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Korean University Students' Attitudes, Perceptions, and Evaluations of Asynchronous Online Education in Korean Higher Education

Ji-Young Chung
Kyunghee University, South Korea

Seung-Hoon Jeong*
Woosuk University, South Korea

Abstract. Asynchronous online learning is an educational approach in which students can access course materials and complete assignments independently, without synchronous participation by an instructor or peers. After the outbreak of the COVID-19 pandemic, many higher education institutions implemented online education for university students. This research recognizes the importance of online education and focuses on Korean university students' experiences of asynchronous online education in Korean higher education. The study implemented a mixed method approach that used a course exit survey (n = 44) and focus-group interviews (n = 6) to examine Korean university students' perceptions, attitudes, and evaluations of asynchronous online education. The study found that online courses provide a flexible learning environment for university students. Also, university students were highly satisfied with asynchronous online courses and were willing to retake online courses next semester. Furthermore, students' evaluations indicated that online education effectively achieved the course goal. However, the interview data exposed some challenges posed by asynchronous online education. For example, if the course content was practice-based, including field practicum, students preferred a face-to-face course with the on-site instructor. Finally, several implications are discussed for effectively constructing asynchronous online education in higher education.

Keywords: online education; asynchronous online learning; higher education; university students; mixed method study

1. Introduction

Online education involves delivering education and learning materials through digital and online means, which enables students to study remotely. Technology

* Corresponding author: *Seung-Hoon Jeong, hoon@khu.ac.kr*

advancements have made online education a popular mode of delivering lectures in higher education, particularly at the university level (Almusharraf & Khahro, 2020; Cole et al., 2014). A literature review of online education for university students reveals several benefits of this mode of delivery (Ren, 2023). Firstly, it provides greater flexibility for students and allows them to study at their own pace, in their own time, and from any location (Ashong & Commander, 2012; Chen et al., 2021). Secondly, it could be more cost effective than traditional, on-campus education, as students do not incur costs for commuting, housing, or other expenses associated with on-campus study (Ashong & Commander, 2012; Chen et al., 2021). Lastly, online education can provide greater access to education for students with barriers to traditional on-campus study, such as those living in rural or remote areas (Almusharraf & Khahro, 2020; Cole et al., 2014).

Asynchronous online learning is an educational approach that enables students to access course materials and complete assignments independently, without synchronous participation by an instructor or peers (Cole et al., 2014; Chung et al., 2020). A literature review of asynchronous online learning found that the approach has several benefits. Firstly, it provides greater flexibility and access for students by allowing them to balance their educational pursuits with work and other responsibilities (Gopal et al., 2021; Hixon et al., 2016). Secondly, asynchronous online learning can facilitate greater student engagement and interaction through online discussion forums and other online tools (Gopal et al., 2021; Hixon et al., 2016). Additionally, this approach can reduce barriers to education, such as geography, time, and cost (Elshami et al., 2021; Gonzalez et al., 2020).

Although studies have been conducted in this field, further research could widen the field by including different educational contexts and diverse higher education settings. In addition, little research specifically explores Korean university students' evaluations, attitudes toward, and perceptions of asynchronous online education. Therefore, this research focused on university students' online education experiences in Korean higher education. The research question was, What are Korean university students' perceptions of, attitudes towards, and evaluations of asynchronous online education in Korean higher education?

2. Literature Review

Online education refers to a mode of education delivery that allows students to study from a remote location, typically through online platforms and materials, rather than in a traditional classroom setting (Chen et al., 2022). This type of education is designed to provide flexibility and convenience for students concerning scheduling and geographical and other constraints that prevent them from attending traditional, on-campus lectures (Ren, 2023; Tarchi et al., 2022). Specifically, online education in higher education uses technology and online platforms to deliver college-level courses and programs to students who are not physically present in a traditional classroom setting (Chen et al., 2022; Ren, 2023). This mode of education is becoming increasingly popular in higher education due to its flexibility and convenience for students and its ability to reach a wider audience (Tarchi et al., 2022).

Online education can take many forms in higher education, including online degree programs, hybrid courses that combine online and in-person instruction, and Massive Open Online Courses (MOOCs). These programs typically use a combination of multimedia materials, such as video lectures, discussion forums, and interactive assignments, to provide university students with a comprehensive educational experience. Studies have shown that asynchronous online learning effectively improves university student outcomes, particularly for highly motivated students who can learn independently (Lee et al., 2021; Ren, 2023). It also provides opportunities for university students to enroll in courses and programs that may not be available in their local area. It allows students to balance work and other life responsibilities with achieving their education goals.

Research on the effectiveness of asynchronous online learning has produced mixed results. Some studies show that it can be as effective as traditional on-campus education, and others show that it falls short in certain areas. Positive results of asynchronous online learning include increased access to education for students in remote or underserved areas, greater flexibility for scheduling, and the ability to learn at one's own pace (Cole et al., 2014; Hixon et al., 2016). Also, by using a learning management system (LMS), asynchronous online learning could boost university students' collaborative activities (Jeong, 2019; Ren, 2023). For instance, in Jeong's (2019) study, participants indicated online collaborative English learning activities as positive and motivating learning experiences. Specifically, collaborative online English reading instruction improved university students' English learning performance. Participants also mentioned the affectivity and metacognitive benefits of collaborative online EFL (English as a Foreign Language) learning activities for learner motivation and classroom engagement.

However, asynchronous online learning can also have drawbacks. For example, some studies have found that university students doing online courses may be less engaged and motivated than their on-campus counterparts, and may struggle with a lack of interaction and community. Additionally, students enrolled in online courses may experience technical difficulties and may lack access to resources (Grynyuk et al., 2022; Zarei & Mohammadi, 2022). For example, Zarei and Mohammadi (2022) argue that developed countries have established and adjusted their technological infrastructure to transition from face-to-face (F2F) to digital education, including asynchronous online education. In contrast, the authors claim that developing countries were unprepared for this transition. Specific examples include deficient technological and practical applications. Similarly, Grynyuk et al. (2022) report several problems of a technological nature associated with the digital infrastructure of Ukraine's higher education institutions, among which unequal access for teachers and students to electronic devices and Internet connection; and an unmet need for special training programs for teachers to carry out online instruction.

Several recent studies report challenges relating to transitioning from F2F to an online education format in the early days of the COVID-19 pandemic. The effectiveness of asynchronous online learning can be greatly influenced by factors

such as the quality of instruction, the use of technology, and the level of student support provided (Chen et al., 2022; Ren, 2023). Overall, studies on online education suggest that asynchronous online learning can be an effective form of education, though its success may depend on individual circumstances and implementation (Grynyuk et al., 2022). The trend towards online education will likely continue, driven by technological advancements, the increasing demand for flexible and accessible education options, and the ongoing COVID-19 pandemic, which accelerated the shift to online learning (Zarei & Mohammadi, 2022).

3. Methodology

3.1. Study Participants

The current study was conducted at a private university in South Korea. Asynchronous online education requires the course instructor to prerecord lecture videos in advance, and there is no fixed lesson time. In addition, all course materials are uploaded to the LMS before the course and academic semester begin. Therefore, the researchers recruited online course instructors to participate in the survey. One course instructor agreed to participate in the research on three online courses provided at the Korean university. The total number of students in the online course was 95, of whom 44 voluntarily participated in the course exit survey. The survey participants' sampling was done conveniently, with the help of the course instructor. Of the final survey participants, 20 identified as male and 24 as female, and most of the participants were juniors and senior-year students. The students' majors varied and included counseling psychology (12), fire and disaster prevention (7), rehabilitation (4), and information security (2). Most students earned a GPA of 3.5 or higher. Table 1 shows the demographic data of survey participants.

Table 1: Demographic Data of Survey Participants

Category	Frequency (N = 44)	Percent (%)
Gender		
Male	20	45.5
Female	24	54.4
Grade Levels		
Freshman	4	9.1
Sophomore	8	18.2
Junior	14	31.8
Senior	18	40.9
Majors		
Architecture	2	4.5
Computer Engineering	1	2.3
Counseling Psychology	12	27.3
Early Childhood Special Education	2	4.5
Fashion Design	1	2.3
Fire and Disaster Prevention	7	15.9
Hotel Catering Culinary Arts	2	4.5
Information Security	2	4.5

Life Science	1	2.3
Mathematics Education	1	2.3
Military Service	1	2.3
Military Technology	1	2.3
Music	2	4.5
National Defense	2	4.5
Oriental Pharmacy	1	2.3
Physical Education	1	2.3
Police Administration	1	2.3
Rehabilitation	4	9.1
GPA		
2.0–2.5	1	2.3
2.5–3.0	6	13.6
3.0–3.5	7	15.9
3.5–4.0	16	36.4
> 4.0	14	31.8

3.2. Data Collection and Data Analysis

Data were collected after the 2022 fall semester. Informed consent forms were provided and collected before the online course survey was administered. The survey for this research was based on previous studies (Aguilera-Hermida, 2020; Almusharraf & Khahro, 2020; Lee et al., 2021), with some modifications to fit the research purpose and context. The survey implemented a 5-point Likert scale, ranging from (1) strongly disagree to (5) strongly agree, to measure the respondents' agreement with statements related to satisfaction.

After the survey was administered, the researchers recruited focus group interview participants to explore Korean university students' experiences of asynchronous online education further. A total of six students participated voluntarily; we conducted two groups, each with three interview participants. Each interview lasted about 40–50 minutes. There was no reward or compensation for participating in the interviews—participation was voluntary.

Concerning qualitative data analysis, thematic analysis was used to analyze the focus group interview data. First, video recordings of the interviews were listened to repeatedly to ensure accurate transcription, and saved to Google Drive. Second, the research team developed initial codes and sub-codes while working through the interview transcription. Third, the research team developed themes to identify significant patterns of meaning. Fourth, several themes, including similarities and differences between participants, were combined and reduced to the most frequently referred to categories. Fifth, the research team defined and renamed abstraction and data reduction themes. In the last step, the interview data analysis was compared and contrasted with quantitative data analysis to create a final report.

Table 2: Interview Participants

Participant	Gender	Majors	Academic Years	Previous Online Education Experience
Participant 1	Female	Early Childhood Education	Junior	O
Participant 2	Female	Early Childhood Education	Sophomore	X
Participant 3	Female	Global Business	Junior	O
Participant 4	Female	Global Business	Senior	X
Participant 5	Male	Physical Education	Senior	O
Participant 6	Male	Physical Education	Senior	X

4. Results

4.1. Survey Results

According to the university students' survey responses, almost all participants (n= 36, 81.8%) were involved in asynchronous online lectures using computers or laptops at home. Over half the participants indicated they would like to watch the online course in one sitting (n = 27, 61.4%) and always watched it in the afternoon (n = 33, 75%). In addition, students reported that they worked on a variety of learning activities in online lectures, including specific tasks (n = 36, 81.8%), quizzes (n = 32, 72.7%), peer discussions (n = 21, 47.7%). The students also reported that the instructors often implemented a variety of course materials, including attachment formats (n = 36, 81.1%), text descriptions (n = 28, 63.3%), and URLs (n = 17, 38.6%) for lecture material.

Table 3: Background Information on Online Courses

Category	Frequency (N = 44)	Percent (%)
Medium of online education		
Smartphones and Smart Pads	8	18.2
Desktop or Laptop Computer	36	81.8
Where located when taking online courses		
Home	36	81.8
School	3	6.8
Others	5	11.4
Online lecture viewing time		
I watch online lectures according to the real class time	9	20.5
I watch online lectures in the morning (0:00–12:00)	2	4.5
I watch online lectures in the afternoon (12:00–24:00)	33	75.0

Learning activities		
Using notice board	20	45.5
Specific task on the topic	36	81.8
Online quiz	32	72.7
Online discussion	21	47.7
Opinion gathering/voting	7	15.9
Chatting	8	18.2
Group activities	6	13.6
Online lecture materials		
Text description	28	63.6
Attachment formats	36	81.8
URL	17	38.6

Table 4 provides the descriptive statistics for the survey.

Table 4: Descriptive statistics of survey results

Question	M	SD	Cronbach's α
Category: Perceptions of and attitudes towards online education			
1. I actively participated in online learning	3.95	1.200	
2. I did pre-learning and post-learning about online lectures	3.36	1.036	
3. I participated in the online learning activities suggested by the instructor	4.00	1.057	
4. I actively expressed my opinion to the instructor	3.43	1.065	
5. The syllabus (including the revised version) contains detailed information about online learning	3.68	.959	
6. The instructor provided an appropriate evaluation method to confirm the achievement of learning goals	3.89	.970	
7. The instructor suggested learning content considering the characteristics of online lectures	3.91	.960	.875
8. The instructor provided an effective online teaching method to promote participation in learning	3.89	.920	
9. The instructor's speaking speed, volume, and clarity suit the learners	4.05	.776	
10. I always had access to the LMS	3.93	1.129	
11. The LMS for online lectures was configured uniformly	3.86	1.025	
12. Online lectures included explanations of learning methods.	3.95	.861	
13. LMS included guidance and inspection of learner progress	3.82	1.040	

14. I could participate in online lectures regardless of the device	3.30	1.503	
15. Online learning provides flexible learning	3.82	.995	
16. Learners could stop and play the video whenever they wanted.	4.11	1.017	
17. Learners were able to learn at their own pace	3.73	1.086	
18. LMS was created considering the accessibility of learners	3.73	.973	
19. The interactions between learners and learners proceeded smoothly	3.32	1.196	
20. The interaction between the instructor and learner was smooth	3.52	1.131	
21. In the remote lecture, the person in charge provided accurate and prompt information to learners	3.64	1.143	
Category: Satisfaction with online education			
1. Online learning was effective in achieving the course goal	3.89	1.061	
2. Learning through online classes was a valuable experience	3.80	1.173	.901
3. Learning through online learning was positive	3.91	1.137	
4. I will continue to take online lectures next semester	4.18	1.147	

The survey results indicate that Korean university students' overall perceptions of and attitudes toward asynchronous online education were positive. Specifically, the university students indicated that they actively participated in online lectures (3.95 ± 1.200). Also, they reported that they participated in the online learning activities, which were guided by the instructor (4.00 ± 1.057).

Furthermore, the students reported the asynchronous online courses were very systematic. Additionally, the students rated the instructor highly; they evaluated the instructor-provided content based on characteristics of online education (3.91 ± .960). In particular, Korean university students reported that the instructor provided an appropriate evaluation method to confirm the achievement of learning goals (3.89 ± .970) and used an effective online education teaching method to promote participation in learning (3.89 ± .920).

Second, university students reported finding asynchronous online education a consistent and flexible teaching method. For example, they said online education included explanations of learning methods (3.95 ± .816), and the LMS included guidance and assessment of learner progress (3.82 ± 1.040). In particular, they found that asynchronous online education provided flexible learning (3.82 ± .995). For example, they could stop and play the video whenever they wanted (4.11 ± 1.017) and learn at their own pace (3.73 ± 1.086).

Third, the university students reported smooth interaction could be achieved in asynchronous online education through the LMS, including interactions between learners (3.32 ± 1.169) and the instructor and learners (3.52 ± 1.131). Finally, students reported another benefit of asynchronous online education: instructors provided learners with accurate and prompt information (3.64 ± 1.143).

Finally, Korean university students were highly satisfied with asynchronous online education and were willing to retake the online courses the next semester (4.18 ± 1.147). Furthermore, they evaluated asynchronous online education as effective in achieving the course goal (3.89 ± 1.061). In addition, they reported overall positive attitudes towards learning (3.80 ± 1.173) and that online education offered a valuable experience (3.91 ± 1.137).

4.2. Results from interviews

Data analysis gathered in the interviews can be divided into three themes, namely 1) course instructors' online teaching methods, 2) school support, such as accessibility, and 3) the challenges of asynchronous online learning. Full interview questions are given in the Appendix.

1) Instructors' online teaching methods

Most interview participants were satisfied with the instructors' online teaching methods. Among various online teaching methods, the instructors 1) pre-distributed class materials on the LMS; and 2) provided differentiated instruction for and assessment of students. These results correspond with the survey results. Several representative examples from the interview transcripts are provided.

> *I am quite satisfied with the online course because the instructor provided course materials in advance. If it were the F2F course, the instructor might not share the materials before the class (student #3).*

> *The course materials are already posted in the LMS, and some faculty posted the study guide we can follow. So, it was beneficial for us to follow the schedule and deadline of the assignment (student #2).*

2) School support

Most interview participants were satisfied with the support provided by the school, including access to the Internet, maintaining the LMS, and responding to students' inquiries and requests during online learning. In addition, the participants mentioned that when they had connectivity issues, they always received the proper service from the university staff for online education. Thus, they had not experienced much difficulty accessing the university homepage, the LMS, and the Internet. Representative examples from the interview transcripts are the following.

> *Whenever I had an access issue to LMS, the school staff was kind enough to check the site and fix the problem so that I could continue my online learning (student #6)*

> *I think the LMS is a user-friendly platform. Unfortunately, it sometimes had issues of misconnecting due to maintenance, but the school staff*

announced it to us immediately, and it was recovered in a few hours (student #4).

3) Challenges of online learning

Although interview participants are generally satisfied with the online learning presented by the university, a few interviewees indicated that they preferred F2F lectures because they missed many opportunities to interact closely with professors and make friends, as they would during the F2F lectures. In addition, a few students suggested that implementing a blended learning curriculum; they believed this would be the best online learning approach. Specifically, those participants would like to take asynchronous online courses for theory-driven courses, but preferred F2F courses when the content was practice-based. These results indicate the limitations of online education, which are due to the characteristics of each course type. A representative sample from the interview transcripts is given below.

The school curriculum can be shifted to a blended learning format so that students can take online courses for theory-driven lectures and receive a F2F course if the content includes practice-based and field practicum. If the school curriculum can shift to a flexible model, it could benefit students (student #1).

Some courses could be blended learning, such as 2 hours online and one hour of F2F course based on the course purpose and goals. When the COVID situation ended, a blended format might be a better choice for students (student #5).

5. Discussion

This research focused on Korean university students' attitudes, perceptions, and satisfaction with asynchronous online education. The study results are that Korean university students' perceptions of and attitudes toward asynchronous online education were positive overall. Specifically, they participated in asynchronous online education actively; they indicated that they participated in the online learning activities guided by the instructors accordingly. They also reported that the course instructors suggested learning content that considered the characteristics of asynchronous online education. For instance, Korean university students said that the instructor provided appropriate course materials, used suitable evaluation methods to confirm the achievement of learning goals, and provided an effective online education teaching method to promote participation in learning.

These results are consistent with previous studies on the benefits of asynchronous online education. For example, it has been suggested that students' online learning satisfaction is heavily influenced by the effectiveness of course instructors' online teaching and learning strategies. Therefore, this study's results confirm that of other studies on the benefits of online education (Cole et al., 2014; Hixon et al., 2016; Lee et al., 2021).

Second, Korean university students responded that asynchronous online education was a consistent and flexible teaching and learning method. They

believed that asynchronous online education included explanations of learning methods, and the LMS provided guidance and monitored learner progress. In particular, they evaluated that asynchronous online education provided flexible learning. For example, they could stop and play the video when they wanted and learn at their own pace.

These results are also consistent with other studies, which have documented that asynchronous online education provides greater flexibility for students by allowing them to study at their own pace, in their own time, and from any location (Chen et al., 2021; Maheshwari 2021; Rahiem, 2020). Additionally, online education can provide greater access to education for many students with barriers to traditional on-campus study, such as those living in rural or remote areas (Chen et al., 2022; Muthuprasad et al., 2021; Stewart & Lowenthal, 2021). Thus, Korean university students preferred to take online courses due to the convenience of heightened accessibility – they could learn from any place and at any time.

Thirdly, study participants were highly satisfied with asynchronous online education and were willing to enroll for courses again the next semester. They evaluated asynchronous online learning as effective in achieving the course goal. They reported that asynchronous online education was a valuable experience. In addition, they could interact with peers in the LMS and complete collaborative activities and assignments at a time that suited them. The literature reports that online learning can facilitate greater student engagement and interaction through discussion forums and other online tools (Ren, 2023; Tarchi et al., 2022). In conclusion, this study found that online education has several benefits, including greater flexibility, accessibility, and student engagement.

However, the interview analysis revealed some challenges in online learning. For instance, if the course content is practice-based, including field practicum and internship, study participants preferred a F2F course with an on-site instructor. Thus, it is concluded that students would prefer if the university and administration offered a blended learning curriculum that provides a flexible course format. Concerning this result, the literature supports this finding on the limitations of asynchronous online learning without real class time (Karkar-Esperat, 2018; Tang et al., 2021). Thus, it is suggested that online education could be more suitable for developing content or theory-driven courses, not practice-based courses, such as internship components. Therefore, the course instructors and administration should select which university courses should be presented online. Lastly, it is concluded that a flexible curriculum, including blended learning, should be offered to meet Korean university students' diverse needs regarding course type and format.

6. Conclusion

During the COVID-19 pandemic, many higher education institutions worldwide implemented online education for university students. This research recognized the importance of asynchronous online education and focused on Korean university students' experiences with online education. Specifically, the study examined Korean university students' perceptions of, attitudes toward, and

evaluations of asynchronous online education. Study results showed that asynchronous online courses provided a flexible learning environment for Korean university students. Also, university students were highly satisfied with asynchronous online courses and were willing to continue with courses the next semester.

Furthermore, study participants evaluated that asynchronous online education effectively achieved the course goal. However, the interview data showed some challenges of asynchronous online education. For example, if the course content was practice-based, including field practicum, students preferred to have a F2F course with the on-site course instructor. Finally, several implications were discussed for effectively constructing asynchronous online education in higher education.

7. Recommendations

This study provides several recommendations for online education for diverse higher education environments. First, concerning the practical use of asynchronous online learning, university course instructors should provide clear instructions and guidance on navigating the online learning platform and accessing course materials. University students should also have easy access to technical support (Muganga et al., 2021). Also, course instructors should provide regular feedback on students' assignments and assessments. Regular feedback by instructors is essential for university students to understand their strengths and weaknesses and identify improvement areas. In addition, online education should provide opportunities for social interaction and collaboration in the LMS. Finally, course instructors should use online tools and activities that facilitate asynchronous online interaction, such as discussion forums and group projects.

Regarding the direction of future research, it is recommended that studies investigate students' diversity in characteristics, learning abilities, and access to technology. These dimensions are critical for designing productive online learning environments. Lastly, future studies should continuously evaluate and improve the quality of online instruction and student outcomes. This type of research can include collecting feedback from students, analyzing course data, and using best practices in asynchronous online education (Novikov, 2020).

8. Limitations

Although the results of this study can be valuable for understanding Korean university students' asynchronous online education experiences, the results were provided in a specific context. Therefore, the results could differ for a different institution with a different international student population. Thus, a study in a more diverse context and a larger population is recommended. Furthermore, the participants were sampled with convenience sampling, and a random sampling approach in a broader context might add significance to future research.

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Appendix 1

Interview Questions

1. What are your general thoughts on asynchronous online education?
2. Have you taken any asynchronous online courses before? If so, what were your your experiences?
3. How do you typically approach learning in an asynchronous online environment?
4. Do you feel that asynchronous online education provides the same quality as traditional in-person or synchronous online courses? Why or why not?
5. What advantages do you see in taking asynchronous online courses?
6. What challenges have you encountered while taking asynchronous online courses?
7. How do you feel about the level of interaction with your peers and instructors in asynchronous online courses?
8. Have you noticed any differences in your performance or grades in asynchronous online courses compared to traditional in-person or synchronous online courses?
9. What improvements could be made to enhance the quality of asynchronous online education?
10. Would you prefer to continue taking asynchronous online courses in the future, or do you prefer in-person or synchronous online courses? Why?