educational services that stimulate student learning and run successfully and efficiently, adopt a collaborative model to establish administrative structures that retain these achievements and encourage innovation (Alexander, 2015).

Effective online teachers assist, connect, lead, and collaborate with students to achieve quality indicators such as student success, student progress over time, and student application of knowledge to a professional position (Frazer, Sullivan, Weatherspoon, & Hussey, 2017). According to various research, student-to-student and instructor-to-student interaction have a significant impact on student satisfaction. Other issues noted included a lack of adequate learner support linked to campus resources and the need for varied instructional design and delivery to promote students' motivation to learn. In contrast, students were highly satisfied with the clarity and organization of instruction using sufficient resources (Fedynich, Bradley, & Bradley, 2015).

Students' perceptions of the effectiveness of three content distribution modes: a) traditional, residential in-class, b) class capture for asynchronous online distribution, and c) modularized targeted content videos for online and mixed or flipped classroom mode are the topic of a work in progress (Mullen & Sullivan, 2015). On the other hand, a poll was done in Pakistan to determine what students thought of online education. The study's findings revealed that in underdeveloped nations like Pakistan, where most students cannot use the internet due to technical and financial barriers, online learning could not generate intended results. Students in higher education complained about a lack of face-to-face engagement with instructors and long response times, and a lack of typical classroom socialization (Adnan & Anwar, 2020). Furthermore, a study evaluated some of the most important elements of effective online

education. The survey discovered high academic support for online teaching in terms of efficacy and student empowerment. Still, it also discovered some reservations among respondents about ensuring adequate integrity of online courses. (Singh & Hurley, 2017).

It is believed that student engagement and teaching competence contribute to the success of online distance learning. Learning process is becoming more accessible as a result of online learning. With the advancement of online learning, competent teachers will have more opportunities to support student engagement in learning. As a result, this becomes a sustainable tool for assisting students in engaging in learning.

Objectives of the Study

The study determined the level of student engagement, teaching competence, and the effectiveness of the implementation of online distance learning in the Basic Education Department of Misamis University, Ozamiz City.

Specifically, this study answered the following objectives:

1. Determine the level of engagement of students in online distance learning in terms of psychological motivation, peer collaboration, cognitive problem solving, interaction with instructors, community support, and learning management;

2. Determine the level of teaching competence in online distance learning;

3. Determine the level of effectiveness of the implementation of online distance learning in terms of student faculty contact, cooperation among students, active learning, prompt feedback, time on task, high expectations, and diverse talents and ways of learning;

4. Explore the significant difference in the teachers' and students' perception on the level of engagement of students in online distance learning;

5. Explore the significant difference in the teachers' and students' perception on the effectiveness of the implementation of online distance learning;

6. Explore the significant relationship between the students' level of engagement and the effectiveness of the implementation of online distance learning;

7. Explore the significant relationship between the level of teaching competence and the effectiveness of the implementation of online distance learning.

METHODS

Research Design

This quantitative study utilized a descriptive-correlational design to describe the relationship among variables. Descriptive-correlational is useful for describing one phenomenon related to another when the researcher has no control over the independent variables. These variables are believed to cause or influence the dependent or outcome variable (Lappe, 2000). This design was appropriate for the study to determine the significant relationship between the students' level of engagement, the teaching competence, and the effectiveness of the implementation of online distance learning.

Research Setting

The research was conducted in the Basic Education Department, especially in the Junior and Senior High School, of Misamis University, Ozamiz City. It is a privately owned, non-sectarian educational institution founded by Dr. Hilarion Feliciano and Doña Maria Mercado Feliciano in 1929. The university, is an ISO 9001:2015 Management System Certified granted

by Det Norske Veritas-Germanischer Lloyd Business Assurance. The university is also granted Autonomous Status by the Commission on Higher Education (CHED). The Basic Education Department is granted Level II accreditation by the Philippine Association of Colleges and Universities Commission on Accreditation (PACUCOA).

Research Respondents

The study respondents were 51 teachers and 306 high school students of Misamis University. One hundred percent enumeration was done among the teacher respondents due to the limited number of high school teachers, both in the Junior High School and Senior High School, handling online classes. However, the students were chosen through stratified random sampling. Selection of the student respondents was based on the following criteria: 1) students who are officially enrolled in the high school department for the SY 2020-2021; 2) students who regularly attend online classes based on attendance from the teachers; and 3) students who gave their full consent to serve as respondents of the study.

Research Instruments

This study made use of three sets of questionnaires to collect data.

A. Student Engagement in Online Learning Questionnaire. The questionnaire was adopted from Lee, Song, & Hong (2019) in his study "Exploring factors, and indicators for measuring students' sustainable engagement in e-learning." This questionnaire is of six constructs: psychological motivation, peer collaboration, cognitive problem solving, interactions with instructors, community support, and learning management. To ensure reliability and validity of the instrument, it was pilot tested to the faculty and students who not part of the respondents of the study which yielded a Cronbach's Alpha of 0.85.

In assessing the students' level of engagement in online distance learning, the following scale was used:

Responses	Continuum	Interpretation
5 – Always	4.21 – 5.00	Very High (VH)
4 – Often	3.41 – 4.20	High (H)
3 –Sometimes	2.61 – 3.40	Moderately High (MH)
2 –Rarely	1.81 – 2.60	Low (L)
1 –Never	1.0 – 1.80	Very Low (VL)

B. Teaching Competence in Online Distance Learning Evaluation Tool. The data on the teaching competence was taken from the secondary data based the evaluation of the Principal and the Academic Supervisor of the Basic Education Department, specifically in Junior and Senior High School for SY 2020-2021. Two evaluation tools were created, modified versions from the Performance Rating Tools used by the university in the traditional classroom environment. Faculty Digital Classroom Instruction Performance Evaluation Tool was of two kinds: The Constructive Alignment in Planning and Implementation of Outcomes-Based Teaching and Learning in the Digital Classroom.

The Constructive Alignment in Planning tool was composed of areas in the articulation of learning outcomes, design of teaching, learning activities, and design of assessment tasks. The Implementation of Outcomes-Based Teaching and Learning in the Digital Classroom includes communicating the learning outcomes, implementing the teaching-learning activities, and implementing assessment tasks.

In assessing the teaching competence in online distance learning, the following scale was used:

Responses	Continuum	Interpretation

5 – Very-well designated/articulated	4.21 – 5.00	Excellent (E)
4 – well designated/ articulated	3.41 – 4.20	Very Satisfactory (VS)
3 – fairly designated/ articulated	2.61 – 3.40	Satisfactory (S)
2 – poorly designated/ articulated	1.81 – 2.60	Fair (F)
1 – very poorly designated/articulated	1.0 – 1.80	Poor (P)

C. Online Teaching Effectiveness Questionnaire. This tool is adapted from Bangert (2006) in his study entitled, "The development of an instrument for assessing online teaching effectiveness." This questionnaire was used to determine the level of effectiveness of the implementation of online distance learning. The teaching effectiveness comprises six categories: student-faculty contact, cooperation among students, active learning, prompt feedback, time on task, high expectation, and diverse talents and ways of learning. This questionnaire was pilot tested to the faculty and students who were not part of the respondents of the study to ensure its reliability and validity which yielded a Cronbach's Alpha of 0.81.

In assessing the effectiveness of the implementation of online learning, the following scale was used:

Responses	Continuum	Interpretation
5 – Strongly Agree	4.21 – 5.00	Very Highly Effective (VHE)
4 – Agree	3.41 – 4.20	Highly Effective (HE)
3 –Somewhat Agree	2.61 – 3.40	Effective (E)
2 –Disagree	1.81 – 2.60	Less Effective (LE)
1 –Strongly Disagree	1.0 – 1.80	Not Effective (NE)

Data Collection

In gathering the data, the researcher sought permission from the Graduate School of Misamis University for the conduct of the study. After the approval, the researcher asked permission from the office Vice President of Academic Affairs (VPAA) to conduct the survey to the selected respondents. After the researcher obtained the approval, she prepared a consent letter for the respondents. The researcher produced a google form containing the approved instrument and the link to the Google form was sent to teachers and students to collect data on student engagement in online distance learning. Another google form was created and sent to all students and teachers to gather perceptions of online learning. The data on the teaching performance were secured from the Academic Supervisor of the basic Education Department. The data were then collated, tabulated, and interpreted.

Ethical Consideration

To adhere to ethical standards, the researcher used the Helsinki Declaration (2001) codes. The researcher informed all respondents about the study's objectives and significance. The principle of autonomy and respect for the person was upheld through the process of informed consent. The respondents' written, informed consent was obtained before the interview. The respondents were informed of the aim of the study; the potential benefits to themselves or others; confidentiality protection; researcher's contact information for answers to questions regarding the study; and conditions of respondents, including the right to refuse or withdraw at any time without penalty. The researcher assured the respondents that their participation was entirely voluntary, and they have the right to decline to participate at any time during the conduct of the study.

Data Analysis

Mean and Standard Deviation was used in determining the level of student engagement, teachers' teaching competence, and the effectiveness of the implementation of online distance learning.

T-test was used to determine the significant difference between student engagement and the effectiveness of online distance learning as perceived by the teachers and students.

Pearson Product – Moment Correlation (Pearson r) was used to explore the significant relationship between student engagement, teaching competence, and the effectiveness of online distance learning.

RESULTS AND DISCUSSION

Engagement of Students in Online Distance Learning

Data in Table 1 revealed the teachers' and students' engagement in online learning as high (M=3.77, SD= 0.87; M-3.51, SD = 0.85) respectively. Students' engagement in online distance learning was described in their psychological motivation, peer collaboration, cognitive problem solving, interaction with teachers, community support, and learning management.

The high ratings given to these activities imply that the novelty of online distance learning profoundly impacted the students, considering the years of the traditional classroom face-to-face engagement with their teachers. At the same time, the students found new interest in the new mode of learning. The data disclosed a consistently "high" response to online distance learning since they also encountered difficulties and challenges which they could not construe as a very high level of engagement.

The responses of the students also revealed that even in the absence of personal contact with their classmates, students found a way to interact with their peers in accomplishing their requirements in online projects or assignment, solving difficult and different problems and seeking help from classmates in understanding difficult concepts discussed in online classes. Students made good use of collaborative learning, which in traditional classrooms is utilized differently.

Furthermore, online distance learning taught the students to be resourceful in responding to their tasks. They learn to find solutions to problems encountered in the class by searching for meanings and interpretations from other online sources, sharing them with the class, and eliciting reactions that would enrich their understanding of the lessons or concepts discussed online. The students became more and more engaged in their technological devices from a more meaningful perspective than just social contacts.

Another greater impact of online distance learning is the students' interaction with their teachers. When students cannot find the answers to their tasks, when they have no one to help them, they need to refer this to their teachers for extra help. They communicate with their teachers and/or instructors for tasks and contents of the lessons that they do not understand and which they need clarification. Teachers were also instructed by the administrators to be flexible with their instruction and treatment of students' requirements. Students have learned to connect with their teachers when they have problems.

With the advent of the new normal education, schools need to connect to the community in logistics support for their children, like the permission of the gadgets and connectivity. Online distance learning is participated in, shared, or used in common by members of the community.

On the part of the students, they have also learned to manage their time, minimize disturbing activities, set schedules for work to be done and take advantage of the free connection.

According to the findings of Deschaine & Whale (2017), interactivity appears to be a major factor in keeping students engaged and achieving, with specific activities being consistently preferred by students. It is suggested that engaging students is worthwhile because it leads to increased course satisfaction and academic effort. The outcomes of a study comparing faculty members' perceptions of the value of engagement tactics used in online learning environments to student perception data collected using the same instrument were published in an article. While both instructors and students agreed that various engagement methods are significant, the results also reveal that instructors value engagement tactics listed on the survey instrument more than students (Bolliger & Martin, 2018).

It is important to gain knowledge of the factors that influence student participation in online learning settings. According to a study, students' reflexivity was activated by tasks and social relationships in online learning environments, with reflexivity defined as the usual mental capability to consider oneself connected to one's social situation. These students engaged in reflexivity centered on the pursuit of common goals, or collective reflexivity, which was regarded as a factor in their learning engagement. Constructive forms of collective reflexivity were triggered by specific practice, whereas fractured and constrained forms of collective reflexivity were associated with student disengagement with common tasks (Kahn, Everington, Kelm, Reid, & Watkins, 2017).

Student engagement is fostered through interaction, which is critical in online learning since the times in a student's life that stick with them are those in which they were intensely engaged — for whatever reason. As a result, in an online learning environment, teachers must

guarantee that students' emotional, behavioral, and cognitive connections to their studies are maintained.

Table 1

Engagement of Students in Online Distance Learning

Variables	Teachers (n=51)			Students (n=306)		
	Mean	*SD*	Remarks	*Mean*	*SD*	Remarks
Psychological Motivation	3.89	0.86	High	3.70	0.83	High
Peer Collaboration	3.59	0.90	High	3.41	0.84	High
Cognitive Problem Solving	3.93	0.68	High	3.65	0.73	High
Interaction with Instructors	3.52	1.13	High	2.97	1.01	Moderately High
Community Support	3.75	0.92	High	3.46	0.93	High
Learning Management	3.93	0.74	High	3.84	0.78	High
Overall	**3.77**	**0.87**	**High**	**3.51**	**0.85**	**High**

Note. Engagement Scale: 4.20-5.00 (Very High); 3.40-4.19 (High); 2.60-3.39 (Moderately High); 1.80-2.59 (Low); 1.00-1.79(Very Low)

Teaching Competence

The university utilized Microsoft 365 as the Learning Management System (LMS) to implement online distance learning. Lessons are taught in modules, and the subjects are registered in the Microsoft Teams. The data of the teachers' teaching competence in online distance learning were taken from the teachers' evaluation of their performance in online distance learning. The academic supervisors used two evaluation tools. They are assigned to observe online classes: The Constructive Alignment in Planning and Implementation of Outcomes-Based Teaching and Learning in the Digital Classroom. The teachers were rated according to how they

demonstrated their competence in aligning their online classes to the Instructional Guides approved for teaching.

The evaluation of the teaching competence of the teachers revealed a very satisfactory result (M=4.21). A breakdown of responses showed that 74 percent (38 teachers) had very satisfactory ratings (M=4.32). Twenty-two percent (11 teachers) were rated excellent (M=4.60; while four percent (2 teachers) had satisfactory performance (M3.70).

Data imply that the teachers who exhibited very satisfactory results in the evaluation found that online distance learning were challenging because of the unusual "newness" of the teaching strategy. They have to create the modules, appropriate learning activities to upload, and what assessment tools to use. They need to continuously engage students in the learning process because they are at home while schooling, and teachers control their actions and how they are faring with their studies. Teachers themselves find that their online devices are not responding efficiently to the LMS, affecting their teaching, not discounting connectivity and internet signals.

On the other hand, teachers with very excellent ratings have excellent performance in classroom instruction and those in the field for a longer period. They have been recipients of various trainings conducted by the university. They have consistently exhibited excellence in their teachings and non-teaching work.

The rapid expansion of online learning in educational institutions has necessitated creating guidelines that advise new and experienced online teachers on best education in online environments (Martin, Budhrani, Kumar, & Ritzhaupt, 2019). An article investigates how recognized best practice ideas for online instructors, students, and student support might apply to intensive online contexts. The fast nature of learning in intense settings creates additional demands on students, instructors, and support systems. (Roddy and colleagues, 2017).

Another study looked into how online teachers practice professional digital competence in general and within topic areas and how much they support student instruction to build their digital competence. Even while online teacher education programs are effective outlets for encouraging teachers and student teachers to develop digital competence for pedagogical objectives, the study found that this component is poorly integrated into the existing programs, despite some fascinating examples (Tømte, Enochsson, Buskqvist, & Kårstein, 2015).

Teachers of online courses should have a certain set of attitudes about learning to give high-quality training. Many students in the twenty-first century do not consider technology separate from their everyday lives. Online learning should not be considered separate from the teaching and learning that occurs in schools daily.

Table 2

Teaching Competence
(n = 51)

Competence	Frequency	Percent	Mean	SD	Min	Max
Excellent	11	22.00	4.60	0.06	4.53	4.70
Very Satisfactory	38	74.00	4.32	0.11	4.09	4.49
Satisfactory	2	4.00	3.70	0.36	3.44	3.95
Overall	**51**	**100.00**	**4.21**	**0.18**		

Note. Competence Scale: 4.51-5.00 (Excellent); 4.00-4.50 (Very Satisfactory); 3.00-3.99 (Satisfactory); 2.00-2.99 (Fair); 1.00-1.99 (Poor)

Effectiveness of the Implementation of Online Distance Learning

The effectiveness of online distance learning was measured in terms of student-faculty contact, cooperation among students, active learning, prompt feedback, time on task, high expectations, and diverse talents and ways of learning. Data revealed that both the teachers and

the students perceived online distance learning in the university as effective (Table 3, M=4.19, SD=0.60; M=4.03, SD=0.62), respectively.

The data imply consistent student-faculty contact. Most of the students know their teachers the previous year and have already maintained that rapport among them. Since, however, online teaching limits personal contact, both groups of respondents acknowledged the limitations of online distance learning but still maintained effective communication lines. The teachers pave an open line for communication through contact forms like emails, group chat, text messaging, or video calls.

Cooperation among students was effective. This was made possible in the preparation of modules that specified teaching-learning activities as cooperative. Teachers and students have forged an agreement of open-line interaction within an agreed time. Assessment of students also provided a venue for students to interact with each other. Students are kept engaged in active learning by giving interactive assignments from links to websites that strengthen or support the learning process. Students are encouraged to be responsible for their learning through meaningful and realistic assignments and problem-solving activities.

On the other hand, teachers support the students' efforts through timely feedback and answers queries. There is a constant follow-up of students who showed less active responses to requirements given to them. Support from teachers is always available. In addition, the modules designed to be used in online distance learning were structured to be user-friendly. At the same time, they define the expectations for completing the activities and assignments. This includes the nature of assessment tasks through written and oral examinations to ensure that students are assessed for knowledge and understanding and articulating concepts and skills through analysis, synthesis, evaluation, and application or creative works. The modules are designed to allow for

high expectations, which are achievable by the students. Teachers understand the diverse talents and capabilities of the students and varied ways and styles of learning. Teachers are flexible in eliciting responses from students even through means other than the platform used by the university in teaching. This is part of flexible learning. Students are allowed choices on the type of activities or assignments to demonstrate learnings.

Good online education necessitates a conscious design and intentional practices that share certain similarities with face-to-face teaching and necessitate considerable mental and procedural transformations on both instructor's and students' parts (Tobin, 2020). A meta-analysis was created to create a statistical synthesis of studies comparing learning outcomes for entirely online or mixed learning vs. face-to-face classroom training. According to the meta-analysis, students in online learning environments did somewhat better than those receiving face-to-face teaching (Means, Toyama, Murphy, & Baki, 2013).

The majority of research focuses on students' learning outcomes due to effective online learning, but evaluation of the learning process is also required. Shukor, Tasir, and Van van Meijden (2015) discovered that students might perform effectively when learning online by remaining silent. The capabilities of online learning in K-12 education have altered dramatically in recent years and continue to evolve in regular classrooms. For educators, academics, scholars, and student advocates, the task is to carefully and successfully combine the development and potential of K-12 online learning to benefit the students engaged (Ward-Jackson, & Yu, 2019).

Because of the pandemic, the move to online learning was fast. When done correctly, online learning has numerous advantages. Online education allows both the teacher and the student to set their own learning pace, with the added benefit of creating a schedule that works for everyone. Adopting an online educational platform provides for a better work-study balance,

so there's no need to sacrifice anything. Online learning teaches students important time management skills, making it simpler to strike a solid work-study balance. A shared plan between the student and the teacher might also encourage both parties to take on additional tasks and exercise more autonomy from the teacher.

Table 3

Effectiveness in the Implementation of Online Distance Learning

Variables	Teachers (n=51)			Students (n=306)		
	Mean	*SD*	Remarks	*Mean*	*SD*	Remarks
Student-Faculty Contact	4.07	0.64	Effective	4.06	0.58	Effective
Cooperation among Students	3.91	0.60	Effective	3.85	0.70	Effective
Active Learning	4.05	0.61	Effective	4.04	0.60	Effective
Prompt Feedback	3.94	0.61	Effective	3.85	0.65	Effective
Time-on-Task	4.10	0.68	Effective	4.07	0.64	Effective
High Expectations	4.03	0.56	Effective	3.97	0.61	Effective
Diverse Talents and Ways of Learning	4.19	0.48	Effective	4.03	0.57	Effective
Overall	**4.04**	**0.60**	**Effective**	**3.98**	**0.62**	**Effective**

Note. Effectiveness Scale: 4.20-5.00 (Very Effective); 3.40-4.19 (Effective); 2.60-3.39 (Somewhat Effective); 1.80-2.59 (Less Effective); 1.00-1.79 (Least Effective)

Difference in the Engagement of Students in Online Distance Learning

The t-test was used to test the significant difference in the teachers' and students' perceptions on the students' engagement in online distance learning. Data revealed no significant difference in the perception of the teachers and students in the engagement of students in online distance learning in terms of psychological motivation, peer collaboration, cognitive problem solving, community support, and learning management. Both the teachers and students enjoyed

the novelty in the new mode of delivery of instruction and both were highly engaged in the teaching and learning online.

On the other hand, a significant difference in their perceptions was noted in interaction with the instructor (t=2.577, p=0.013). The data indicated that in online learning, teacher presence is very important, not only during synchronous classes but also beyond class hours. Teachers have to extend their time answering queries and concerns about the lesson even if it is not already their class time. Teachers observed that some students have difficulty with the internet connections and were only able to connect at night. So, the teachers have to make adjustments in meeting and addressing students' concerns beyond the official time.

Given the prevalence of online instruction in university programs, it is more important than ever to comprehend how crucial components of online courses promote student participation. A study explored the function of technology in both student–instructor and student-student engagement in online learning environments. Findings indicate that students participate in online learning more intensely when communicating with others via technology. Furthermore, employing a small number of tools with care can be as beneficial as or more effective than employing a large range of technology in an online situation (Bryan, Lutte, Lee, O'Neil, Maher, & Hoflund, 2018).

Another study investigated how taking courses through an online medium affects student engagement using data from the National Survey of Student Involvement. The findings revealed multiple significant correlations between taking online courses and student involvement for first-year students and seniors. Quantitative reasoning was more common among students who took a greater number of online courses. Compared to their more traditional classroom peers, they were less likely to engage in collaborative learning, student-faculty interactions, and discussions with

various people. The students with greater number of online course also reported less exposure to quality teaching practices and lower quality of connections (Dumford & Miller, 2018).

Based on Moore's interaction theory, another survey-based research study investigates student perceptions of various engagement tactics employed in online courses. Among the three categories, learner-to-instructor engagement tactics appeared to be the most valued. In the learner-to-learner category, icebreakers/introduction discussions and collaborative work using online communication tools were regarded as the most effective engagement tactics. In the learner-to-instructor category, sending regular announcements or email reminders and grading rubrics for all assignments were ranked as the most beneficial. Students mentioned working on real-world projects in the learner-content category and having discussions with structured or guiding questions were the most beneficial (Martin & Bolliger, 2018).

For many students, one of the most difficult aspects of online learning is the inability to focus on a screen for extended periods of time. While learning online, students are more likely to be distracted by social media or other websites. Therefore, the teachers must keep their online classes crisp, engaging, and interactive to help students stay focused on the lesson. Student engagement increases student satisfaction, enhances student motivation to learn, reduces the sense of isolation, and improves student performance in online classes. As a result, teachers must maintain their online lessons concise, interesting, and interactive to keep students focused on the topic. Student involvement improves student performance in online classes by increasing student satisfaction, increasing student willingness to study, and reducing isolation.

Table 4

Difference in the Engagement of Students in Online Distance Learning

Variables	Teachers (n=51)	Students (n=306)	t value	p value	Interpretation
	Mean	Mean			
Psychological Motivation	3.89	3.70	0.562	0.577	Not Significant
Peer Collaboration	3.59	3.41	0.961	0.341	Not Significant
Cognitive Problem Solving	3.93	3.65	1.583	0.120	Not Significant
Interaction with Instructors	3.52	2.97	2.577	*0.013	Significant
Community Support	3.75	3.46	0.065	0.949	Not Significant
Learning Management	3.93	3.84	0.679	0.500	Not Significant

Note: **$p < 0.01$ (Highly Significant); *$p < 0.05$ (Significant); $p > 0.05$ (Not Significant)

Difference in the Effectiveness of the Implementation of Online Distance Learning

The T-test was used to test the significant difference in the perception of the teachers and the students in the effectiveness of online distance learning. The data presented in Table 5 revealed no significant difference between the teachers' and the students' perceptions in the effectiveness of online distance learning. This means that both teachers and students have the same perceptions of the effectiveness of the implementation of online distance learning.

The teachers and students believed that there was student-teacher contact while the online lesson is conducted. Cooperation among students was also encouraged since the activities and assignments allowed them to interact with one another. There was also evidence of active

learning since students were directly involved in the learning process. The structured modules prepared by the teachers enabled flexibility in the activities, especially in the submission of assignments. The platform also helped the teachers provide immediate feedback to the students. It is also noted that both the teachers and students achieved what is expected of each lesson. With all these student-teacher interactions, they believed that the implementation of online distance learning is effective.

The purpose of online learning is to ensure that the online learner makes a series of accurate or correct decisions based on prior learning tasks' correct answers and maybe other information (Hoi, Sahoo, Lu, & Zhao, P. (2018). Questions and concerns concerning high school online education as a means of learning and delivery have surfaced as the number of students using online education has grown (Ward-Jackson, & Yu, 2019).

The quality of online courses, the collaborative tasks required in them, and the extent to which teachers believe the online course structure effectively prepares them to work with English learners are explored in this paper. The results of the study show that online course styles can effectively educate practicing teachers. Participants' responses show that, given successful online delivery formats such as appropriate instructor availability, timely and positive feedback, and flexible course arrangement, online courses are as rigorous as face-to-face schooling (Daniel, Schumacher, Stelter, & Riley, 2016).

Another study was carried out to understand more about graduate students' attitudes on online learning. The study's findings revealed that student-to-student and instructor-to-student interaction significantly impact student satisfaction (Fedynich, Bradley, & Bradley, 2015). A well-balanced (online environment should include both asynchronous and synchronous chances for communication and collaboration between classmates and teachers (Reese, 2015).

Online education has given rise to new possibilities for rethinking how we teach and learn. The utilization of educational technology tools can alter the classroom, and much of it depends on the teacher's creative agency. Teachers have been instrumental in designing online and offline learning materials and learning how to use video conferencing capabilities to meet with kids regularly to guarantee that learning continues.

Table 5

Difference in the Effectiveness of the Implementation
of Online Distance Learning

Variables	Teachers (n=51) Mean	Students (n=306) Mean	t value	p value	Interpretation
Student-Faculty Contact	4.07	4.06	0.624	0.535	Not Significant
Cooperation among Students	3.91	3.85	1.185	0.242	Not Significant
Active Learning	4.05	4.04	0.994	0.325	Not Significant
Prompt Feedback	3.94	3.85	0.745	0.460	Not Significant
Time-on-Task	4.10	4.07	1.710	0.094	Not Significant
High Expectations	4.03	3.97	1.169	0.248	Not Significant
Diverse Talents and Ways of Learning	4.19	4.03	0.630	0.532	Not Significant

Note: **p < 0.01 (Highly Significant); *p < 0.05 (Significant); p > 0.05 (Not Significant)

**Relationship between Students' Level of Engagement and Effectiveness
of the Implementation of Online Distance Learning**

Data revealed that there was no significant relationship between the students' level of engagement in terms of psychological motivation, peer collaboration, cognitive problem solving,

interaction with the instructor, and learning management and the effectiveness of online distance learning in terms of student-faculty contact, cooperation among students, active learning, prompt feedback, time on task, high expectation and diverse talents and ways of learning (Table 6).

This means that whether the students are psychologically motivated in online learning, there is peer collaboration in the learning process, the student's ability for cognitive problem solving is developed, there was interaction with the teacher while the online class is going on, and the students can manage their learning; these do not contribute to the effectiveness of the implementation of online distance learning. Therefore, online distance learning can still be effective even if the students are not so engaged in learning.

However, the student's level of engagement in community support affects the effectiveness of online distance learning in terms of active learning, prompt feedback, high expectation, and diverse talents and ways of learning. In the study, community support refers to the support and the relationships that students have in the online class. Hence, if the students do not feel any connections with other students in the online class, if they feel they do not belong to the class, and if they could not frequently interact with other students in the class, the implementation of online distance learning is not that effective.

The teachers ensured active learning among students through stimulating thoughtful discussions. Teachers provided interactive assignments and examples that directly involve the students in the learning process. Students must be given the opportunity to be responsible for their own learning by providing them with prompt feedback in terms of the assignments and activities that were given to them. Expectations for completing the subject or the lesson must also be communicated to the students. Students may be provided with links and other examples that helped them understand the concepts and skills for the lessons. Teachers have to ensure that

the assignments are realistic and are likely to be encountered in their future job. Diverse learning methods like giving various activities and giving flexibility in the completion of the subject were also provided to the students.

Regardless of the content or format of the content distribution mechanism, student involvement is critical to successful teaching and learning. However, in online learning contexts, the engaging student is a particular problem. A paper explores various strategies incorporated into online learning courses to foster a high level of student engagement based on multiple pedagogies. The importance of collaborative student engagement tools in the design and delivery of online courses and their significance in fostering an environment in which students actively participate in learning activities contribute to vigorous debates (Khan, Egbue, Palkie, & Madden, 2017).

Furthermore, because student involvement has been connected to indicators of student success such as student learning and satisfaction, colleges frequently look into it when trying to enhance student outcomes. Colleges and universities are being pushed to embrace "high impact educational techniques" based on a growing body of data (Kuh, Fredrickson, 2015), positively associated student retention and student engagement. Investigating the impact of the online environment on student engagement, a recent evaluation of the National Survey of Student Engagement results suggests online learning presents some challenges (Fredrickson, 2015).

An exploratory study looked into the impact of gamification on student participation in online debates. Technical challenges and classmates' actions were found as factors that either encouraged or discouraged students from participating in the gamified online chats. From the educator's perspective, the interview with the teaching assistant highlighted the impact of the gamification technique on student involvement (Ding, Er, & Orey, 2018).

It is important that administrators set some policies to encourage the teachers to develop learning materials that would enhance the student engagement in online learning. While students are aware of their role as engaged learners, subjects must be designed so that involvement is stimulated. Inspire teachers to adopt a variety of pedagogies to assist students in being more participatory in the classroom. Students are more likely to participate in activities that are more realistic and challenging for them.

Table 6

Relationship between Students' Level of Engagement and Effectiveness
of the Implementation of Online Distance Learning
(n = 357)

Variables		Student-Faculty Contact	Cooperation among Students	Active Learning	Prompt Feedback	Time on Task	High Expectations	Diverse Talents and Ways of Learning
		Correlations						
Psychological Motivation	r	-.002	-.025	-.012	.004	-.012	-.042	.004
	p	.967	.552	.768	.923	.778	.312	.925
Peer Collaboration	r	.009	-.002	.070	.047	.013	.018	.036
	p	.831	.957	.090	.261	.761	.664	.390
Cognitive Problem Solving	r	-.005	-.039	.027	.048	-.012	-.009	.022
	p	.911	.343	.509	.253	.781	.835	.603
Interaction with Instructor	r	.025	-.007	.057	.013	.029	.042	.043
	p	.551	.874	.174	.752	.479	.318	.299
Community Support	r	.065	.051	.100	.098	.063	.085	.089
	p	.120	.218	.016*	.018*	.132	.041*	.033*
Learning Management	r	.015	-.024	-.009	.024	-.007	-.001	.018
	p	.725	.560	.830	.569	.864	.979	.663

Note: **$p < 0.01$ (Highly Significant); *$p < 0.05$ (Significant); $p > 0.05$ (Not Significant)

**Relationship between Teaching Competence and Effectiveness
of Implementation of Online Distance Learning**

The test of the relationship between the teachers' teaching competence and the effectiveness of the implementation of online distance learning is presented in Table 7. The data revealed that the teachers' teaching competence did not significantly relate to the effectiveness of online distance learning in terms of student-faculty contact, cooperation among students, and time on task. Teachers' performance in online distance learning is not related to how the teacher communicated with the students or how accessible they are outside their class hours. In addition, the teachers' performance was not significantly related with how students interact with the teachers and other students in discussing the activities or assignments given.

However, the teaching competence of the teachers greatly affects the effectiveness of the implementation of online distance learning in terms of active learning, prompt feedback, high expectation, and diverse talents and ways of learning. This means that the teachers' performance in online distance learning matters in how active the students in learning. The kind of interactive activities and assignments that teachers are posting on the platform encouraged students to become active participants in the teaching-learning process. The subjects that used realistic assignments and problem solving activities stimulated thoughtful discussions and aroused their interest to do their work.

Moreover, if students are given immediate feedback, if their questions about the materials and the assignments are responded promptly, they will also perform well. Students also need supportive feedback from the teachers for them to understand their lessons well. Further, teachers have to communicate clearly to the students the expectations for completing the subject. They have to ensure that examples given are of appropriate level of difficulty that would help the students learn the concepts and skills. If teachers set the expected outcome of the lesson, the students will also be guided, and they would do their parts to realize the objective. Competent

teachers also employ varied ways of learning. Teachers have to respect the ideas and views of the students. Flexibility and variety in the activities and assignments given to students must also be considered to allow them to complete the tasks and to demonstrate understanding of critical concepts.

The majority of research focused on students' learning outcomes due to effective online learning, but the assessment of the learning process is also required Shukor, Tasir, & Van van Meijden, 2015). In the recent decade, institutions worldwide have begun to use digital tools to aid in the educational process. The requirement to use big data in adaptive education should be considered in the big data era to enhance teaching performance, particularly in accessing resources. (Huda and colleagues, 2017)

The findings of the study differed from those of a study conducted in Saudi Arabia. Although the government has made significant investments in the ICT sector of education, growth has been uneven. The obstacles to successful ICT deployment in Saudi Arabia continue to be important concerns for decision-makers and educators alike. The lack of a clear ICT policy and teacher competency and training has a negative impact on ICT integration in schools. This research identified factors that support and inhibit ICT use in education (Albugami, & Ahmed, 2015).

The duties and competencies of distant education professionals are highlighted in the United States of America (USA). The study's findings include a competency model for distant online learning. These ten competencies are (1) Interpersonal Communication, (2) Planning Skills, (3) Collaboration/Teamwork Skills, (4) English Proficiency, (5) Writing Skills, (6) Organizational Skills, (7) Feedback Skills, (8) Knowledge of Distance Education Field, (9) Basic Technology Knowledge, and (10) Technology Access Knowledge.

It is worth noting that online teachers are expected to take on the responsibilities of supervisors and facilitators of the learning process. There must be a connection between these domains for teaching to be successful, which has not been explored in-depth in the current research on online teaching capabilities. Whereas in traditional teaching, the learning process is based on the teacher, who strives to convey his or her knowledge to the students. In online teaching (not just instructional), the focus is on the instructor/student and student/knowledge interaction. The learner is encouraged to become more self-reliant, participatory, and accountable for his or her learning. The new educational paradigm encourages teachers to seek out instructional techniques that promote online learning.

Table 7

Relationship between Teaching Competence and Effectiveness
of Implementation of Online Distance Learning
(n = 357)

Variables		**Correlations**						
		Student-Faculty Contact	Cooperation among Students	Active Learning	Prompt Feedback	Time on Task	High Expectations	Diverse Talents and Ways of Learning
Teaching	r	0.563	0.654	0.813	0.733	0.370	0.960	0.813
Competence	p	0.065	0.064	0.034*	0.012*	0.128	0.007**	0.034*

Note: **$p < 0.01$ (Highly Significant); *$p < 0.05$ (Significant); $p > 0.05$ (Not Significant)

CONCLUSIONS AND RECOMMENDATIONS

The students are actively engaged in their online classes. Both the teachers and the students have almost the same perception of the students' level of engagement in online learning, except for interaction with the teachers where they have significant differences. The teachers'

perception of how they interact with the students was different from how they perceive it. Teachers demonstrated competence in the online delivery of their learning. They performed very satisfactorily in their online classes as perceived by their principal and the academic supervisors.

The study concluded that online distance learning is effective. The teachers and students have the same perception of the effectiveness of the implementation of online distance learning. However, community support was the only factor contributing to the effectiveness of the implementation of online distance learning indicating the important role of the community in the implementation of distance learning. In online teaching, students are always looking forward to communicating and interacting with their peers to feel comfort and a sense of belongingness in the class. In addition, the teaching competence also affects the level of implementation of online distance learning in terms of active learning, prompt feedback, high expectations, and diverse talents and ways of learning.

From the findings and conclusions, it is recommended that the administration conducts trainings and workshops in educational technologies online testing, and multiple assessment designs to aid the teachers in their competence in teaching in terms of making learning more interactive with the students and the use of diverse ways of learning delivery in an online class. Teachers provide prompt feedback on the students' performance. They ensure that students are well informed of what is expected from them after every discussion of the topics. Teachers also design activities where students can be grouped and be given a chance to communicate with their classmates in the class. Future researchers can also conduct the same researches digging into other factors that may contribute to the effectiveness of online distance learning.

REFERENCES

Adnan, M., & Anwar, K. (2020). Online Learning amid the COVID-19 Pandemic: Students' Perspectives. *Online Submission*, *2*(1), 45-51. Retrieved on November 6, 2020 from https://eric.ed.gov/?id=ED606496

Akbari, E., Naderi, A., Simons, R. J., & Pilot, A. (2016). Student engagement and foreign language learning through online social networks. *Asian-Pacific Journal of Second and Foreign Language Education*, *1*(1), 1-22. Retrieved on October 27, 2020 from https://sfleducation.springeropen.com/articles/10.1186/s40862-016-0006-7

Albugami, S., & Ahmed, V. (2015). Success factors for ICT implementation in Saudi secondary schools: From the perspective of ICT directors, head teachers, teachers and students. *International Journal of education and development using ICT*, *11*(1). Retrieved on April 16, 2021 from https://www.learntechlib.org/p/151051/

Alexander, R. C. (2015). Establishing an administrative structure for online programs. *Instructional Technology*, 49.Retrieved on November 1, 2020 from https://itdl.org/Journal/Jun_15/Jun15.pdf#page=53

Ball, I., & Perry, C. (2011). Differences in student engagement: investigating the role of the dominant cognitive processes preferred by engineering and education students. *Education research international*, *2011*.

Bolliger, D. U., & Martin, F. (2018). Instructor and student perceptions of online student engagement strategies. *Distance Education*, *39*(4), 568-583. Retrieved on April 16, 2021 from https://www.tandfonline.com/doi/abs/10.1080/01587919.2018.1520041

Bond, M., & Bedenlier, S. (2019). Facilitating Student Engagement through Educational Technology: Towards a Conceptual Framework. *Journal of Interactive Media in*

Education, *2019*(1). Retrieved on October 30, 2020 from
https://eric.ed.gov/?id=EJ1228555

Bryan, T. K., Lutte, R., Lee, J., O'Neil, P., Maher, C. S., & Hoflund, A. B. (2018). When do
online education technologies enhance student engagement? A case of distance education
at University of Nebraska at Omaha. *Journal of Public Affairs Education*, *24*(2), 255-273.
Retrieved on April 16, 2021 from
https://www.tandfonline.com/doi/abs/10.1080/15236803.2018.1429817

Chen, B., Chang, Y. H., Ouyang, F., & Zhou, W. (2018). Fostering student engagement in online
discussion through social learning analytics. The Internet and Higher Education, 37, 21-
30. Retrieved on October 30, 2020 from
https://www.sciencedirect.com/science/article/abs/pii/S1096751617302129

Daniel, M. C., Schumacher, G., Stelter, N., & Riley, C. (2016). Student perception of online
learning in ESL bilingual teacher preparation. *Universal Journal of Educational
Research*, *4*(3), 561-569. Retrieved on April 16, 2021 from
https://eric.ed.gov/?id=EJ1092339

Deschaine, M. E., & Whale, D. E. (2017). Increasing student engagement in online educational
leadership courses. *Journal of Educators Online*, *14*(1), n1. Retrieved on April 16, 2021
from https://eric.ed.gov/?id=EJ1133612

Ding, L., Er, E., & Orey, M. (2018). An exploratory study of student engagement in gamified
online discussions. *Computers & Education*, *120*, 213-226. Retrieved on October 30,
2020 from https://www.sciencedirect.com/science/article/abs/pii/S036013151830040X

Dixson, M. D. (2015). Measuring student engagement in the online course: The Online Student
Engagement scale (OSE). *Online Learning*, *19*(4), n4. Retrieved on October 27, 2020
from https://files.eric.ed.gov/fulltext/EJ1079585.pdf

Dumford, A. D., & Miller, A. L. (2018). Online learning in higher education: exploring
advantages and disadvantages for engagement. *Journal of Computing in Higher
Education*, *30*(3), 452-465. Retrieved on April 16, 2021 from
https://link.springer.com/article/10.1007/s12528-018-9179-z

Everett, D. R. (2015). Adding value: Online student engagement. *Information Systems Education
Journal*, *13*(6), 68. Retrieved on October 30, 2020 from http://isedj.org/2015-
13/n6/ISEDJv13n6p68.html

Fedynich, L., Bradley, K. S., & Bradley, J. (2015). Graduate Students' Perceptions of Online
Learning. *Research in Higher Education Journal*, *27*. Retrieved on November 6, 2020
from https://eric.ed.gov/?id=EJ1056187

Frazer, C., Sullivan, D., Weatherspoon, D., & Hussey, L. (2017). Faculty Perceptions of Online
Teaching Effectiveness and Indicators of Quality. *Nursing Research and Practice, 2017*.

Retrieved on November 6, 2020 from https://www.semanticscholar.org/paper/Faculty-Perceptions-of-Online-Teaching-and-of-Frazer-Sullivan/a8557d391efc23e7386226a17b063739b1634995

Fredrickson, J. (2015). Online learning and student engagement: Assessing the impact of a collaborative writing requirement. *Academy of Educational Leadership Journal*, *19*(3), 127. Retrieved on April 16, 2021 from https://www.proquest.com/docview/1768629236?pq-origsite=gscholar&fromopenview=true

Gray, J. A., & DiLoreto, M. (2016). The effects of student engagement, student satisfaction, and perceived learning in online learning environments. *International Journal of Educational Leadership Preparation*, *11*(1), n1. Retrieved on October 28, 2020 from https://eric.ed.gov/?id=EJ1103654

Hoi, S. C., Sahoo, D., Lu, J., & Zhao, P. (2018). Online learning: A comprehensive survey. *arXiv preprint arXiv:1802.02871*. Retrieved on April 16, 2021 from https://arxiv.org/abs/1802.02871

Houlden, S., & Veletsianos, G. (2020). A posthumanist critique of flexible online learning and its "anytime anyplace" claims. *British Journal of Educational Technology*, *50*(3), 1005-1018. Retrieved on October 28, 2020 from https://bera-journals.onlinelibrary.wiley.com/doi/abs/10.1111/bjet.12779

Huda, M., Maseleno, A., Shahrill, M., Jasmi, K. A., Mustari, I., & Basiron, B. (2017). Exploring Adaptive Teaching Competencies in Big Data Era. *International Journal of Emerging Technologies in Learning*, *12*(3). Retrieved on April 16, 2021 from https://bit.ly/3w76Zul

Huda, M., Maseleno, A., Shahrill, M., Jasmi, K. A., Mustari, I., & Basiron, B. (2017). Exploring Adaptive Teaching Competencies in Big Data Era. *International Journal of Emerging Technologies in Learning*, *12*(3). Retrieved on April 16, 2021 from https://www.sciencedirect.com/science/article/pii/S1877042815004395

Kahn, P., Everington, L., Kelm, K., Reid, I., & Watkins, F. (2017). Understanding student engagement in online learning environments: The role of reflexivity. *Educational Technology Research and Development*, *65*(1), 203-218. Retrieved on April 20, 2021 from https://link.springer.com/content/pdf/10.1007/s11423-016-9484-z.pdf

Khan, A., Egbue, O., Palkie, B., & Madden, J. (2017). Active learning: Engaging students to maximize learning in an online course. *Electronic Journal of E-Learning*, *15*(2), pp107-115. Retrieved on April 16, 2021 from https://academic-publishing.org/index.php/ejel/article/view/1824

Louwrens, N., & Hartnett, M. (2015). Student and teacher perceptions of online student engagement in an online middle school. *Journal of Open, Flexible, and Distance Learning*, *19*(1), 27-44. Retrieved on October 30, 2020 from https://www.learntechlib.org/p/151619/

Martin, F., & Bolliger, D. U. (2018). Engagement matters: Student perceptions on the importance of engagement strategies in the online learning environment. *Online Learning*, *22*(1), 205-222. Retrieved on April 16, 2021 from https://files.eric.ed.gov/fulltext/EJ1179659.pdf

Martin, F., Budhrani, K., Kumar, S., & Ritzhaupt, A. (2019). Award-winning faculty online teaching practices: Roles and competencies. *Online Learning*, *23*(1), 184-205. https://eric.ed.gov/?id=EJ1211042

McGee, P., Windes, D., & Torres, M. (2017). Experienced online instructors: beliefs and preferred supports regarding online teaching. Journal of Computing in Higher Education, 29(2), 331-352. Retrieved on October 28, 2020 from https://link.springer.com/article/10.1007/s12528-017-9140-6

Means, B., Toyama, Y., Murphy, R., & Baki, M. (2013). The effectiveness of online and blended learning: A meta-analysis of the empirical literature. *Teachers College Record*, *115*(3), 1-47. Retrieved on April 23, 2021 from https://agronomy.unl.edu/online/documents/Effectiveness_of_online_learning.pdf

Mullen, J. S., & Sullivan, J. M. (2015, October). Student-perceived effectiveness of online content delivery modes. In *2015 IEEE Frontiers in Education Conference (FIE)* (pp. 1-4). IEEE. Retrieved on April 23, 2021 from https://ieeexplore.ieee.org/abstract/document/7344335

Perry, D. R., & Steck, A. K. (2015). Increasing student engagement, self-efficacy, and meta-cognitive self-regulation in the high school geometry classroom: Do iPads help?. *Computers in the Schools*, *32*(2), 122-143. Retrieved on October 28, 2020 from https://www.tandfonline.com/doi/abs/10.1080/07380569.2015.1036650

Pulham, E., & Graham, C. R. (2018). Comparing K-12 online and blended teaching competencies: a literature review. *Distance Education*, *39*(3), 411-432. Retrieved on November 1, 2020 from https://www.tandfonline.com/doi/abs/10.1080/01587919.2018.1476840

Reese, S. A. (2015). Online learning environments in higher education: Connectivism vs. dissociation. *Education and information technologies*, *20*(3), 579-588. Retrieved on April 20, 2021 from https://link.springer.com/article/10.1007/s10639-013-9303-7

Rhode, J., Richter, S., & Miller, T. (2017). Designing personalized online teaching professional development through self-assessment. TechTrends, 61(5), 444-451. Retrieved on October 28, 2020 from https://link.springer.com/article/10.1007/s11528-017-0211-3

Riel, J., Lawless, K. A., & Brown, S. W. (2016). Listening to the teachers: Using weekly online teacher logs for ROPD to identify teachers' persistent challenges when implementing a blended learning curriculum. *Journal of Online Learning Research*, *2*(2), 169-200. Retrieved on October 28, 2020 from https://www.learntechlib.org/p/171358/

Roddy, C., Amiet, D. L., Chung, J., Holt, C., Shaw, L., McKenzie, S., ... & Mundy, M. E. (2017, November). Applying best practice online learning, teaching, and support to intensive online environments: an integrative review. In *Frontiers in Education* (Vol. 2, p. 59). Frontiers. Retrieved on April 16, 2021 from https://www.frontiersin.org/articles/10.3389/feduc.2017.00059/full

Schmidt, S. W., Tschida, C. M., & Hodge, E. M. (2016). How faculty learn to teach online: What administrators need to know. *Online Journal of Distance Learning Administration*, *19*(1), 1-10. Retrieved on November 1, 2020 from https://bit.ly/34KjBwE

Sheffield, S. L. M., McSweeney, J. M., & Panych, A. (2015). Exploring Future Teachers' Awareness, Competence, Confidence, and Attitudes Regarding Teaching Online: Incorporating Blended/Online Experience into the" Teaching and Learning in Higher Education" Course for Graduate Students. *Canadian Journal of Higher Education*, *45*(3), 1-14. Retrieved on October 30, 2020 from https://eric.ed.gov/?id=EJ1085353

Shukor, N. A., Tasir, Z., & Van der Meijden, H. (2015). An examination of online learning effectiveness using data mining. *Procedia-Social and Behavioral Sciences*, *172*, 555-562. Retrieved on April 16, 2021 from https://www.sciencedirect.com/science/article/pii/S1877042815004395

Tobin, T. (2020). Now is not the time to assess online learning. *Chronicle of Higher Education. https://www. chronicle. com/article/Now-Is-Not-the-Time-to-Assess/248343*. Retrieved on April 30, 2021 from http://mathcs.duq.edu/~tobin/cv/20200326.Chronicle.Now.Is.Not.The.Time.pdf

Tømte, C., Enochsson, A. B., Buskqvist, U., & Kårstein, A. (2015). Educating online student teachers to master professional digital competence: The TPACK-framework goes online. *Computers & Education*, *84*, 26-35. Retrieved on November 1, 2020 from https://www.sciencedirect.com/science/article/abs/pii/S0360131515000305

Ward-Jackson, J., & Yu, C. (2019). Impact of online learning in K-12: Effectiveness, challenges, and limitations for online instruction. In *Handbook of Research on Blended Learning Pedagogies and Professional Development in Higher Education* (pp. 357-375). IGI Global. Retrieved on April 18, 2021 from https://www.igi-global.com/chapter/impact-of-online-learning-in-k-12/208365