Investigating the dimensions of students' interaction in listening online learning environment amidst Covid-19 pandemic

Arum Nisma Wulanjani*, Candradewi Wahyu Anggraeni, and Sukma Shinta Yunianti
Department of English Education, Faculty of Education and Teacher Traning, Universitas Tidar, Jl. Kapten Suparman No.39, Tuguran, Potrobangsan, Kec. Magelang Utara, Kota Magelang, Jawa Tengah 56116, Indonesia

ABSTRACT
The existence of the COVID-19 pandemic forces the Indonesian government to carry on online learning at all education levels, to keep the teaching and learning going on. For students, this ongoing online learning has brought about various impacts on their online learning success. One important factor determining online learning success is students' interaction. Thus, paying more attention to whether an online learning environment has promoted the students' interaction is crucial to creating successful online learning. This study aimed to investigate the dimensions of students' interaction in the online listening learning environment. Moreover, this study also tried to explore how students perceived the interaction in the online listening learning environment. There were 78 students majoring in English Education as participants in this study. A convergent mixed-method was applied in this study, in which the results of the quantitative and qualitative data analysis were brought together. A modified questionnaire of OLLES (Online Learning Environment Survey) and a close-ended interview were carried out to gather the data. The results showed that the dimensions of interaction in the online listening learning environment had a statistically significant high rating. The interaction between the lecturer and the students placed the highest among all of the dimensions. Overall, all the dimensions of interaction in online listening learning were highly perceived by the students. The implications suggested that providing well-designed authentic materials, collaborative activities, and asynchronous models were needed to support the students' online learning performance.

Keywords: Dimensions of interaction; online learning; online learning environment; online learning interaction

INTRODUCTION
Facing the Covid-19 pandemic since the first quarter of 2020 has brought some impactful global changes in the educational system, including a shift in teaching mode for all education levels or institutions. Due to the pandemic, the Indonesian government set policies through the Ministry of Education and Culture to conduct and transfer traditional face-to-face learning to distance or online learning (Churiyah et al., 2020; Laksana, 2020). The higher education institutions were required to respond quickly by conducting online learning due to the circumstance. Online learning is needed to keep all the agents, including the students, lecturers, staff, faculty, societies, and nation, safe (Dhawan, 2020; Laili & Nashir, 2021). In brief, instead of only offline education, online learning necessitated

---

* Corresponding Author
Email: arum_nisma@untidar.ac.id

faculty initiatives to support improvements in online learning programs.

Online learning provides unique features of a learning management system, enjoyable and engaging learning, and encouraging tasks that enhanced students' participation, motivation, self-discipline, and autonomy in an online learning environment. Those features could impressively gain students' interaction in an online learning environment (Rojabi, 2020). Moreover, some innovative and interactive modes of content delivery seemed to be other appealing factors for students to engage in online learning since the modes significantly influenced their satisfaction and perception (Dhull & Saskhi 2019; Garrison & Innes, 2005; Robledo & Ayala, 2018; Swan, 2001; Turley & Graham, 2019). Those previous studies show that it is undeniable that online learning has brought many benefits to the world of education, as postulated by several online researchers (Aljawarneh 2020; Alomyan 2017; Atmojo & Nugroho, 2020; Linjawi & Alfadda, 2018). Thus, online learning has become the most promising way to sustain education amidst Covid-19 era. (Teguh, 2013)

Considering the positive contributions of online learning, there are four themes related to effective online course design and facilitation such as students' success, clarity and relevance of content structure, learning community presence, and prepared and agile educator (Dunlap & Lowenthal, 2018). By reflecting on previous research, it showed that students' and lecturers' perspectives on online learning are dominated by positive perspectives, providing opportunities to use online learning even after COVID-19 in the upcoming curriculum (Simamora et al., 2020). As more universities were demanded in conducting online learning, even for the next few years, taking the online learning environment into account was an important consideration in conducting sustainable online learning.

Those deeper discussions related to how interactions in online learning will also become an urgent focus on the grounds of the Indonesian government's decision to include online learning in education in the following years. An evaluation regarding interactions in online learning environment is a commitment to ensure the quality of online learning. Thus, this study aimed to investigate the dimensions of students' interaction and explore how students perceived the interaction in the online listening learning environment.

Online Learning Environment
The online learning environment involves various aspects of the teacher's role, students' role, digital tools, digital resources, and instructional design (Martín et al., 2021). A positive online learning environment will also ensure the sustainability of online learning. Furthermore, the essence of an online learning environment is interactions between individuals, groups, and the setting they operate (Clayton, 2007). A number of studies have addressed the need for interactions in the online learning environment. Interaction in an online learning environment can increase relationships between students and their peers, students and their teachers, and students and learning content where they communicate and interact through those relationships (Händel et al., 2020; Weidlich & Bastiaens, 2018; Wulanjani & Indriani, 2021). Hence, providing interactions in an online learning environment means facilitating those relationships experienced by the students. The experience of having those kinds of relationships will prevent them from feelings of isolation in online learning and result in a positive online learning environment (Hall & Villareal, 2015; Joksimović et al., 2015; Wenjun et al., 2020).

Online Learning Interaction
Through decades, many studies in education had been conducted around interactions. The types of interaction have developed along with the growth of information and technology in education. From face-to-face interactions, they develop into web-based or online interactions. Besides the massive benefits brought by online learning, the fact that online learning impedes synchronous interactions is unavoidable (Cao et al., 2009). Online learning interactions create another challenge to sustain the interactions during online learning. Thus online learning must be planned well to ensure that it can provide interactions between the subjects and objects in online learning.

Mentioning the interactions in online learning, there were specific interactions demanded to build in online learning such as student-interface interactions, student-teacher interactions, student-student interactions, student-content interactions, and student-media interactions (Alhih et al., 2017; Cao et al., 2009; Clayton, 2007). Those interactions allowed for interactions, promoting information exchange between students and teachers, synchronous and asynchronous communication, and online evaluation, all of which could contribute to good online learning outcomes.

The higher levels of interaction resulted in higher levels of satisfaction and learning performance (Eom et al,, 2006; Chapters et al., 2011). Furthermore, the higher the quality and quantity of interaction will result in greater satisfaction (Turley & Graham 2019). The previous research findings were more supported by Clayton (Clayton, 2007) and Gray and DiLoreto (2016) invested interactions in dimensions of online learning success. Those findings prove that interaction is one of the quality standards to reveal practice in online learning.

METHOD
The Research Design
This study involved quantitative and qualitative case study approaches to account for students' interaction in an online listening learning environment. A convergent mixed-method was adopted in this study, in which the results of the quantitative and qualitative data analysis were brought together (Creswell & Clark, 2018). In addressing the research problems, two research instruments were utilized: a questionnaire of OLLES (Online Learning Environment Survey) modified from Clayton (2007) and Bhuasiri et al. (2012) and a structured interview. The convergent design was applied to validate the findings, where the combination of quantitative and qualitative data allowed the researchers to complete the analysis.

Respondents
Seventy-eight students of English Education gave their consent to participate in this study out of 96 students in the first place. Those 78 students were derived from 3 online listening classes at one university located in Indonesia. They were all freshmen and had joined online classes for one year continually in their higher education.

Instruments
In addressing the research questions, there were two different instruments carried out in this study. The first instrument was the OLLES questionnaire (Online Learning Environment Survey) modified from Clayton (2007) and Bhuasiri et al. (2012). It consisted of 4 dimensions: Students' Characteristics (SC), Lecturer's Support (LS), Materials and Activities (MAA), and Extrinsic Motivation (EM), 8 scales, and 48 items that focused on drawing the interaction that occurred in the online listening learning. The dimensions and the scales can be seen in Table 1.

Table 1
Online Learning Environment Survey

Dimensions	Scales
Students' Characteristics (SC)	Internet Self-Efficacy (ISE)
	Students' Autonomy (SA)
Lecturer's Support (LS)	Lecturer Support (LS)
	Equity (EQ)
Materials and Activities (MAA)	Students Interaction & Collaboration (SIC)
	Authentic Learning (AL)
	Activity & Assessment (AA)
Extrinsic Motivation (EM)	Asynchronicity (AS)

The instrument to generate quantitative data was based on Likert scale questionnaire with 4 levels of frequency "almost never" =1, "seldom" =2, "almost always" =3, "always" =4. There was no 'neutral' option. A decent scale for researchers should ideally employ a four-point scale to obtain particular replies. The reliability of the questionnaire was measured using Cronbach's Alpha. The result showed that the general score for the questionnaire was 0.922, indicating that the questionnaire was reliable. The score for each dimension could be seen in table 2.

On the other hand, the interview presented qualitative data. It was a structured interview with 9 questions on it. Of 78 students, there were only 15 students who agreed to participate in the individual interview. The questions were drawn from the dimension of the students' interaction based on OLLES (Online Learning Environment Survey). The questions were presented in table 3.

Table 2
The Questionnaire Reliability

Variables	Cronbach's Alpha	N of Items
Students' Characteristics (SC)	.769	12
Lecturer's Support (LS)	.857	13
Materials and Activities (MAA)	.866	19
Extrinsic Motivation (EM)	.760	4

Table 3
Questions for the Interview

Dimensions	Questions
Students' Characteristics (SC)	Do you have problems using a range of computer technologies? If yes, what is that problem/s?
	Can you control and manage your online learning well? Explain your answer!
Lecturer's Support (LS)	Does the feedback you receive from the lecturer help you identify the things you do not understand?
	How does the lecturer treat or encourage you during online learning? Explain your answer!
Materials and Activities (MAA)	Do you always work with other students to accomplish the tasks given? If yes, how did you do it?
	Do the tasks/ assignments relate to the real-world? If yes, give an example!
	Do the activities motivate you in improving your listening skills? Why or why not?
	Do the assessments (ex: quizzes) trigger you to evaluate your study? Why or why not?
Extrinsic Motivation (EM)	Do asynchronous activities help you improve your listening skills? Explain your reason!

Data Analysis and Ethical Consideration
Prior to data collection, the students were told that their participation was on a voluntary basis. Out of 96 targeted students initially, only 78 students gave their consent to continue participating in this study. The data collection was administered through google classroom. After calculating the mean of the data, the writers then described, summarized, and presented the results in tables.

While for the interview, the writers asked the students who wanted to join the individual online interviews. They were allowed to join based on their availability and desire to participate. In conducting the interview, the writers used WhatsApp voice calling and recorded it to ensure they were comfortable having individual interviews.

Since this study adopted a convergent mixed-method by Creswell and Plano (2018), the questionnaire and interview results were brought together. Both the data were merged and compared to get a final interpretation. The figure below showed the diagram for the convergent mixed-method.

Figure 1
The Diagram of The Convergent Mixed-Method Design
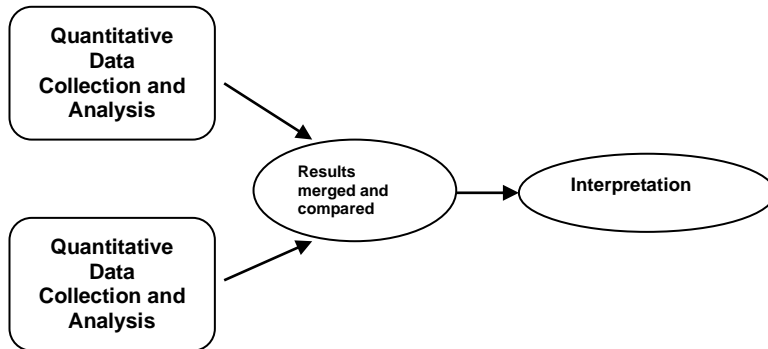
Concerning quantitative data from the questionnaire, a descriptive analysis was implemented. The researcher used the statistical analysis software package SPSS 16. The data from each dimension were grouped, and mean values were determined to represent the interaction levels for the specified scales. The interaction scale was then set as follows:

Table 4
Students' Interaction Scale Level

Mean Value	Level
1 - <2	Low
2 - <3	Acceptable/ Moderate
3 – 4	High

(Adapted from: (Linjawi & Alfadda, 2018)

The data was derived from the recorded interview for the qualitative data, then transcribed and developed into codes or themes. The writers reread the transcribed data and coded it based on emerging themes and patterns using NVivo software. Methodological triangulation was also employed to validate the research findings.

FINDINGS AND DISCUSSION
The Dimension of the Students' Interaction in Online Listening Environment
There were four dimensions investigated in this study. They were students' characteristics, lecturer's support, course and information quality, and extrinsic motivation. Table 3 showed the quantitative results of the students' interaction occurred in the online listening environment. All dimensions showed the mean above 3.00, where the lecturer's support held the highest of all the mean value of 3.49, followed by the students' characteristics (3.36) and the material and activities (3.34). While the lowest mean value belonged to the extrinsic motivation dimension with the mean value of 3.21. From table 5, it could be concluded that the student's interaction in the online listening environment was considered high overall.

Table 5
Mean of Dimensions of Students' Interaction

Dimension of Students' Interaction	N	Mean
Students' Characteristics (SC)	78	3.36
Lecturers' Support (LS)	78	3.49
Materials and Activities (MAA)	78	3.34
Extrinsic Motivation (EM)	78	3.21

The Dimension of Students' Characteristics
In the dimension of Students' Characteristics (SC), there were two scales with 6 items for each scale. In this dimension, the students were asked to rate their internet self-efficacy and autonomy during the online listening learning. The internet self-efficacy (ISE) scale described how they felt comfortable and enjoyed accomplishing any online tasks and activities in the online learning environment. Moreover, the students' autonomy (SA) scale

explained how they controlled and managed their online learning. Overall, this dimension had a high level of intensity, with the mean value for each scale was 3.40 and 3.31. Based on the results shown in table 4, the students' internet self-efficacy was rated higher than the students' autonomy with the mean value of 3.40.

In the internet self-efficacy, the highest mean value was from the online tasks submission (ISE1), which showed a mean score of 3.86. On the other side, the intensity of the students in asking questions held the lowest, with the mean value of 2.63. It

means that this intensity was considered as a moderate level. While for the students' autonomy, the intensity of the participants posting online tasks online (SA5) placed the highest mean value with the mean of 3.53. The lowest mean value went to how the participants see their online learning (AS6) role with the mean value of 3.19. From the overall result of the students' characteristics dimension, both the scales held high intensity of their involvement in the online learning environment. The further results could be seen in table 6.

Table 6
Mean of the Students' Characteristics Dimension

Dimension of Students' Characteristics	N	Mean
Internet Self-efficacy	**78**	**3.40**
1. I submit assignments online	78	3.86
2. I ask the lecture questions online	78	2.63
3. I find out course or unit information online	78	3.26
4. I read lecturer's lesson notes online	78	3.49
5. I access assessment information online	78	3.68
6. I participate in online discussion with other students	78	3.50
Students' Autonomy	**78**	**3.31**
1. I make decision about my learning	78	3.24
2. I work during times I find myself comfortable	78	3.29
3. I control my learning	78	3.23
4. I approach learning in my own way	78	3.38
5. I post my tasks on time	78	3.53
6. I play a significant part in my learning	78	3.19

This study showed that the interaction intensity between the students and media was high, with a mean value of 3.36. The mean value indicated that the students were highly engaged with the use of technology. They showed no significant problems dealing with technology such as the internet, computer or laptop, and mobile phone. This was also supported by the interview results, where 13 of 15 students declared that they did not face any difficulties in participating in online learning by using the technologies they enjoyed during online learning. It concluded that they had high internet or computer self-efficacy. Communicating using the technologies implied that the students were capable of participating in their online learning environment. This finding was in line with Clayton (Clayton, 2011). He mentioned that having high internet or computer self-efficacy showed that students could use information and technologies for their online learning. The internet or computer self-efficacy portrayed how they could search, retrieve, store, and manipulate information from the internet for the benefits of their online learning. While the basic challenge related to the internet faced by most students was the internet connection. This condition happens a lot in online learning, as it has been reported by many researchers linked to online learning that external variables such as an unreliable

internet connection pose problems during online learning (Allo, 2020; Amir et al., 2020; Bashir et al., 2021).

The Dimension of Lecturer's Support
In the dimension of Lecturer's Support (LC), there were two scales measured. This dimension extended to which the lecturers guided the students in their learning, provided meaningful and helpful feedback, and encouraged them. Overall, this dimension had a high level of intensity in the lecturer's area. This dimension consisted of the lecturer's support (LS) and equity (EQ). With the mean value of 3.59, the equity was rated higher than the lecturer's support, which held the mean value of 3.38. In the lecturer's support, there were two scales measured as the highest. They were how the lecturers responded (LS 1) and helped the students in identifying their problems in their online listening learning (LS 2). Both scales held a mean value of 3.46. The lowest mean value, which was 3.25, went to how convenient the students reached their lecturers online (LS 6).

For equity, how the students got the same opportunity to answer questions (EQ 5) placed the highest mean value with 3.68. The other three scales, how intense the lecturers helped the students (EQ 2), how intense the lecturers treated the

students equitably (EQ 3), and how intense the lecturers encouraged the students (EQ 4), held the same mean value of 3.59. While the lecturers gave the same attention to the students' questions (EQ 1) got the lowest mean value with 3.49. The complete results could be seen in table 7.

Table 7
Mean of the Lecturer's Support Dimension

Dimension of Lecturer's Support	N	Mean
Lecturer's Support	**78**	**3.38**
1. The lecturer responds quickly	78	3.46
2. The lecturer helps me identify problems in my study online	78	3.46
3. The lecturer responds promptly to my online questions	78	3.45
4. The lecturer gives valuable feedback on my assignments online	78	3.29
5. The lecturer adequately addresses my questions online	78	3.40
6. It is easy for me to contact the lecturer online	78	3.25
7. The lecturer encourages my participation online	78	3.45
8. The lecturer provides me with useful feedback on my work online	78	3.41
Equity	78	3.59
1. The lecturer pays equal attention to my queries as to the inquiries of other students	78	3.49
2. I receive the same level of assistance from the lecturer as other students.	78	3.59
3. I am given the same opportunities as the other students in the class	78	3.59
4. The lecturer encourages me in the same way that other students do	78	3.59
5. I get the same chance to respond to questions as other students	78	3.68

The result exhibited a high level of interactivity with a mean value of 3.49. The lecturer's support involved how the lecturer responded and gave feedback to the students. All questions in this scale were rated highly, with a mean value above 3.00, with the overall mean value was 3.38. Student responses to the way lecturers treat students during online learning also show a high level with an average score of 3.59. This result was more confirmed by the interview result.

All students claimed that the lecturer always responded to their questions and problems related to the materials explained during the online learning from the interview session. In addition, the feedback given by the lecturer helped them in identifying the issues and finding solutions for their problems. The result also revealed that the lecturer always encouraged, motivated, and treated them equally.

The Dimension of Materials and Activities
For the dimension of Materials and Activities (MAA), the scales were intended to which online activities are interactive and collaborative (SIC), online materials are authentic (AL), and online assessments are various and encouraging for the students (AA). The mean values of each scale sequentially were 3.00, 3.09, and 3. 24. As a general outcome, this dimension was rated highly by the students. In the Student Interaction and Collaboration scale, eight items were measured with the highest average score held by the intensity of students involved in group work (SIC 6) with an average score of 3.45. On the other hand, there were three out of eight items measured as moderate intensity. They were how the students relate their work with other students (SIC 1) with the mean value of 2.62, how intense they asked questions to the lecturers (SIC 7) with the mean value of 2.55,

and how they gave comments or feedbacks to other students (SIC 8) with the mean value of 2.95.

In the Authentic Learning scale, there were five items scaled. The scales covered the use of related study cases in the online activities (AM 1), the use of actual facts (AM 2), the use of real-world information for the assignments (AM 3), the use of real examples (AM 4), and also the application of the students' real-world experience in the online learning (AM 5). The intensity of students working with tangible examples in online learning was rated the highest among all, with an average score of 3.27. At the same time, the intensity of the study case use got the lowest mean value of 2.76, and this value meant this scale had a moderate level.

Furthermore, in the Activity and Assessment scale, there were six items measured. Overall, the scale rated highly with a mean value of 3.24. This is extended to activities that support their 1) listening learning (AA 1), 2) various activities (AA 2), 3) materials that improve student understanding (AA 3), 4) activities that motivate students to engage in each online task (AA 4), 5) online assessments that help students identify their listening problems (AA 5), and 6) assessments that help students evaluate their studies (AA 6). The highest mean value went to how intense they were given online activities which support their listening learning (AA 1), with the mean value of 3.68. And the lowest mean value was from the variety of online activities given with the mean value of 3.36. The more crystal results could be seen in table 8.

Students-student interactions, student-materials interactions, and student-activities interactions were all revealed in this dimension. The exchanges were rated favorably by the students, with a mean score of 3.34.

Table 8
Mean of the Materials and Activities Dimension

Dimension of Materials and Activities	N	Mean
Students' Interaction & Collaboration	**78**	**3.00**
1. I collaborate with other students	78	
2. I compare and contrast my work with that of others	78	
3. I exchange knowledge with other students	78	
4. I talk to my classmates about my views	78	
5. I cooperate with other students in online class	78	
6. I take part in group work as part of my activities	78	
7. I ask question	78	
8. I give comments/ feedbacks to other students' posts	78	
Authentic Learning	78	
1. relevant to the class's activities	78	
2. In class exercises, I use genuine facts	78	
3. I work on projects that need me to use real-world data	78	
4. I use real-life examples in my work	78	
5. I bring real-world experience to my study	78	
Activity and Assessment	78	
1. The activities given support me to improve my listening skills	78	
2. The activities are various	78	
3. The activities help me understand the materials	78	
4. The activities motivate me to engage in every tasks	78	
5. The assessments help me to identify my problems in listening	78	
6. The assessments help me to evaluate my study	78	

During online learning, the student-student interaction demonstrated how passionately students interacted and collaborated with their classmates. It received a high rating, with a mean score of 3.00 for student-student interaction. From the results, it was found that the students collaborated and communicated online with other students. Three of the eight questions on the scale had a modest interaction, with a mean value of less than 3.00. They collaborated with other students on their projects, asked questions, and provided feedback to others.

Moreover, group work indicated that students' desire to communicate with other students grew due to their participation in it. When they were working in groups, they liked to engage with other students. The results show that online cooperation and engagement have high mean values of 3.09 and 3.45, respectively. In conclusion, assigning students to group projects may enhance their online involvement. By giving them collaborative activities, they were able to fully engage and collaborate in online learning. Furthermore, the high level of student-to-student contact would have a more significant influence on their pleasure and access to the contents (Baber, 2021; Rojabi, 2020).

While for the students-materials interaction, it was indicated that the students perceive highly with the mean value of 3.09. This scale focused on the use of authentic materials and how intense the students worked with them. They had high interaction with the use of authentic materials. Besides, they stated their enthusiasm when they worked on projects using real-world data. On the other hand, few of the students admitted that they were rarely dealt with real cases related to the class

activities. This condition was shown by the mean value of 2.76 with the moderated level of interaction in the questionnaire. Nevertheless, the overall result for the students-material interaction in the online listening learning environment demonstrated a high level. It indicated that in this study, the students were supported to interact with the real world. As it is mentioned by other researchers that the use of authentic materials, including in online learning, was crucial and could discard the gap between the real world and language classroom (Ekawati & Yusuf, 2019; Romero et al., 2021).

The student-activities interaction also showed a high mean value of 3.24. This scale explored how the students improved their listening skills and could reflect their online learning achievement through the activities or tasks given in the online listening learning environment. From the questionnaire, it was found that most of them felt that the tasks given in the online learning helped them in identifying their problems and in evaluating their studies.

The Dimension of Extrinsic Motivation
In the dimension of Extrinsic Motivation (EM), the scales were intended for the asynchronous activities provided in the online listening learning. This synchronicity dealt with the students' intensity in involving themselves with the asynchronous activities. For the overall outcome, synchronicity held a high mean value with a mean value of 3.34. The scale in this dimension ranges from 1) how intensely they access online discussions (EM 1), 2) how intensely they read messages or information posted online (EM 2), 3) how intensely they think before posting messages or information online, and 4)how intensely they write and posting messages or

information online (EM 4). In all of these scales, students' intensity before posting messages or information online was rated the highest, with an average score of 3.63. The further results could be seen in table 9.

This dimension reported a high level of interaction with the mean value of 3.34. The questions in this dimension presented how intense

they completed and accessed the asynchronous activities during the online learning. The data showed that the asynchronous activities gave them space and time to improve the students' listening skills and complete their tasks. Those reasons are what made them always complete the asynchronous task given.

Table 9
Mean of the Extrinsic Motivation Dimension

Dimension of Extrinsic Motivation	N	Mean
Asynchronicity	**78**	**3.34**
1. I use the discussion forum whenever it is convenient for me	78	3.27
2. I view messages that have been uploaded at times that are convenient for me	78	3.19
3. Before I submit my messages, I give them some thought	78	3.63
4. I create and publish remarks to assist me think	78	3.27

Surprisingly, the findings stated previously were contrary to the studies from some other researchers. They revealed that asynchronous learning caused a problem related to how students manage their time in completing tasks. Asynchronous learning led them to miss learning schedules and task submission, then those became a nuisance and caused the students' dissatisfaction toward their online learning performance (Chung, Noor, et al., 2020; Linjawi & Alfadda, 2018; Rasouli et al., 2013; Wulanjani & Indriani., 2021). Two learning models could not be separated in conducting online learning: synchronous and asynchronous learning models. Thus, carrying asynchronous learning activities well in online learning could create a positive online learning environment for the students.

Based on the researchers' experience in this research process, there are several shortcomings to be concerned by future researchers. This dimension exposed how the students were engaged in asynchronous activities carried on in the online learning. This dimension reported a high level of interaction with a mean value of 3.34. The questions in this dimension presented how intense they completed and accessed the asynchronous activities during the online learning. The data showed that the asynchronous activities gave the students space and time to improve their listening skills and complete their tasks. Those reasons are what made them always complete the asynchronous task given.

The Students' Perception toward the Interaction in Online Listening Learning Environment
The Dimension of Students' Characteristic
There are two themes that appeared after interviewing the students related to the dimension. They were asked to explain whether they have problems using a range of computer technologies or

not. Furthermore, they were also asked about how they control their online learning. The interview revealed that there were two major issues found during the online learning, management and technology. Some of the interview results were as follows:

"Not really. I often checked my phone during the class hours."
"Not really, because I am distracted from playing with gadgets during the online classes."
"Yes sometimes. The problem is related to the internet connection."
"Yes, I often need to find a perfect internet connection to do the activities with the computer."
"Yes, the quality of my laptop camera is poor and the memory capacity of my device is low."

From the result above, most of the students explained that they could hardly avoid internet or phone distraction during their online listening learning. Moreover, hard to fully concentrate was also faced by some students during their online listening learning. In addition, most of the students had the same answer when they were asked about problems related to technologies. They did not face significant issues with computer use. The only redundant problem faced by them was the internet connection.

Although the students found no significant problems related to technology use, they uncovered that they had phone and concentration distractions. They tended to be distracted by other online activities, such as looking up their social media during online learning. Moreover, they sometimes lose their concentration during online learning due

to the distraction. These distractions were related to the students' autonomy. Self-direction was noticed as one of the characteristics displayed in autonomous students, where students can manage their own learning (Irie & Stewart, 2011; Little, 2020). This finding was also supported by some other researchers (Chung, Noor, et al., 2020; Chung, Subramaniam, et al., 2020; Linjawi & Alfadda, 2018; Rasouli et al., 2013). In their studies, they found that learner control was such a lack for students during online learning. It could be drawn from the findings dealt with Students' Characteristics Dimension that controlling other online distractions was such a nuisance in their online learning. From the results mentioned previously, it can be drawn that high intensity of student-media interaction could also prompt another issue dealing with the students' concentration in online learning.

The Dimension of Lecturer's Support
There are three themes that appeared after interviewing the students related to this dimension. They were asked to explain whether the feedback from the lecturer helped them to understand the material or not. Furthermore, they were also asked how the lecturer treated or encouraged them during online learning. Some of the interview results were as follows:

> "Of course. The lecturer always provides a thorough explanation of the material we learned."
> "Yes, the lecturer helps me to find the problems and solutions for the class."
> "The lecture always gives feedback to us when we have a problem, which is very helpful."
> "The lecturer always treats the entire students well. Besides, she explains the material nicely and pays much attention to the students."
> "The lecturer usually gives words of encouragement, both in online meetings and via chat such as WhatsApp"

From the interview result above, it was found that most of the students stated that they got helpful feedback from their lecturer. They said that the lecturer's feedback helped them identify their problems related to the materials given in the online listening learning. Furthermore, the lecturer's support seemed to encourage the students. It was revealed from the interview that the lecturer treated them well and fairly. The lecturer presented the materials and gave the same opportunities to participate, somehow encouraging them to learn online.

In addition, it can be drawn that some themes appeared from the finding. They were helpful feedback, motivational feedback, and good treatment. It can be drawn that the interaction between students and lecturers in online learning led to students' satisfaction and benefit in online learning (Bestiantono et al., 2020; Pham et al., 2014). It can be considered that the interaction between students and lecturers in the online learning environment needs to be built and facilitated for a positive learning environment. Providing opportunities for the students to interact with the lecturer also raised their confidence to improve and evaluate their online learning. The higher the interaction between students and teachers would make the students more motivated to participate in online learning (Rojabi, 2020), highly contributing to their online learning success (Allo, 2020; Wulanjani & Indriani, 2021).

The Dimension of Materials and Activities
In this dimension, the students were asked four questions. They were asked to explain about: how they worked together with their classmates, whether the tasks given related to the real-world or not, whether the activities motivated them to improve their listening skills or not, and whether the assessments triggered them to evaluate their study or not. Some of the interview results were as follows:

> "Not really, the lecturer rarely applied a case study, for example the use of news or articles as the learning source."
> "Yes, because the assessments such as quizzes can help meet learning outcomes and can also find errors from my regular practice."
> "Yes the assessments (ex: quizzes) trigger me to evaluate my study because of the assessment I know what things that need to be maximized and improved in other times."
> "Yes, often. When the lecturer gives assignments, I often have discussions with my friends to understand things that I don't fully understand."
> "If the team works, I always cooperate in the discussion. I always help my teammates as much as possible. I usually give a response in group chat by giving my opinion based on the discussion topic."

From the results above, it can be concluded that the lecturer rarely used authentic materials or applied a case study in online listening learning. It was also found out that the online activities and assessment brought positive impacts on the students' learning. It was identified that the activities and assessments made the students reflect on their studies. They were triggered to learn more and evaluate their studies after joining the challenging activities and completing the assessments. Going deeper into the interview result, the authors evidenced that they became autonomous learners to evaluate their results, quizzes and assignments given. They stated that the challenging tasks and projects in the online listening online

learning environment triggered them to consistently evaluate and improve their learning outcomes. That condition showed that their high engagement in completing the tasks affected their SRL abilities (Self-regulated Learning). The development of SRL abilities indicated their performance improvement in online learning (Chen et al., 2019; Suherdi, 2019). Furthermore, they stated that they collaborated with the other students only when the lecturer gave group or team tasks. They seldom related their work or collaborated to solve problems they faced in their individual tasks. But on the other side, their participation in group work or discussion was quite intense.

In addition, themes emerged from the interview closely related to the materials and activities given in the online learning. The themes shown repeatedly were real-world related materials and activities, daily-related materials challenging and various activities, evaluation trigger, learning trigger, discussion, and collaboration. Those themes signified that the student's need for such materials and activities should be provided in the online learning environment and improved from time to time to create a successful online learning environment (Alamri & Wood, 2017; Clayton, 2007; Yudiawan et al., 2021). Along with the studies conducted by other researchers, well-designed courses and learning materials resulted in more meaningful educational experiences and improved performance (Bhuasiri et al., 2012; Clayton, 2011; Ozkan & Koseler, 2009).

Extrinsic Motivation Dimension
In this dimension, the students were asked whether the asynchronous activities helped them to improve their listening skills or not. Some of the interview results related to this dimension were as follows:

> "Yes, I do. The asynchronous activities can help me improve my listening skills because through the asynchronous activities I can understand more about the material."
> "Yes actually that's true, because usually I spend a lot of time finishing my exercise."
> "Yes of course. We can arrange the right time for us to study."
> "Yes, during the asynchronous activities I enjoy and get new vocabulary that I hear and usually I repeat it."

Based on the interview results, the asynchronous activities during online listening learning positively impacted their learning. Two themes were identified under the code of asynchronous activities; most of the students implied that the activities gave them space and time to improve their listening skills and complete their tasks. In the asynchronous activities, the students had more opportunities to learn more about the materials given and practice before completing the tasks. The opportunity made them more ready and confident in completing their tasks. Moreover, it gave them more time to understand the materials given.

After the qualitative coding process, there were some themes which appeared under each code. The code emerged from those 9 questions that represented the students' interaction based on OLLES. The themes were presented in table 10.

Table 10
The themes of the Interview Results

Dimensions	Codes	Themes
Students' Characteristics (SC)	Learning management (LM)	Internet/ phone distraction
		Concentration distraction
	Technology Problems (TP)	Computer problem
		Internet problem
Lecturer's Support (LS)	Feedback (FB)	Helpful feedback
	Encouragement (EC)	Motivational feedback
		Good treatment
Materials and Activities (MAA)	Authentic Materials (AM)	Real-world related materials and activities
		Daily-related materials and activities
	Motivating Activities (MA)	Challenging and various activities
	Evaluation (EV)	Evaluation trigger
		Learning trigger
	Collaborative Activities (CA)	Discussion
		Collaboration
Extrinsic Motivation (EM)	Asynchronous Activities (AA)	Improving listening skills
		Task completion/ submission

CONCLUSION
This study investigated the dimensions of interaction in the online listening learning environment. There were four dimensions of online interaction that occurred in the online listening learning environment. They were student's characteristics which portrayed students-media interaction, lecturer's support which portrayed students-lecturer interaction, materials and activities which portrayed students-students interaction and

students-materials interaction, and extrinsic motivation which portrayed students-activities interaction. Regarding the questionnaire result, student-lecturer interaction had the highest mean score with a mean value of 3.49. It was followed by students-media interaction with a mean value of 3.36, and then continued by students-materials interaction with the mean value of 3.34. Student-activities interaction is the lowest, with a mean value of 3.21. Overall, all the dimensions of interaction in online listening learning were highly perceived by the students. These findings were also reinforced by individual interviews in which most of the students perceived all dimensions of interaction positively.

Some themes suggested to plan and carry out materials and activities well in online learning environment. Providing well-designed authentic materials, collaborative and reflective activities, and asynchronous activities were highly needed to conduct online learning. In addition, giving helpful feedback and encouragement could also increase the students' motivation and engagement in an online learning environment.

The authors were fully aware that this research could not represent the condition of online listening learning in Indonesia. Therefore, the authors urge future researchers to conduct more in-depth and broader research on how lecturers design highly interactive online learning with a broader interaction dimension involving different conceptions and competencies in various case studies and majors, which is important to consider.

ACKNOWLEDGEMENTS

REFERENCES

Alamri, A., & Tandra, T. (2017). Factors affecting learners with disabilities–instructor interaction in online learning. *Journal of Special Education Technology*, *31*(2), 59–69. https://doi.org/10.1177/0162643416681497

Alhih, M., Ebba, O., & Muhammet, B. (2017). Levels of interaction provided by online distance education models. *Eurasia Journal of Mathematics, Science and Technology Education*, *13*(6), 2733–48. https://doi.org/10.12973/eurasia.2017.01250a

Aljawarneh, S. A. (2020). Reviewing and exploring innovative ubiquitous learning tools in higher education. *Journal of Computing in Higher Education, 32*(1), 57–73. https://doi.org/10.1007/s12528-019-09207-0

Allo, M. D. G. (2020). Is the online learning good in the midst of Covid-19 Pandemic? The case of EFL learners. *Jurnal Sinestesia*, *10*(1), 1-10. https://www.sinestesia.pustaka.my.id/journal/article/view/24

Alomyan, H. (2017). A conceptual framework for web-based learning design. *Proceedings of the International Conference on E-Learning, EL 2017 - Part of the Multi* Conference *on Computer Science and Information Systems 2017*, 191–95. https://files.eric.ed.gov/fulltext/ED579370.pdf

Amir, L. R., Tanti, I., Maharani, D. A., Wimardhani, Y. S., 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*(1), 1-8.

Atmojo, A. E. P., & Nugroho, A. (2020). EFL classes must go online! Teaching activities and challenges during COVID-19 pandemic in Indonesia. *Register Journal, 13*(1), 49-76. https://doi.org/10.18326/rgt.v13i1.49-76

Baber, H. (2021). Social interaction and effectiveness of the online learning – a moderating role of maintaining social distance during the pandemic COVID-19. *Asian Education and Development Studies*, *11*(1), 159-171. https://doi.org/10.1108/AEDS-09-2020-0209

Bashir, A.,Uddin, M. E., Basu, B. L., & Khan, R. (2021). Transitioning to online education in English Departments in Bangladesh: Learner perspectives. *Indonesian Journal of Applied Linguistics*, *11*(1),11-20. https://doi.org/10.17509/ijal.v11i1.34614

Bestiantono, D. S., Agustina, P. Z. R., & Cheng, T.-H. (2020). How students' perspectives about online learning amid the COVID-19 pandemic? *Studies in Learning and Teaching*, *1*(3), 133–139. https://doi.org/10.46627/silet.v1i3.46

Bhuasiri, W., Xaymoungkhoun, O., Zo, H., Rho, J. J., & Ciganek, A. P. (2012). Critical success factors for e-learning in developing countries: A comparative analysis between ICT experts and faculty. *Computers and Education*, *58*(2), 843–55. https://doi.org/10.1016/j.compedu.2011.10.010

Cao, Q., Griffin, T. E., & Bai, X. (2009). The importance of synchronous interaction for student satisfaction with course web sites. *Journal of Information Systems Education, 20*(3), 331–39. http://jise.org/volume20/n3/JISEv20n3p331.html

Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college

students in China. *Psychiatry Research*, *287*, 1–5. https://doi.org/10.1016/j.psychres.2020.112934

Chen, C. M., Chen, L. C., & Yang, S. M. (2019). An English vocabulary learning app with self-regulated learning mechanism to improve learning performance and motivation. *Computer Assisted Language Learning*, *32*(3), 237–60. https://doi.org/10.1080/09588221.2018.1485708

Chung, E., Noor, N. M., & Mathew, V. N. (2020). Are you ready? An assessment of online learning readiness among university students. *International Journal of Academic Research in Business and Social Sciences, 9*(1), 301–17. https://doi.org/10.6007/IJARPED/v9-i1/7128

Chung, E., Subramaniam, G., & Dass, L. C. (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

Churiyah, M., Sholikhan, S., Filianti, F., & Sakdiyyah, D. A. (2020). Indonesia education readiness conducting distance learning in Covid-19 pandemic situation. *International Journal of Multicultural and Multireligious Understanding*, *7*(6), 491. https://doi.org/10.18415/ijmmu.v7i6.1833

Clayton, J. (2007). The validation of the online learning environment survey. *Proceedings ascilite Singapore*, *200*(7). https://www.researchgate.net/profile/John-Clayton-13/publication/254324859_The_validation_of_the_online_learning_environment_survey/links/0c96053a10aa78b285000000/The-validation-of-the-online-learning-environment-survey.pdf

Clayton, J. (2011). Initial findings from the implementation of an online learning environment survey. *International Journal of Cyber Society and Education*, *4*(2), 127-138. http://www.academicjournals.org/ojs2/index.php/IJCSE/article/view/984/89

Creswell, J. W., & Clark, V. L. P. (2018). *Designing and conducting mixed methods research* (3rd ed.). Sage Publication Inc.

Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems*, *49*(1), 5–22. https://doi.org/10.1177/0047239520934018

Dhull, I., & Saskhi, M. (2019). Online learning. *Quality in Primary Care*, *12*(1), 87–89. https://doi.org/10.4324/9780429355097-7

Dunlap, J., & Lowenthal, P. (2018). Online educators' recommendations for teaching online: Crowdsourcing in action. *Open Praxis*, *10*(1), 79. https://doi.org/10.5944/openpraxis.10.1.721

Ekawati, D., & Yusuf, F. N. (2019, June). *Authentic materials in fostering EFL students listening comprehension. In Eleventh Conference on Applied Linguistics*. CONAPLIN 2018. (pp. 422-426). https://doi.org/10.2991/conaplin-18.2019.295

Garrison, D. R., & Cleveland-Innes, M. (2005). Facilitating cognitive presence in online learning: Interaction is not enough. *The American journal of distance education*, *19*(3), 133-148. https://doi.org/10.1207/s15389286ajde1903_2

Gray, J. A., & DiLoreto, M. (2016). The effects of student engagement, student satisfaction, and perceived learning in online learning environments. *International Journal of Educational Leadership Preparation, 11*(1), 1-20. https://files.eric.ed.gov/fulltext/EJ1103654.pdf

Hall, S., & Villareal, D. (2015). The hybrid advantage: Graduate student perspectives of hybrid education courses. *International Journal of Teaching and Learning in Higher Education 27*(1),69–80.

Händel, M., Stephan, M., Gläser-Zikuda, M., Kopp, B., Bedenlier, S., & Ziegler, A. (2020). Digital readiness and its effects on higher education students' socio-emotional perceptions in the context of the COVID-19 pandemic. *Journal of Research on Technology in Education*, *54*(2), 267-280. https://doi.org/10.1080/15391523.2020.1846147

Irie, K., & Stewart, A. (Eds.). (2012). Realizing autonomy: Practice and reflection in language education contexts. *Palgrave Macmillan*. https://doi.org/10.1057/9780230358485

Joksimović, S., Gašević, D., Kovanović, V., Riecke, B. E., and Hatala, M. (2015) Social presence in online discussions as a process predictor of academic performance. *Journal of Computer Assisted Learning*, *31* 638– 654. https://doi.org/10.1111/jcal.12107

Laili, R. N., & Nashir, M. (2021). Higher education students' perception on online learning during Covid-19 pandemic. *Edukatif: Jurnal Ilmu Pendidikan*, *3*(3), 689–97. https://doi.org/https://doi.org/10.31004/edukatif.v3i3.422

Laksana, D. N. L. (2021). Implementation of online learning in the pandemic covid-19: Student perception in areas with minimum internet access. *Journal of Education Technology*, *4*(4), 502–9. https://ejournal.undiksha.ac.id/index.php/JET/article/view/29314

Linjawi, A. I., & Alfadda, L. S. (2018). Students' perception, attitudes, and readiness toward online learning in dental education in Saudi Arabia: a cohort study. *Advances in Medical*

Education and Practice, 9, 855–63. https://doi.org/10.2147/amep.s175395

Little, D. (2022). Language learner autonomy: Rethinking language teaching. *Language Teaching*, *55*(5), 1–10. https://doi.org/10.1017/S0261444820000488

Martín, C. T., Acal, C., Honrani, M. El, & Estrada, Á. C. M. (2021). Impact on the virtual learning environment due to covid-19. *Sustainability (Switzerland)*, *13*(2), 1–16. https://doi.org/10.3390/su13020582

Ozkan, S., & Koseler, R. (2009). Multi-dimensional students' evaluation of e-learning systems in the higher education context: An empirical investigation. *Computers and Education*, *53*(4), 1285–96. https://doi.org/10.1016/j.compedu.2009.06.011

Pham, T., Thalathoti, V., & Dakich, E. (2014). Frequency and pattern of learner-instructor interaction in an online English language learning environment in Vietnam. *Australasian Journal of Educational Technology*, *30*(6), 686–98. https://doi.org/10.14742/ajet.608

Rasouli, A., Rahbania, Z., & Attaran, M. (2016). Students' readiness for e-learning application in higher education. *Malaysian Online Journal of Educational Technology*, *4*(3), 51-64.

Rojabi, A. R. (2020). Exploring EFL Students' Perception of Online Learning via Microsoft Teams: University Level in Indonesia. *English Language Teaching Educational Journal*, *3*(2), 163-173. https://doi.org/10.12928/eltej.v3i2.2349

Simamora, R. M., De Fretes, D., Purba, E. D., & Pasaribu, D. (2020). Practices, challenges, and prospects of online learning during Covid-19 pandemic in higher education: Lecturer perspectives. *Studies in Learning and Teaching*, *1*(3), 185–208. https://doi.org/10.46627/silet.v1i3.45

Suherdi, D. (2019). Teaching English in the industry 4.0 and disruption era: Early lessons from the implementation of SMELT I 4.0 DE in a senior high lab school class. *Indonesian Journal of Applied Linguistics*, *9*(1), 67-75. http://doi.org/10.17509/ijal.v9i1.16418

Swan, K. (2001). Virtual interaction: Design factors affecting student satisfaction and perceived learning in asynchronous online courses. *Distance Education*, *22*(2), 306–31.

Teguh, M. (2020). Gerakan literasi sekolah dasar. *Jurnal Pendidikan Dasar Flobamorata*, *1*(2), 1-9.

Turley, C., & Graham, C. (2019). Interaction, student satisfaction, and teacher time investment in online high school courses. *Journal of Online Learning Research*, *5*(2), 169–98.

Weidlich, J., & Bastiaens, T. J. (2018). Technology matters–The impact of transactional distance on satisfaction in online distance learning. *International Review of Research in Open and Distance Learning*, *19*(3), 222–42. https://doi.org/10.19173/irrodl.v19i3.3417

Wulanjani, A. N., & Indriani, L. (2021). Revealing higher education students' readiness for abrupt online learning in Indonesia amidst COVID-19. *NOBEL: Journal of Literature and Language Teaching*, *12*(1), 43–59. https://doi.org/10.15642/NOBEL.2021.12.1.43-59

Yudiawan, A., Sunarso, B., & Sari, F. (2021). Successful online learning factors in COVID-19 Era: Study of Islamic higher education in West Papua, Indonesia. *International Journal of Evaluation and Research in Education*, *10*(1), 193–201. https://doi.org/10.11591/ijere.v10i1.21036