

# Collaborative Summative Assessment: Means for Enduring Learning and Attainment of 21<sup>st</sup> Century Skills in the Online Platform

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## Abstract

The use of collaborative assessment as a form of summative evaluation during online learning targets Sustainable Development Goal (SDG) 4 which aims at ensuring sustainable development in education through student assessment. Moreover, collaborative assessment is an interactive process that enables students to work together and get engaged in shared decision-making toward mutually-defined goals. This research aimed to examine the impact of online distance learning on collaborative assessment among High School students according to grade level and sex. This research will help educate learners on the value of collaboration during online distance learning, and will strengthen global citizenship. This study used a cross-sectional survey of quantitative research design with 252 high school students as participants. Significant findings revealed that both Junior and Senior high school students, as well as male and female students, agree that collaborative summative assessment during online learning helped them in the attainment of good academic performance, easier completion of tasks, enhanced communication skill, evident cooperation, and submission of quality output. Moreover, inferential analysis showed no significant difference on the impact of online distance learning on collaborative summative assessment as perceived by grade level,  $t(17) = 2.11$ ,  $p = 0.15$  and sex,  $t(17) = 2.11$ ,  $p = 0.24$ . Therefore, regardless of grade level and sex, the new mode of learning platform proved to be an efficient avenue for students to work together in the achievement of a common goal despite the challenges presented by online distance learning.

**Keywords:** online learning, summative assessment, high school, cross-sectional, Philippines

## 1. Introduction

### 1.1 The Problem

The pandemic caused a significant shift in learning modalities and presented difficulties in the field of education, one of those is the delivery of assessment via online education. Schools were required to make investments in new technology, and make better use of their existing resources in order to cope and remain relevant in the educational sector. On the other hand, the challenges posed by online learning, which significantly altered the educational environment, affected both teachers and students.

While online distance learning offers an incredible level of flexibility in terms of how students want to study, it also has some effect in the teaching-learning process such as assessment and feedback mechanism. According to Sustainable Development Goal (SDG) 4, target 4.7.1, student's assessment should be a common practice in schools in order to achieve education for sustainable development. Therefore, assessment is an important aspect in the realm of education as it allows the teachers to monitor and tract the process of a learner in terms of the attainment of the learning competencies prescribed by the curriculum. According to the Policy Guidelines on Classroom Assessment for the K to 12 Basic Education Program in the Philippines, learners may be assessed individually or collaboratively, whereby, students are asked to cooperate and made to work toward agreed-upon objectives using shared decisions, either during formative or summative assessment.

As a norm in an urban private school in Northern Philippines before the pandemic, collaborative assessment is done during performance task as a form of summative assessment. It allows learners to showcase the knowledge and skills they have learned throughout the quarter. However, with the onset of online distance learning brought about by the pandemic, it has been noted during the Professional Learning Community discussion in the areas of Research, Science, and Values Education that there exists a clamor among students to work individually. While it is true that online learning has its advantages such as accessibility of time and place, it has some perceived

disadvantages such as minimal physical interaction among learners that inhibit their cooperation and communication.

Therefore, it is the aim of this research to assess the impact of online distance learning on collaborative summative assessments particularly in the conduct of performance task among high school students on the first year of the full implementation of flexible online learning in the development of the following 21<sup>st</sup> century skills namely cooperation, communication skills, academic performance, and creation of quality works.

The specific objectives of this research are the following:

- 1) To determine the impact of collaborative summative assessment on online distance learning among high school students according to grade level and sex.
- 2) To examine the significant difference of collaborative summative assessment according to grade level and sex in online distance learning among high school students.

Based on the objectives, one research hypothesis examined if there is a significant difference according to grade level and sex among high school students in terms of the impact of collaborative summative assessment administered during the online distance learning modality.

### *1.2 Literature Review*

Students are typically encouraged to cooperate and take part in group activities such as skill demonstration, role play, and multimedia presentations as part of collaborative assessment. Collaboration during assessment, according to Child and Shaw (2016), promotes social interdependence, communication, the introduction of new ideas, resource sharing, and dispute resolution. The said abilities can be acquired through group learning, and they are remarkable.

A study titled, "Assessment and collaboration in online learning," by Swan et al. (2008) states that assessment is an engine that drives course activity whether done online or the traditional way. However, results show that assessing collaborative learning poses challenges as it requires radical rethinking of traditional evaluation techniques. Nevertheless, when done properly, collaborative assessment will greatly enhance the effectiveness of online learning.

According to Faja (2013), activities that entail collaboration in online classes are positively related to perceived learning, sense of community, and virtual teamwork.

Additionally, there are certain drawbacks to online collaborative assessment, including time constraints and lack of knowledge with the execution of collaborative exams among teachers (Chau, 2007). Furthermore, according to Amir et al. (2020), students in Indonesia perceive distance learning as a barrier in communicating effectively with classmates and somehow provides lesser learning satisfaction because of unstable internet connections, time management, and inability to concentrate in synchronous classes. Similarly, according to Le et al. (2016), there are four common identified obstacles to collaboration during online learning such as: students' lack of collaborative skills, free-riding, competence status, and friendship. Moreover, results showed that teachers often focus more on the cognitive aspect of collaborative learning than the aspect of teamwork transcending in collaboration. In the Philippines, online learning posed several hindrances as well as tertiary students trying to adapt to the new mode of education during the pandemic (Baticulon et al., 2021). This is further corroborated by Mobo and Sabado (2019), asserting that college students from Olongapo City answered fair when it comes to the support that e-learning could offer them during examinations.

The available published researches about online learning and their effects on collaboration during summative assessment focus more on the tertiary education, and little is done in the Basic Education in the Northern Philippines. With the administration of online learning in the country due to the effect of the pandemic, it is the aim of this research to determine the impact of online learning to collaborative summative assessment among high school students in the development of teamwork, communication, academic performance, and quality outputs.

One of the educational theories about e-learning is community of inquiry. According to Berrosco et al. (2020), community of inquiry is a populace of learners engaging in educational communication with the goal to validate understanding regarding studied concepts, integrate personal reflections, and share discussion. One of the components of community of inquiry is social presence, which is the ability of the student to be identified in a group and openly communicate his or her feelings, and build personal relationships. The other aspect is cognitive presence which refers to making meaning of concepts learned through constant reflection and discussion within a group.

Another theoretical model of e-learning is the Theory of Acceptance Model. According to Berrosco et al. (2020),

Theory of Acceptance Model is the belief that technology will reduce the effort in accomplishing a given task and the improvement of academic performance in a virtual class. With these two theories regarding online distance learning, it should result to a meaningful virtual learning environment provided that both the teacher and the learner embrace the challenges posted by e-learning.

## 2. Methodology

**Research design:** The research design utilized is cross-sectional survey of quantitative research. The independent variable is the online distance learning while the dependent variable is the collaboration of students during assessment particularly, in the completion of the performance task.

**Participants:** The population of the study included high school students, aged 14–18, from an urban private school in Northern Philippines. A total of 252 students voluntarily engaged in the completion of the survey questionnaire. The sampling design used was purposive.

**Ethical consideration:** The following ethical considerations were undertaken in the conduct of this research: The participation of the respondents were purely voluntary. They were not forced to engage in the study, and can withdraw their involvement in the research at any given time should they deem it necessary. Their identities were kept anonymous. Indulgence of names were optional. Their responses were kept confidential as only the researchers had an access to the answers generated from the google forms. In terms of risk management, the researchers first discussed the aim of the study to the participants, and read the questions to them in order to orient them regarding the indicators that were asked of them. The researchers allowed the participants to ask questions on areas or indicators that are not clear to them. They were further instructed that should any feeling of discomfort in accomplishing the questionnaire existed, they should contact the researchers to mitigate any negative impact that the study may have in them.

**Instruments and data analysis:** The survey questionnaire was based on Hernandez et al. (2015), Valente (2014), and DepEd (2015). The indicators in the questionnaire were modified in order to suit the objectives of the study. The questionnaire is composed of two parts. Part A is the profile of the student while Part B is the survey questionnaire on the impact of online distance learning to collaborative assessments composed of 5 categories with two indicators per category. It made use of a 4-point Likert scale where 1 means strongly disagree until 4 which means strongly agree. The questionnaire was validated, and underwent reliability testing. The tool consisted of 10 items, and the value for Cronbach's alpha was 0.89. Statistical package for social science (SPSS) was used to compute for the mean and standard deviation gathered from the survey questionnaire and inferential statistics, particularly, T-test was used to test the hypothesis of the study.

## 3. Findings

### 3.1 Impact of Collaborative Summative Assessment on Online Distance Learning Among High School Students According to Grade Level

The utilization of online learning platform in the basic education during the pandemic challenged the administration on collaborative summative assessment. It was not an option to veer away from it as it is essential in the holistic training of the students regardless of the time people are in. Table 1 shows the perception of students regarding the impact of collaborative summative assessment on online distance learning.

Table 1. Impact of collaborative summative assessment on online distance learning according to grade level

Categories	Junior High (n = 200)			Senior High (n = 52)		
	Mean	SD	Interpretation	Mean	SD	Interpretation
Academic Performance	2.78	0.74	Agree	2.76	0.70	Agree
Completion of Task	2.78	0.74	Agree	2.82	0.64	Agree
Communication skill	2.71	0.76	Agree	2.79	0.69	Agree
Quality Output	2.84	0.74	Agree	2.86	0.69	Agree
Cooperation	2.82	0.70	Agree	2.96	0.59	Agree
<b>OVER ALL MEAN</b>	2.79	0.74	Agree	2.84	0.66	Agree

Findings from Table 1 indicate that both Junior and Senior High school students agree that collaborative summative assessment during online learning helps them in the areas of academic performance, completion of task, communication skill, quality output, and cooperation as seen in the overall mean of Junior High school students ( $M = 2.79$ ,  $SD = 0.74$ ) and Senior High school students ( $M = 2.84$ ,  $SD = 0.66$ ) respectively.

3.2 Impact of Collaborative Summative Assessment on Online Distance Learning Among High School Students According to Sex

Likewise, the perceived impact of online distance learning on collaborative summative assessment according to sex is presented in Table 2.

Table 2. Impact of collaborative summative assessment on online distance learning according to sex

Categories	Male						Female					
	Junior (n = 69)			Senior (n = 19)			Junior (n = 131)			Senior (n = 33)		
	M	SD	I	M	SD	I	M	SD	I	M	SD	I
Academic Performance	2.85	0.73	Agree	2.95	0.60	Agree	2.74	0.75	Agree	2.66	0.74	Agree
Completion of Task	2.84	0.73	Agree	2.90	0.55	Agree	2.74	0.74	Agree	2.78	0.69	Agree
Communication skill	2.81	0.71	Agree	2.76	0.67	Agree	2.65	0.78	Agree	2.81	0.71	Agree
Quality Output	2.87	0.75	Agree	2.71	0.75	Agree	2.82	0.73	Agree	2.94	0.71	Agree
Cooperation	2.84	0.69	Agree	2.92	0.52	Agree	2.81	0.69	Agree	2.99	0.62	Agree
OVERALL MEAN	2.84	0.72	Agree	2.85	0.62	Agree	2.75	0.74	Agree	2.84	0.69	Agree

As seen from the gathered data, both male and female high school students agree that the impact of collaborative summative assessment on online distance learning is the attainment of good academic performance, completion of task on time, enhancement of communication skill, submission of quality output, and enhancement of cooperation with a mean of ( $M = 2.75, SD = 0.74$ ), ( $M = 2.84, SD = 0.72$ ) and ( $M = 2.84, SD = 0.69$ ), ( $M = 2.85, SD = 0.62$ ) respectively.

3.3 Significant Difference of Collaborative Summative Assessment on Online Distance Learning Among High School Students According to Grade Level

An inferential statistics particularly T-test was conducted to compare the perception of grade levels regarding their level of agreement on the impact of online distance learning on collaborative summative assessment. Table 3 depicts the results gathered.

Table 3. T-test results comparing junior and senior high school on the significant difference of collaborative assessment on online distance learning

Grade Level	n	Mean	SD	t-cal	t-crit	df	p	Decision
Junior	200	2.78	0.73	2.11	1.74	17	0.15	Accept
Senior	52	2.84	0.66					

Findings show that there is no significant difference in the perception of Junior High School students from Senior High School students  $t(17) = 2.11, p = 0.15$  with regard to collaborative summative assessment on online distance learning.

3.4 Significant Difference of Collaborative Summative Assessment on Online Distance Learning Among High School Students According to Sex

Consequently, a t-test was done to compare the significant difference in the level of agreement of male and female respondents regarding collaborative summative assessment on online distance learning.

Table 4. T-test results comparing male and female high school students on the significant difference of collaborative summative assessment on online distance learning

Grade Level	n	Mean	SD	t-cal	t-crit	df	p	Decision
Male	88	2.85	0.60	2.11	1.74	17	0.24	Accept
Female	164	2.80	0.66					

Table 4 suggests that there is no significant difference between the male and female on their perception regarding collaborative summative assessment on online distance learning  $t(17) = 2.11, p = 0.24$ .

#### 4. Discussion

All academic levels faced difficulties as a result of the unplanned and quick transition to pure online learning, which required schools to adapt a digital approach to student learning and assessment. In addition, there is a widespread belief in the education sector that the dramatic shift from face-to-face instruction to e-learning limits the growth of the learning community or collaboration in a virtual learning environment. However, this research shows that regardless if online platform was used for learning, student collaboration during the administration of summative assessment attained some 21<sup>st</sup> century skills such as critical thinking, collaboration, communication, and creativity as evidenced in their level of agreement in the gathered data.

The result of this study corroborates with the research of Gupta and Pathania (2020), that google classroom setup ushers students to communicate with their groupmates electronically and they could decide on when they wanted to complete a task at their own pace. Furthermore, according to Almanar (2020), Jaggars and Xu (2016), and Lapitan et al. (2021), distance learning proved to have significant impact on student's learning performance in the area of critical thinking, interpersonal interaction among students, and results to a positive significant increase in grade. Moreover, according to Francescucci and Rohani (2018) and Kurucay and Inan (2017), synchronous online learning improved learner's engagement with other students as compared to learners who were working individually.

In the results gathered in this research, the respondents, regardless of grade level and sex, agree that collaborative summative assessment has a positive effect on online distance learning as it leads them to positive interdependence and results to a widening of personal interest into common interest arising from the sharing of goals and responsibilities among group members. In most of the available literatures about online learning and its effect on sex, it was found out that females are more ready and have better learning experiences compared to males (Chung et al., 2020). A similar discovery was noted by Morante et al. (2017) that online learning was conducive to a high level of success for females than males as they are as less hesitant to engage in online environment. Moreover, according to Yu (2021), females normally realized higher learning outcomes than males because they are more persistent than males.

Furthermore, results of this study show that there is no significant difference in the effectiveness of collaboration and cooperation among students during collaborative summative assessment regardless of grade level and sex during the online learning platform. This result corroborates with the research of Nguyen (2015) and Kintu and Zhu (2016) stating that there is no significant difference in the academic performance between male and female students as affected by online learning on collaboration. Furthermore, according to Paul and Jefferson (2019) there is no significant difference in the student performance academically as well as in the completion of task as affected by online learning.

Therefore, this implies that summative assessment can be performed through collaboration even in e-learning. It will spur learners to submit excellent outputs, convey their thoughts without inhibitions, and become a team player for the realization of common goals. Online learning can still achieve the same learning targets aimed by collaborative summative assessment done during face-to-face classes, and it does not pose any barrier in the enhancement of knowledge and positive interaction among students. Given the proper administration of online collaborative summative assessment and necessary guidance for the students on how to effectively execute collaboration during performance task, learners will be equipped with the 21<sup>st</sup> century skills that will help them navigate the world around them and solve real-world problems.

#### 5. Conclusion and Recommendation

This research investigated the effect of online distance learning to collaborative summative assessment among high school students. Results reveal that e-learning is a great avenue in attaining the 21<sup>st</sup> century skills as seen in the responses of the participants. It presents that collaborative assessment whether formative or summative is a great tool in any subject as it promotes learning and supports the goal of SDG 4 on quality education for sustainable development. Quality education will be achieved through constant assessment of students' skills and competencies in a collaborative environment as it develops interpersonal skills that are otherwise absent in an assessment done individually.

In the context of the results gathered in this research, it is recommended that a simple achievement test is a better way of establishing the impact of collaborative summative assessment on the online distance learning modality. Furthermore, strengthening the use of collaborative summative assessment in all learning areas in the high school curriculum, and educating students regarding the importance of collaboration even during online distance learning through webinars organized by the school are likewise recommended.

## References

- Almanar, M. (2020). The shifting of face-to-face learning to distance learning during the pandemic Covid-19. *Globish*, 9(2). <https://doi.org/10.31000/globish.v9i2.2772>
- Amir, L., Tanti, I., Maharani, D., Wimardhani, Y., Julia, V., Sulijaya, B., & Puspitawati, R. (2020). Student perspective of classroom and distance learning during COVID-19 pandemic in the undergraduate dental study program Universitas Indonesia. *BMC Medical Education*, 20(392). <https://doi.org/10.1186/s12909-020-02312-0>
- Baticulon, R., Sy, J., Alberto, N., Baron, M., Mabulay, R., Rizada, L., ... Reyes, J. (2021). Barriers to online learning in the time of covid-19: a national survey of medical students in the Philippines. *Medical Science Educator*, 3, 615–626. <https://doi.org/10.1007/s40670-021-01231-z>
- Berrosco, J., Arroyo, M., Videla, C., & Cevallos, M. (2020). Trends in educational research about e-learning: A systematic literature review (2009–2018). *Sustainability*, 12(12). <https://doi.org/10.3390/su12125153>
- Chau, J. (2007). Effects of collaborative assessment on language development & learning. *The Language Learning Journal*, 32(1), 27–37. <https://doi.org/10.1080/09571730585200161>
- Child, S., & Shaw, S. (2016). *Collaboration in the 21st century: Implications for assessment*. Retrieved from <https://www.cambridgeassessment.org.uk/Images/374626-collaboration-in-the-21st-century-implications-for-assessment.pdf>
- Chung, E., Dass, L., & Subramaniam, G. (2020). Online learning readiness among university students in Malaysia amidst covid-19. *Asian Journal of University Education*, 16(2), 45. <https://doi.org/10.24191/ajue.v16i2.10294>
- DepEd. (2015). *Policy guidelines on classroom management for the K to 12 Basic Education*. Retrieved from [https://www.deped.gov.ph/wp-content/uploads/2015/04/DO\\_s2015\\_08.pdf](https://www.deped.gov.ph/wp-content/uploads/2015/04/DO_s2015_08.pdf)
- Faja, S. (2013). Collaborative learning in online courses: Exploring students' perceptions. *Information Systems Educational Journal*, 11(3). <https://files.eric.ed.gov/fulltext/EJ1145013.pdf>
- Francescucci, A., & Rohani, L. (2018). Exclusively synchronous online (VIRI) Learning: The impact on student performance and engagement outcomes. *Journal of Marketing Education*, 41(1), 60–69. <https://doi.org/10.1177/0273475318818864>
- Gupta, A., & Pathania, P. (2020). To study the impact of google classroom as a platform of learning and collaboration at the teacher education level. *Education and Information Technologies*, 26, 843–857. <https://doi.org/10.1007/s10639-020-10294-1>
- Hernandez, N., Carril, P., & Sanmamed, M. (2015). *Students perceptions of online collaborative learning*. Retrieved from [https://www.researchgate.net/publication/297918384\\_STUDENT'S\\_PERCEPTIONS\\_OF\\_ONLINE\\_COLLABORATIVE\\_LEARNING](https://www.researchgate.net/publication/297918384_STUDENT'S_PERCEPTIONS_OF_ONLINE_COLLABORATIVE_LEARNING)
- Jaggars, S. (2016). How do online course design features influence student performance? *Computers and Education*, 95, 270–284. <https://doi.org/10.1016/j.compedu.2016.01.014>
- Kintu, M., & Zhu, C. (2016). Student characteristics and learning outcomes in a blended learning environment intervention in a Ugandan University. *EJEL*, 14(3). Retrieved from <https://academic-publishing.org/index.php/ejel/article/view/1754>
- Kurucay, M., & Inan, F. (2017). Examining the effects of learner-learner interactions on satisfaction and learning in an online undergraduate course. *Computers and Education*, 115, 20–37. <https://doi.org/10.1016/j.compedu.2017.06.010>
- Lapitan, L., Tiangco, C., Sumalinog, D., Sabarillo, N., & Diaz, J. (2021). An effective blended online teaching and learning strategy during the Covid-19 pandemic. *Education for Chemical Engineers*, 35, 116–131. <https://doi.org/10.1016/j.ece.2021.01.012>
- Le, H., Janssen, J., & Wubbles, T. (2013). Collaborative learning practices: teacher and student perceived obstacles to effective student collaboration. *Cambridge Journal of Education*, 48(1), 103–122. <https://doi.org/10.1080/0305764X.2016.1259389>
- Mobo, F., & Sabado, G. (2019). An assessment of the effectiveness of e-learning in AMA Olongapo campus. *Oriental Journal of Computer Science and Technology*, 12(3), 99–105.

<https://doi.org/10.13005/ojst.12.03.04>

- Morante, A., Djenidi, V., Clark, H., & West, S. (2017). Gender differences in online participation: examining a history and mathematics open foundation online course. *Australian Journal of Adult Learning*, 57(2). Retrieved from <https://files.eric.ed.gov/fulltext/EJ1148628.pdf>
- Nguyen, T. (2015). The effectiveness of online learning: beyond no significant difference and future horizons. *MERLOT Journal of Online Learning and Teaching*, 11(2), 309–319. <https://doi.org/10.4236/oalib.1107597>
- Paul, J., & Jefferson, F. (2019). A comparative analysis of student performance in an online vs face to face environmental science course from 2009 to 2016. *Digital Education*. <https://doi.org/10.3389/fcomp.2019.00007>
- Swan, K., Shen, J., & Hiltz, S. (2008). Assessment & collaboration in online learning. *Journal of Asynchronous Learning Networks*, 10(1), 45–62. <https://doi.org/10.24059/olj.v10i1.1770>
- Valente, L., & Gomes, M. (2014). *Collaboration and Assessment: theory and practice*. Retrieved from [http://colab.eun.org/c/document\\_library/get\\_file?uuid=064abaf2-a713-447a-9a19-bac26ca1749f&groupId=5897016](http://colab.eun.org/c/document_library/get_file?uuid=064abaf2-a713-447a-9a19-bac26ca1749f&groupId=5897016)
- Yu, Z. (2021). The effects of gender, educational level, and personality on online learning outcomes during the Covid-19 pandemic. *International Journal of Education Technology in Higher Education*, 18(14). <https://doi.org/10.1186/s41239-021-00252-3>

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