The International Conference on Interdisciplinary Humanities and Communication Studies
DOI: 10.54254/2753-7048/7/2022998

# *Students' Online Learning Satisfaction, Self-efficacy and Academic Performance*

**Siyuan Sang[1,a,*]**

[1]*Moray House School of Education and Sport, University of Edinburgh, Holyrood Rd, Edinburgh, UK*
*a. S.Sang-1@sms.ed.ac.uk*
**corresponding author*

***Abstract:*** This study aims to find out whether there is a correlation between any two of the three factors including the academic performance, online learning self-efficacy, and online learning satisfaction of younger students and explores what factors students think would hinder them from learning online and how are they going to deal with it. In this study, 100 students who were in their fifth, sixth, and seventh grades from the Zhaiyingdajie Elementary School and the Affiliated Middle School of Beijing Normal University in Shijiazhuang City, Hebei Province were recruited to complete the designed questionnaire. The data were analyzed through the software SPSS 26. The results of the correlational analysis show that students' online learning self-efficacy has a positive correlation with both academic performance and online learning satisfaction. Also, two factors including "bad network connection" and "poor self-discipline" are considered to be of great influence on students' online study, both of which are difficult for students to overcome on their own. Overall, the study reveals that students who have a higher level of confidence in their online learning capacities tend to perform better academically and be more satisfied with the overall online courses, while students with higher satisfaction rates may not necessarily receive better academic outcomes.

***Keywords:*** Self-efficacy, learning satisfaction, students' academic performance

## 1. Introduction

During the prevention and control of the Covid-19 pandemic, China's Ministry of Education has issued the requirements of "School's Out, But Class's On". Provinces had all made their efforts to respond to the call during this on-and-off pandemic period of time [1]. However, with online learning gradually being part of student's academic lives, problems caused by inexperienced teachers, unstable networks, and students' lack of self-discipline and so forth also forward in front of the public, making online education increasingly questionable. In this case, it is essential to find out how younger students truly feel about online education and their own online learning abilities. The previous relevant studies have been focused on the learning satisfaction and self-efficacy of elder students such as high school students and college students and studied less about that of younger students, namely, students in elementary schools and middle schools. And these previous studies were closely related to traditional classroom study rather than online study. This study focuses on exploring the relationships among self-efficacy, learning satisfaction, and final grades of students from grade 5,

© 2023 The Authors. This is an open access article distributed under the terms of the Creative Commons Attribution License 4.0 (https://creativecommons.org/licenses/by/4.0/).

DOI: 10.54254/2753-7048/7/2022998

grade 6, and grade 7 in online settings, and aims to find out factors hindering students from learning online on students' advice. Through the research, the researcher hopes to learn more about how younger pupils see their online learning capacities and whether or not they are satisfied with this form of learning. It helps to further explore how to improve online education to better serve students.

## 2. Literature Review

### 2.1. Online Learning

There are many synonyms for online learning such as e-learning, web-based learning, and so forth [2]. Since e-learning typically shares a similar meaning with online learning nowadays, its definition also helps define online learning which is a kind of learning activity through information and communication technologies (ICTs) [3]. Baber offers a second opinion and claims that online learning is a kind of "electronic learning environment where, unlike traditional learning, there are no physical peer learners, and there is freedom of time and space [4]". While Utomo et al. think of online learning as an alternative that enables students to learn knowledge through the internet [5]. Concluded from the above definitions, one important point about online learning is network technologies. By using computer network technology, information together with instructors' instructions can be delivered to individuals around the world [6]. In recent years, the concept of online learning has been acknowledged by the public and actively adopted by school sectors.

Online education can be further divided into asynchronous and synchronous online education. And there are two main differences between synchronous and asynchronous online study. One is the difference in educational tools to transmit information and spread knowledge. Another lies in whether the learning and teaching process happens at the same time. The primary characteristic of asynchronous online learning, according to Hrastinski, is that it frequently makes use of teaching resources like discussion boards and e-mail to support and maintain the teaching-learning relationship between students and instructors [7]. In this sense, even if students are not online at the same time as the teacher, the teaching process can still go on with the help of teaching records that can be reviewed afterwards. While for synchronous online learning, it is "commonly supported by media such as videoconferencing and chat" and "has the potential to support e-learners in the development of learning communities [7]". Bezovski and Poorani focus more on the two different types of online learning from the time aspect and state that contrary to asynchronous one, synchronous online learning requires students to attend the class with their instructors on certain web-based platforms simultaneously rather than at a random time [8]. Asynchronous online learning and synchronous online learning are both important ways of spreading knowledge that become popular in the recent decade thanks to after-school educational institutions in China.

Recent years have seen China implementing a number of initiatives in response to the Covid-19 pandemic, including the lockdown policy. The fact that all of the elementary school and middle school students stay at home and complete their courses online for an entire semester creates a common learning experience for all participants in this study.

### 2.2. Learning Satisfaction

Learning satisfaction has been discussed for years and becomes rather popular in recent years due to the outbreak of the Covid-19 pandemic when online learning became a major form of learning. As mentioned by Ke and Kwak, learning satisfaction can be defined as "the student's perception pertaining to the course experience and the perceived value of the education received while attending the educational institution [9]". To further the concept of online learning satisfaction, Ke and Kwak put up that it comprises two dimensions: one is perceived satisfaction with individual online courses and another is the overall satisfaction with web-based distance education [9]. However, other scholars

DOI: 10.54254/2753-7048/7/2022998

define online learning satisfaction in a different way. For example, scholars Islam, Mok et al. argue that learning satisfaction can be reached when the technology is properly used during the online class so that it is valuable, practical, and helpful for enriching students' knowledge [10]. However, studies by other scholars have shown that students' online learning satisfaction is not as good as expected compared with offline learning satisfaction. According to a study conducted by Chingos et al., students are commonly not satisfied with online classes [11]. And significantly lower satisfaction was reported when students learn through online learning platforms than that when they learn in the traditional classroom setting [11]. Jiang and Zhao also draw a similar conclusion about whether students' learning satisfaction will be influenced by two different learning modes in China [12].

### 2.3. Learning Self-efficacy

According to Bandura, self-efficacy is described as "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives [13]". Since then, self-efficacy has been widely used in students' self-regulated learning and autonomous learning. Later, Zimmerman and Bandura define self-efficacy as a kind of confidence in achieving their own academic success through plenty of methods [14]. Wong further specifies four dimensions of students' self-efficacy, that is, autonomy, competence, relatedness, and arousal [15]. Farley asserts that "self-efficacy is not a trait, but rather a set of beliefs [16]". And "people must believe they can produce certain effects with their actions or they will not persevere in difficult situations [16]". Then what kind of tools can be used to measure such a set of beliefs? Normally, the measuring instrument used for identifying students' education self-efficacy is the Likert scale and adopted usually in a face-to-face educational setting [17]. This study adopts an adapted version of the Likert scale to further explore students' online learning self-efficacy.

## 3. Methodology

### 3.1. Measurement

This study aimed to explore elementary school and middle school students' satisfaction and their self-efficacy toward online learning. It is a quantitative study using a designed questionnaire as the measuring instrument. The questionnaire used had 2 main parts, the first part was for measuring students' online learning satisfaction, with questions adapted from both Lin's research and Wong's research [15,18]. For the part of the questionnaire that measured elementary school students' self-efficacy, questions were adapted from the self-efficacy scale solely from Wong's research [15]. What is different is that the researcher decides to adapt the questionnaire to be on a scale of 1 to 5 rather than that of 1 to 7 since it could be difficult for students in primary schools to concentrate on the item itself when faced with seven choices. Besides, students may get confused when having questionnaires on a scale of 1 to 7 since they are more familiar with those on a scale of 1 to 5 from "strongly disagree" (1) to "strongly agree" (5).

The questionnaire in this study consists of 25 closed items. Among these 25 items, 12 of them are related to students' online learning satisfaction, while 13 pertain to students' online learning self-efficacy. Table 2 shows which question belongs to each dimension. Besides the 25 closed questions, there are 3 demographic questions asking students about their gender, age, and the grades they were in. Other than the demographic questions, at the end of the questionnaire, there are also 2 open questions investigating students' views about what hindered them from learning efficiently online and what factors could possibly benefit and improve their online learning experience. Cronbach's alpha in this study was .888.

In order to conduct this study smoothly, data in this study were collected with the permission of asking students' for the average scores they got during the recent online learning semester. 24 online

DOI: 10.54254/2753-7048/7/2022998

questionnaires were distributed through Wechat. And other questionnaires were distributed in paper form on site and loaded later. Participants in this study were encouraged to answer these questions truthfully and according to their own experiences. After participants finished filling out the online and offline questionnaires, the data that were collected remained confidential and only for academic purposes.

### 3.2. Procedure

The general idea of identifying the sample was through snowball sampling. To be specific, five students got invited to take part in this study through the researcher's own contact. And to obtain a wider spectrum of participants for this study, each original participant was asked to recommend 5 or more friends and classmates of theirs [15]. Through snowball sampling with two to three rounds of invitation, this study had overall 104 candidates. Among these 104 candidates, 4 of them failed to finish the questionnaire, which left 100 of them to become participants. With 100 copies of questionnaires being valid, the valid return rate was 96.2%.

Questionnaires were distributed both in the online form and in paper form to 104 candidates to investigate the online learning satisfaction and self-efficacy of students in grade 5, grade 6, and grade 7. This study also collected students' final examination scores which they got during the recent online learning semester. Throughout the whole data-collecting process, the questionnaires were administered to students in Chinese to avoid the language barrier.

After collecting the data, SPASS 26 was used to process them. The scores students gained from both the self-efficacy part of the scale and the satisfaction part of the scale were totaled separately. In addition, scores that students gained from question 2, question 4, question 7 and question 10 in the self-efficacy part should be reversed when counting for totals (See Table 1). Later, the added scores were used to conduct the descriptive analysis and to analyze whether there was any correlation between students' satisfaction, students' self-efficacy, and their online learning final grades.

Table1: Scales comprising the closed question part of the questionnaire.

| Scales | Items | The total number of items |
|---|---|---|
| Self-efficacy | 1, 2 (R), 3, 4 (R), 5, 6, 7 (R), 8, 9, 10(R), 11, 19, 22 | 13 |
| Satisfaction | 12, 13, 14, 15, 16, 17, 18, 20, 21, 23, 24, 25 | 12 |

### 3.3. Hypothesis

Hypothesis 1: The majority of students may have higher-than-average online learning self-efficacy. To prove Hypothesis 1, more than half of the participants will total 39 points and beyond in the part of the questionnaire measuring students' online learning self-efficacy.

Hypothesis 2: The majority of students may have higher-than-average online learning satisfaction. Similarly, more than half of the participants will gain 36 points and beyond in total in the part of the questionnaire that measures students' online learning satisfaction if Hypothesis 2 is true.

Hypothesis 3: There may be a significant correlation between students' online learning self-efficacy and their final examination scores.

To examine Hypothesis 3, a correlational analysis will be conducted through SPSS 26 between students' total points in the self-efficacy part of the scale and the final examination grades they reported. And if $P<0.05$, the significant correlation can be examined, and vice versa.

Hypothesis 4: There may be a significant correlation between students' online learning satisfaction and their final examination scores.

Hypothesis 5: There may be a significant correlation between students' online learning self-efficacy level and their online learning satisfaction level.

DOI: 10.54254/2753-7048/7/2022998

Also, for Hypothesis 4 and Hypothesis 5, with $P<0.05$, these two hypotheses can be proven.

Hypothesis 6: Influential factors that might hinder students from learning online may probably be outside distractions such as family choirs or online games.

For Hypothesis 6, students' answers to the open-ended questions at the end of the questionnaire will be regulated and categorized into several factors. And it will be tested then whether outside distractions hindered students from learning the most.

## 4. Results

### 4.1. Participants

Through snowball sampling, a total of 100 elementary school and middle school students were recruited for this study. Participants in this study were mainly from Zhaiyingdajie Elementary School and Affiliated Middle School of Beijing Normal University located in Shijiazhuang City, Hebei Province. See Table 2 for detailed demographic information.

Table2: Description of participants.

| Demographic variables | | N | % |
|---|---|---|---|
| Grades | Grade 5 | 14 | 14 |
| | Grade 6 | 67 | 67 |
| | Grade 7 | 19 | 19 |
| Gender | Male | 40 | 40 |
| | Female | 60 | 60 |
| Age | 11 | 16 | 16 |
| | 12 | 49 | 49 |
| | 13 | 30 | 30 |
| | 14 | 5 | 5 |
| Total | | 100 | |

### 4.2. Correlation between Online Learning Self-efficacy and Students' Final Examination Scores

The researcher used descriptive analysis to analyze the data collected from the scale for self-efficacy (See Table 3). Students' total scores in this part of the scale reveal that the majority of students responded to the 13 self-efficacy questions positively, which means they hold positive attitudes towards their learning capabilities in online classes. 75% of the total response is above the neutral level, namely, 39 points, and only 25% of the students are found to hold relatively lower confidence in their capacities to handle online classes. To sum up, the results above testified the Hypothesis 1.

Regarding the correlational analysis, it shows that there is a significant positive correlation between students' online learning self-efficacy and the final scores they got for the whole online semester. The Pearson correlation coefficient for the self-efficacy part is .328**, and the sig (two-tailed) is .001, and N is 100. Overall, the correlation is significant at the 0.01 level, which led to the confirmation of Hypothesis 3.

DOI: 10.54254/2753-7048/7/2022998

Table3: Descriptive analysis of the online learning self-efficacy part of the scale.

| Total scores of students' response to self-efficacy scale (range) | Count | % | Total (%) |
|---|---|---|---|
| 13-26 | 3 | 3 | 25 |
| 26-39 | 22 | 22 | |
| 39-52 | 46 | 46 | 75 |
| 52-65 | 29 | 29 | |

### 4.3. Online Learning Satisfaction and Students' Final Scores

Similarly, the researcher analyzed the data from the online learning satisfaction part of the scale using descriptive analysis and found that although students are-generally-satisfied with online learning, the satisfaction rate was slightly above60%, at 62%. It means that Hypothesis-2 was proven though therewere-still-38 of them-found online-learning unsatisfactory for them(See-Table-4).

However, no significant correlation between online learning satisfaction and-students' final scores can be proven according to the correlational-analysis. The Pearson correlation coefficient comes out to be-.105, and-the-sig-(2-tailed)-is .297, and-N-is-100.-Overall, the-correlation-between-students'satisfaction-with-online-courses and the-scores of their online-learning -semester is not-significant, which-is -opposite to-Hypothesis-4.

Table4: Descriptive analysis of the online learning satisfaction part of the scale.

| Total scores of students' response to satisfaction scale (range) | Frequency | Percent | Total |
|---|---|---|---|
| 12-24 | 5 | 5 | 38 |
| 24-36 | 33 | 33 | |
| 36-48 | 51 | 51 | 62 |
| 48-60 | 11 | 11 | |

### 4.4. Correlation between Online Learning Self-efficacy and Students' Satisfaction with Online Learning

This study also examined whether there is a correlation between students' online learning self-efficacy and their learning satisfaction with correlational analysis. And it proves Hypothesis 5. The result shows that there is a significant correlation with the Pearson correlation coefficient to be .607**, the sig (two-tailed) .000, and N is 100. Overall, the correlation is significant at the 0.01 level.

### 4.5. Influential Factors on Online Learning and How to Deal with Them

Apart from exploration of students' online learning self-efficacy, online learning satisfaction, and final scores, the study also gathered information on the students' perceptions of the influences they felt while learning online. For the first open question, 17 students failed to respond to it. And among students who actually responded, the count of students mentioning "bad network connection" is 26, followed by "poor self-discipline" at 24. Then 11 students chose "a lack of concentration" to be the influential factor. Another 11 people, somehow, thought "the influence of smartphones" is worth mentioning. 9 of the students mentioned that "a lack of interactivity" could influence their online learning. And 5 students blamed "a lack of learning atmosphere at home". Another 5 students pointed out that distractions caused by their family, friends, and classmates could result in bad online learning outcomes. Factors such as poor eye health, video games, Covid influence, poor stability of the online

DOI: 10.54254/2753-7048/7/2022998

platform, a lack of motivation, and so on were also mentioned. In short, the major influential factors in students' eyes were derived from the network connection, their own self-discipline, concentration deficiency, and the smartphone. Although the distraction factor presumed in Hypothesis 6 is not even close, the main influential factors are clearly sorted out.

Regarding how to deal with the above problems and improve their online study, 72% of students failed to provide an answer. And those who answered were focused on the supervision of parents and teachers, the improvement of their own discipline, and strict control of the time that they get to use the phones.

## 5. Discussion

### 5.1. Online Learning Self-efficacy, Satisfaction and Students' Final Examination Scores

Firstly, this study not only suggests that elementary school and middle school children in China tend to have high confidence in their ability to learn knowledge online but also indicates that there is a positive correlation between students' online learning self-efficacy and their examination scores gained throughout the online semester. The results of this study are in line with those of many studies. Akturk and Ozturk also point out that students' academic self-efficacy is the most important variable that influences their general academic achievement [19]. Hsieh, Sullivan, and Guerra find students' self-efficacy could potentially increase their academic achievement [20]. Studies by Nasir and Iqbal and Sharma and Nasa also indicate a positive correlation between students' learning self-efficacy and their academic achievement only in different contexts [21,22]. To dig further, according to Komarraju and Nadler, it is one of the components of students' self-efficacy that is actually related to students' positive academic performance [23].

Secondly, the study shows that students in the 5th, 6th, and 7th grades are generally satisfied with online education. But despite the fact that students do not reject online education, whether they are satisfied with online learning or not does not correlate with their academic achievements in this study, which probably means that younger students can gain certain academic achievements even though they are discontent with online learning. Such kind of conclusion contradicts the statement that "students' satisfaction has a positive effect on students' performance" in the study which directly explored the linkage between student satisfaction and their performance [24].

Last but not the least, this study proves that students' online learning satisfaction and their self-efficacy toward online learning are indeed correlated. This result is in line with the statement that "students' confidence to learn online was the strongest positive predictor of satisfaction and usefulness of online classes" [25]. Similarly, according to Prifti, students' self-efficacy has a big impact on how satisfied they are with the course, which demonstrates a robust link between student self-efficacy and course satisfaction [26].

### 5.2. Problems and Solutions

This study also investigates what factors could possibly influence students' online learning. And it turns out that outside distractions are deemed as one of the least influential factors by students. On the contrary, poor network connection is the biggest concern for influencing students' online study. However, how to solve such kind of problem seems to be beyond the capabilities of students in grades 5 to 7, which probably explains the poor response rate on the second open question.

## 6. Conclusion

It is concluded from the study that there is a positive correlation between students' online learning self-efficacy and their academic achievements. A positive correlation can also be found between

DOI: 10.54254/2753-7048/7/2022998

online learning self-efficacy and students' satisfaction with the online learning course. However, students' satisfaction level does not seem to be correlational to their final grades in spite of the fact that students are pretty content with online learning itself and their online learning capabilities.

This study explores whether pupils in China find online learning and their abilities to participate in online learning satisfactory or not. It is a case in which participants are students from elementary school and middle school. Also, the study examines students' attitudes in an online learning context, providing a possible way to further explore the relationships between students' satisfaction, self-efficacy, and academic performance.

This study has two limitations. Firstly, due to the limitation of time, only 100 participants and 100 questionnaires were recruited and collected in this study, which means the sample may be inadequate. Secondly, this paper mainly focused on elementary school and middle school students in Shijiazhuang City, Hebei Province. And different regions in China may present very different characteristics.

## References


[1] *Xie, Z., & Yang, J. (2020). Autonomous learning of elementary students at home during the Covid-19 epidemic: A case study of the second elementary school in Daxie, Ningbo, Zhejiang Province, China. Ningbo, Zhejiang Province, China (March 15, 2020).*

[2] *Ruiz, J. G., Mintzer, M. J., & Leipzig, R. M. (2006). The impact of e-learning in medical education. Academic medicine, 81(3), 207-212.*

[3] *Sambrook, S. (2003). E-learning in small organisations. Education+Training.*

[4] *Baber, H. (2020). Determinants of students' perceived learning outcome and satisfaction in online learning during the pandemic of Covid-19. Journal of Education and e-learning Research, 7(3), 285-292.*

[5] *Utomo, G. M., Setiawan, B., Rachmadtullah, R., & Iasha, V. (2021). What Kind of Learning Media do You Want? Need Analysis On Elementary School Online Learning. Jurnal Basicedu, 5(5), 4299-4305.*

[6] *Welsh, E. T., Wanberg, C. R., Brown, K. G., & Simmering, M. J. (2003). E‐learning: emerging uses, empirical results and future directions. international Journal of Training and Development, 7(4), 245-258.*

[7] *Hrastinski, S. (2008). Asynchronous and synchronous e-learning. Educause quarterly, 31(4), 51-55.*

[8] *Bezovski, Z., & Poorani, S. (2016, March). The evolution of e-learning and new trends. In Information and Knowledge Management (Vol. 6, No. 3, pp. 50-57). IISTE.*

[9] *Ke, F., & Kwak, D. (2013). Online learning across ethnicity and age: A study on learning interaction participation, perception, and learning satisfaction. Computers & education, 61, 43-51.*

[10] *Islam, A. A., Mok, M. M. C., Xiuxiu, Q., & Leng, C. H. (2018). Factors influencing students' satisfaction in using wireless internet in higher education: Cross-validation of TSM. The Electronic Library.*

[11] *Chingos, M. M., Griffiths, R. J., Mulhern, C., & Spies, R. R. (2017). Interactive online learning on campus: Comparing students' outcomes in hybrid and traditional courses in the university system of Maryland. The Journal of Higher Education, 88(2), 210-233.*

[12] *Jiang, Z., & Zhao, C. (2018). Learner satisfaction: The ultimate destination of teacher support behavior in online learning. Modern Distance Education, 35(6), 51–59.*

[13] *Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. Psychological review, 84(2).*

[14] *Zimmerman, B. J., & Bandura, A. (1994). Impact of self-regulatory influences on writing course attainment. American educational research journal, 31(4), 845-862.*

[15] *Wong, R. (2020). When no one can go to school: does online learning meet students' basic learning needs?. Interactive learning environments, 1-17.*

[16] *Farley, H. (2020). Promoting self‐efficacy in patients with chronic disease beyond traditional education: A literature review. Nursing open, 7(1), 30-41.*

[17] *Corry, M., & Stella, J. (2018). Teacher self-efficacy in online education: a review of the literature.*

[18] *Lin, Y. M. (2005). Understanding students' technology appropriation and learning perceptions in online learning environments. University of Missouri-Columbia.*

[19] *Akturk, A. O., & Ozturk, H. S. (2019). Teachers' TPACK Levels and Students' Self-Efficacy as Predictors of Students' Academic Achievement. International Journal of Research in Education and Science, 5(1), 283-294.*

[20] *Hsieh, P., Sullivan, J. R., & Guerra, N. S. (2007). A closer look at college students: Self-efficacy and goal orientation. Journal of Advanced Academics, 18(3), 454–476. https://doi.org/10.4219/jaa- 2007-500*

[21] *Nasir, M., & Iqbal, S. (2019). Academic Self Efficacy as a Predictor of Academic Achievement of Students in Pre Service Teacher Training Programs. Bulletin of Education and Research, 41(1), 33-42.*

DOI: 10.54254/2753-7048/7/2022998

[22] *Sharma, H. L., & Nasa, G. (2014). Academic self-efficacy: A reliable predictor of educational performances. British Journal of Education, 2(3), 57-64*

[23] *Komarraju, M., & Nadler, D. (2013). Self-efficacy and academic achievement: Why do implicit beliefs, goals, and effort regulation matter? Learning and Individual Differences, 25, 67–72. https://doi.org/ 10.1016/J.LINDIF.2013.01.005*

[24] *Gopal, R., Singh, V., & Aggarwal, A. (2021). Impact of online classes on the satisfaction and performance of students during the pandemic period of Covid 19. Education and Information Technologies, 26(6), 6923-6947.*

[25] *Landrum, B. (2020). Examining Students' Confidence to Learn Online, Self-Regulation Skills and Perceptions of Satisfaction and Usefulness of Online Classes. Online Learning, 24(3), 128-146.*

[26] *Prifti, R. (2022). Self–efficacy and student satisfaction in the context of blended learning courses. Open Learning: The Journal of Open, Distance and e-Learning, 37(2), 111-125.*