

Article Identifier: <https://identifier.visnav.in/1.0002/ijabs-22d-21005/>

# Assessment of Student's Acceptance and Satisfaction Using Video Based Instruction in Teaching Science

Alice T. Rivera

\* Nueva Ecija University of Science and Technology, Philippine

\*For correspondence: [alicetonidorivera@gmail.com](mailto:alicetonidorivera@gmail.com)

Received on: 21 April 2022

Published on: 05 July 2022

## ABSTRACT

This study aims to assess students' acceptance and satisfaction using video-based instruction in teaching Science. The study made use of the descriptive method of research participated by 133 students from Bachelor of Secondary Education Major in Science at the Nueva Ecija University (NEUST) during the first semester of the academic year 2021-2022. The study's result shows that most of the student respondents' profiles were female, age 19, first born in the family, had two siblings and classified as a family with poor income. Findings revealed that the majority of the students-respondents found an agreeable acceptance towards using video-based instruction in terms of ease of use and high perceived usefulness. Also, the majority of the student-respondents found agreeable satisfaction as they found video lectures relevant, effective, enjoyable, and interesting. The study also revealed that student respondents' profiles in terms of monthly income appeared to be significantly related to their acceptance of the use of the video-based approach. Thus, the researcher recommends that access to video-based instruction be considered a positive, instructional format that can be adapted even in a normal class setting.

*Keywords:* Assessment, Acceptance, Satisfaction, Video -Based Instruction

## 1. INTRODUCTION

In the midst of the COVID-19 Pandemic, teaching and learning became more challenging not just only for students and teachers but also for parents, school administrators and for the whole institution as education was no exemption from the sectors affected. The current pandemic disrupted the teaching methods and numerous changes in delivering instruction emerge

in replace of the usual face-to-face classes [1]. In line with the new normal setting, teaching hasn't been easy and teaching science is no exception. Science as a universal subject that is primarily run by observation and experimentation became a challenge for science teachers as the teaching of concepts and knowledge in science are supported by performing laboratory exercises and experiments for learning to become more

meaningful. As a matter of fact, Science believes to be learned best by the students when they are experiencing what they are studying (learning by doing). Sciences should be learned through minds-on and hands-on, hence teachers must be able to create virtual classroom conditions that help students maintain learning momentum while they cannot interact with each other physically [2]. Thus, teachers need to become more innovative and creative in delivering instructions to cater to learning and practical skills that the students need to acquire despite of studying at home.

To address the challenge of teaching science, the use of video-based approach seen to be the most practical, efficient, and effective to teach concepts at a distance that is not far different from face-to-face instruction. Video provides great benefits to teachers and learners, stimulating stronger course performance in many contexts, and affecting student motivations, confidence, and attitudes positively [3]. Torrington (2018) defined, video-based instruction as the creation of videos that a teacher makes outside of class contact hours that specifically teach a concept or content [4]. In video-based instruction, the teacher is in control of the exact content to be presented in the videos, and different videos can be made at various levels, catering precisely to student needs. Basically, teachers create a video of them, discussing a particular lesson or concept and send it to their students.

In addition, the study conducted by Yan & Baxter (2018) revealed that students under STEM-related majors finds video-instruction as a better alternative for face-to-face instruction instead of using text as primary lecture delivery method [5]. Also, in terms of the acquisition of knowledge, students can still take part in science experiment and discussion while learning at home via creation of video lectures tackling Science

demonstration performed by teachers [6]. It would be more relatable for students to see their own science teacher perform the experiment rather than offering a YouTube video of an anonymous scientist.

The study of Donkor (2011) compared the instructional effectiveness of video-based instructional materials and traditional print-based instructional materials [7]. The investigation results showed that video-based instructional materials are pedagogically superior to traditional instructional materials when used as distance education materials. The use of video-based instructional materials is likely to increase learners' motivation, interest, and practical skills acquisition [7]. However, very little is known about video's role in knowledge development and helping critical thinking, and this is identified as a major gap in the research that requires more investigation [3].

As video-based instruction in teaching is seen to be the most common and available tool to comply with the demand of distance learning, however, pre-recorded videos often result in one-way communication [3]. It is also important to understand how students respond to this type of pedagogical approach through monitoring and individualized feedback to produce the maximum educational benefit.

The study aims to find the Student's Acceptance and Satisfaction Using Video-Based Instruction in Teaching Science.

## **2. METHODS AND MATERIAL**

### *2.1. Research Design*

The study utilized descriptive type of research method using questionnaire. This study applied simple random sampling in which every person in the population has an equal probability of being chosen.

## 2.2. Research Instrument

A survey questionnaire adapted by the researcher from the study Donkor (2011) [7] and was employed to gather data from the target respondents using a Likert scale format. It comprises the profile of the respondents (age, gender, order of birth, no. of siblings, and monthly income), student's satisfaction with video-based instruction and student's acceptance of video-based instruction. The items statement was modified to be relevant and fit in the context of the study. To ensure the suitability and clarity of expression of the items, the questionnaire was subjected to pilot testing on a limited sample and face and content validation. The researcher asked the help of the research experts from NEUST College of Education to establish the validity and reliability of the instrument. The questionnaires were distributed via Google Forms to confirm that the pandemic safety precautions were followed.

## 2.3. Respondents of the Study

Students and respondents were from NEUST, College of Education taking Bachelor of Secondary Education Major in Science. A total of 133 students from the second year to the fourth level served as respondents of the study during the second semester of the academic year 2020-2021. They were chosen through a random sampling technique. A random sample technique was used to have an unbiased representation of the total population.

## 2.4. Data analysis

The data was collected from the questionnaire and survey and analyzed using frequency distribution, percentage, weighted mean, standard deviation, and Pearson r correlation. Frequency distribution was used to describe the demographic profile of the students. The frequency count, percentage distribution, and weighted

mean were employed to arrive at verbal descriptions of the item statements in the questionnaire. Moreover, the Pearson R correlation formula was used to test the hypothesis of the study. All the data was compiled in a systematic way.

## 3. RESULTS AND DISCUSSION

### 3.1. Profile of the Student's Respondents

The first problem of this study focused on the description of the profile of the respondents. Table 1 below presents the profile of the selected BSED students of NEUST, College of Education

It can be seen from table 1 that 73% of the student-respondents were female and 27% were male. It only implied that most of the respondents are female. In support of the findings of the Philippine Commission for Women (PCW) 2016, the female Net Enrolment Ratio was 66.09 percent (66 in every 100 girls) while the male Net Enrolment Ratio was 56.63 percent (57 in every 100 boys). There was a greater disparity between girls and boys at 1.17 Gender Parity Index which is equivalent to 117 girls in every 100 boys.

With regards to age, results showed that the greatest number of respondents are in age 19 years with 47 or 35%; 36 respondents or 27% were 20 years old; 22 respondents or 17% were 18 years old; 21 respondents or 16% were 21 years old; 4 respondents or 3% were 24 years old and above; the age 22 years old had the least number of respondents. According to the findings of the study entitled "Student Academic Success as Related to Student Age and Gender," it is revealed that there was a significant relationship between student age and academic success [8].

Table 1 also revealed that majority of the student-respondents were the first born of the family or 40.6% followed by 3 position which is 19.5%. This result

**Table 1: Demographic Profile of Student's Respondents**

Classification	Frequency	Percentage %
<b>Gender</b>		
Male	36	27
Female	97	73
<b>2.Age</b>		
18	22	17
19	47	35
20	36	27
21	21	16
22	3	2
23	0	0
24-above	4	3
<b>Order of Birth</b>		
1 <sup>st</sup>	54	40.6
2 <sup>nd</sup>	24	18
3 <sup>rd</sup>	26	19.5
4 <sup>th</sup>	18	13.5
5 <sup>th</sup>	3	2.2
6 <sup>th</sup>	5	3.8
7 <sup>th</sup>	3	2.3
8 <sup>th</sup>	0	0
<b>Number of Siblings</b>		
Only Child	7	5.4
1	17	12.8
2	27	20.3
3	35	26.3
4	23	17.3
5	14	10.8
6	5	3.7
7	4	3
8	1	1
<b>Income Bracket</b>		
Php 5,000 below	48	36
Php 5,001 - 10,000	35	26
Php 10,001 - 15,000	25	19
Php 15,001 - 20,000	7	5.2
Php 20,001 - 25,000	9	6.7
Php 25,001 - above	9	6.7

supports the idea of Gustafson (2015) where he used Alfred Alder's birth order theory discusses the effects of birth order on one's personality [9]. He stated that firstborns are more conservative. They were viewed as leaders who follow rules [8]. They submit to authority. They were often more ambitious than other birth order

positions and more conforming. Furthermore, he suggested that firstborns tend to be more motivated to achieve than later born.

Findings also showed that the majority of the student-respondents had three siblings or 26.3 % followed by

20.3% who had two siblings. Meanwhile, having eight siblings had the least number of student-respondents, or 1%. It implied that the majority of the student-respondents belong to a small family size. Cools and Patacchini (2017), stated that sibling relationships are regarded as one of the most intensive and influential relationships in an individual's life [10]. Sibling size is recognized as one of the most important predictors of determining a child's educational attainment and intellectual development [10].

Moreover, results also showed that most of the respondents or 36% were classified into poor income (Php 5,000-below) average income: 26% had an average monthly income (Php 5,001-10,000) ;19% had above monthly income (Php 10,001-15,000); 5.2% had high income (Php 15,000-20,000); 6.7% of the respondents had an income of (Php 20,001-25,000); and only 6.7% or three out of 133 respondents had above high income (Php 25,001-above). It only implies that there are more poor families than rich ones in this study. Furthermore, the findings of Adzido (2016) partly

imply that the family income of students could affect their learning process, motivation, and academic performance in the long run. Thus, the strong financial status of families helps improve students' motivation, learning process and hence better academic performance [11].

### 3.2. Student's Acceptance towards the Use of Video-based Approach in Teaching Science

It can be inferred from the table that in terms of perceived usefulness, students agreed that video lectures improved their acquisition of scientific skills; they agreed that a video lecture enhances their effectiveness in performing different activities in Science; they also agreed that they find video lectures useful in acquiring knowledge and scientific skills about Science. Moreover, students highly agreed that video lectures improve their performance in doing activities in Science (table 3).

On the other hand, in regards to the perceived ease of

**Table 2:** Student's Acceptance towards the Use of Video based Approach in Teaching Science

Acceptance towards the use of Video-Based approach	Mean ( $\bar{X}$ )	Description
<b>Perceive Usefulness</b>		
Video lectures improve my performance in doing activities in Science	3.38	Strongly Agree
Video lectures improve my acquisition of scientific skills	3.22	Agree
Video lectures enhances my effectiveness in performing different activities in Science	3.25	Agree
I find the video lectures useful in acquiring knowledge and scientific skills about Science	3.23	Agree
<b>Perceive Ease of Use</b>		
I find video lectures easy to operate	3.27	Strongly Agree
I find it easy to get the video lectures to learn Science lesson	3.17	Agree
It was easy for me to become knowledgeable and skillful in science with the use of video lectures	3.14	Agree
I intend to use video lectures regularly in learning concepts and lesson in science	3.11	Agree
I use video lectures regularly in learning lesson and concepts in science	3.14	Agree
Average Weighted Mean	3.22	Agree

use, students agreed that it was easy for them to become knowledgeable and skillful in Science with the use of video lectures; the students agreed that they find it easy to get the video lectures to learn Science lesson; they also agreed that they intend to use video lectures regularly in learning concepts and lesson in science; students also agreed that they use video lectures regularly in learning lesson and concepts in Science. Likewise, students highly agreed that they find video lectures easy to operate.

Furthermore, the average weighted mean (3.22), showed that the respondents had agreed on all the item statements in assessing the acceptance of the use of the video-based approach. This result was supported by the study findings of Giannakos, (2013) that most students appeared positive about their learning experiences as they rated highly all the items assessing their acceptance of the use of video-based lectures as a teaching tool [12]. Moreover, the study findings of Donkor (2011) also indicate that learners expressed high perceived usefulness and ease of use and showed high acceptance with the use of video-based instructional materials in distance learning [7].

### 3.3. Student's Satisfaction towards the Use of Video-Based Approach in Teaching Science

Findings showed that students agreed that they find video lessons enjoyable; they agreed that they would describe video lessons as highly interesting; they agreed that video lessons increase their eagerness in studying to acquire knowledge and learn concepts in science; they were satisfied with their learning from video lessons, and they also agreed that they would recommend video lesson to their colleague. Meanwhile, the students strongly agreed that the video lectures have contributed greatly to the acquisition of relevant knowledge in Science and also, and they strongly agreed that they find video lessons to be effective in meeting learning objectives.

Furthermore, the average weighted mean (3.22), showed that the respondents had agreed in all the item statements in assessing their satisfaction with the use of the video-based approach (table 4). This result was supported by the study findings of Giannakos (2013) that students appeared highly satisfied with the use of video-based lectures as a teaching tool [12]. It also implied that it is encouraging to see that the students in the present study found the video lessons enjoyable, as *"an enjoyable learning scenario is a necessity to effective learning"*

**Table 3.** Student's Satisfaction towards the Use of Video-Based Approach in Teaching Science

Satisfaction towards the use of Video-Based approach	Mean ( $\bar{X}$ )	Description
I find video lessons enjoyable	3.18	Agree
The video lectures have contributed greatly to my acquisition of relevant knowledge in Science	3.29	Strongly Agree
I find video lessons to be effective in meeting learning objectives.	3.26	Strongly Agree
I would describe video lessons as being highly interesting	3.23	Agree
I would recommend to use video lesson to my colleagues	3.25	Agree
Video lessons make me spend more time studying to acquire knowledge and learn concepts in science.	3.22	Agree
I am satisfied with my learning from the video lessons.	3.14	Agree
Average Weighted Mean	3.22	Agree

**Table 4.** Relationship of Student-Respondents Profile to their Acceptance towards the use of Video-Based Instruction in Teaching Science

	Sex	Age	Order of Birth	No. Of Siblings	Monthly Income
Mean Acceptance	0.207	0.003	-0.081	-0.042	0.189*

\*p<.05, \*\*p.01, \*\*\* p<.001

**Table 5:** Relationship of Student-Respondents Profile to their Satisfaction towards the use of Video-Based Instruction in Teaching Science

	Sex	Age	Order of Birth	No. Of Siblings	Monthly Income
Mean Satisfaction	0.150	-0.070	-0.040	0.049	0.068

\*p<.05, \*\*p.01, \*\*\* p<.001

### 3.4. Relationship of Student-Respondents Profile to their Acceptance towards the use of Video-Based Instruction in Teaching Science

Using Pearson's r Correlation with a 5% level of significance, findings showed that, only the monthly income has a significant positive correlation to the acceptance of the use of the video-based approach since the p-value was less than 0.05 or p-value = 0.000, 0.004 (table 5). This means that lower family income has a significant relationship to their acceptance of the use of a video-based approach in teaching Science. This result fortifies the research of Ugoji Dr. and Ebenuwa-Okoh (2015) that if the finances of students are not adequate, the situation may affect their academic performance and students' academic performance may be enhanced if their financial needs are adequately met [13].

### 3.5. Relationship of Student-Respondents Profile to their Satisfaction towards the use of Video-Based Instruction in Teaching Science

Findings revealed that the profile of the students that were being described by sex, age, order of birth, no. of siblings and monthly income were not significantly correlated to their satisfaction with the use of a video-based approach in teaching Science since the p-value was less than 0.05. This result fortifies the study findings of Choo *et al.* (2019) that student's satisfaction

with video lectures has a strong relationship with the positive overall learning experience and perception of the impact of video on learning [14].

## 4. CONCLUSION

Based on the findings derived from this study, the following conclusions were drawn:

- Majority of the student-respondents were female, age 19, first born in the family, had two siblings, and classified as poor income family.
- Most of the student-respondents found an agreeable acceptance and satisfaction towards the use of video-based approach.
- Only the monthly income from student-respondents profile was found to be significantly related to their acceptance towards the use of video-based instruction. On the other hand, student-respondents profile was found not significantly correlated to their satisfaction towards the use of video-based instruction in teaching Science.

## 5. ACKNOWLEDGEMENT

The author acknowledged the Bachelor of Secondary Education Major in Science students who participated to this research.

## 6. CONFLICT OF INTEREST

The authors have declared that there is no conflict of interest.

## 7. SOURCE/S OF FUNDING

NA

## 8. REFERENCES

1. Rivera, A. & Tanghal., A. (2021). Student-based Assessment on the Utilization of Innovative Teaching Methods in the New Normal. *Puissant*, 2 (1): 236-255
2. Wisanti, A., Putri, E. K., Rahayu, D. A., & Khaleyra, F. (2021). Science online learning during the covid-19 pandemic: Difficulties and challenges. *In J. Phys. Conf. Ser.*.
3. Carmichael, M., Reid, A., & Karpicke, J. D. (2018). Assessing the impact of educational video on student engagement, critical thinking and learning. A SAGE white paper.
4. Ugoji Dr. and Ebenuwa-Okoh., (2015). Parenting Styles, Peer Group Influence as Correlate of Sexual Behavior among Undergraduate Adolescents, *International Journal of Humanities Social Sciences and Education (IJHSSE)*, 2(8): 103-110
5. Yan, S., & Baxter, E. (2018). Learning Efficiency of Video-based Learning. *eLearn*, 2018(12).
6. Sutton S., (2020). Adapting Science Lessons for Distance Learning, Retrieved from George Lucas educational Foundation. Retrieved from: <https://www.edutopia.org/article/adapting-science-lessons-distance-learning>
7. Donkor, F. (2011). Assessment of learner acceptance and satisfaction with video-based instructional materials for teaching practical skills at a distance. *International Review of Research in Open and Distributed Learning*, 12(5): 74-92.
8. Voyle M., (2011) .Student academic success as related to student age and gender, University of Tennessee , Chattanooga Retrieved from <https://scholar.utc.edu/theses/85/>
9. Gustafson, C., 2010. The effects of birth order on personality: Retrieved from <https://www.studocu.com/row/document/virtual-university-of-pakistan/personality-psychology/the-effects-of-birth-order-on-personality/11797720>
10. Cools, A., & Patacchini, E. (2017). Sibling gender composition and women's wages.
11. Adzido, R. Y. N., Dzugbede, O. E., Ahiave, E., & Dorkpah, O. K. (2016). Assessment of family income on academic performance of tertiary students: The case of Ho Polytechnic, Ghana. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 6(3): 154-169.
12. Giannakos, M. N. (2013). Exploring the video-based learning research: A review of the literature. *British Journal of Educational Technology*, 44(6): E191-E195.
13. Ugoji, F. N., & Ebenuwa-Okoh, E. E. (2015). Parenting styles, peer group influence as correlate of sexual behaviour among undergraduate adolescents. *International Journal of Humanities Social Sciences and Education (IJHSSE)*, 2(8): 103-110.
14. Choe, R. C., Scuric, Z., Eshkol, E., Cruser, S., Arndt, A., Cox, R., ... & Crosbie, R. H. (2019). Student satisfaction and learning outcomes in asynchronous online lecture videos. *CBE—Life Sciences Education*, 18(4): ar55.