# Effects of Synchronous and Asynchronous Online Instructional Approaches on English-Learning Undergraduate College Students: An Exploratory Study

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**Abstract:** Although the significance of the use of online classes remains evident due to their growing prevalence at US universities, they still remain an untested experience for countless English learners (ELs). This research explores EL students' perceptions of the opportunities for interaction in synchronous and asynchronous online university classroom modalities. It also examines how socioacademic relations and Bandura's social learning theory can explain the interactions between students and instructors that influence EL students' literacy development. Participants (*n*=105) were selected from a large sample pool of 261 EL undergraduate student participants aged 18 to 35. A mixed methods design was utilized in this study. Quantitative data were analyzed using paired sample *t*-tests, and Cohen's *d* effect size was evaluated. Results indicated that EL students perceived that synchronous courses provided more opportunities for interaction (language input and language output) than asynchronous online courses. Research implications are thoroughly discussed.

*Keywords:* Language minority students, English learners, higher education, synchronous course, asynchronous course, student engagement, social learning theory.

A deficit view of bilingualism is embedded in U.S. history (Hakuta, 2011). However, research shows that individuals who are bilingual or multilingually proficient have more cognitively complex thinking patterns compared to their single-language peers (Hakuta, 1983). There is ample evidence showing the cognitive benefits of bilingualism, especially in the area of executive function (Bialystok, 2005, 2010; Bialystok & Craik, 2010). The number of ELs in U.S. public schools, who account for the greatest growth of ELs, grew by one percent between 2010 and 2018, from 4.5 million to 5 million students, a percentage that is expected to continue to increase (National Center for Education Statistics, 2022). California and four other states saw increases of EL students of more than 40 percent, and more than 50% of states saw an increase in the number of EL students. This growth points to a need to create systems to prepare both the students and academic institutions for the change.

Understanding the potential of language-minority students can lead to an increase in the quality of online instruction in higher education. Acquiring new language skills is a significant part of language-minority students' learning process. Learning for language-minority students is not just a cognitive activity, it is a complex social process dependent on interactions (Mills, 2014) and relationships between the learners, their instructors, and their peers. Socioacademic relationships that focus on instructor and student interactions influence EL students' literacy development (Leki, 2007). This concept is based on a view of language learning that moves beyond considering it merely a cognitive activity to imagining it as a social activity. Language learning theories presuppose that learning occurs with others. Therefore, ELs' college learning environments are extensively affected by both their instructor and peer interactions.

Social learning theory is closely related to the concept of socioacademic relations (Bandura, 1986; Leki, 2007). It emphasizes learning within the social environment by observing others and then imitating that learned behavior. This theory is applicable to higher

education language study because, as a language learner observes the use of language and observes the social cues around that language use, the learner's understanding of potential language uses are developed and, in turn, are modeled. Modeling is an essential aspect of learning, particularly in situations where students are acquiring the complex skill of language acquisition (Bandura, 1986).

Additionally, social learning theory says that the act of being human depends on continuous "triadic reciprocality," (Bandura, 1986, p. 18) based on the shared interaction of behavior, personal factors, and environment. *Behavior,* which can be regulated, in language learners is the production of language (or language output); *personal factors* include participation in classroom activities; and an *environment* includes situations that encourage a student's use of their second language.

**English Language Development**

Much research addresses language-minority students in K-12, but there is limited scholarship on language-minority students in higher education. This lack of research might be due to the fact that ELs do not get classified by language once they move to higher education, making it difficult to identify and address these students' unique needs (Leki, 2007). ELs face barriers in schools resulting from fundamental confusion about both what they need to know while simultaneously supporting their linguistic and academic development (Wong Fillmore, 2014). Language acquisition requires abundant, interaction-filled contact with speakers of that language because those speakers provide learners with experience seeing how language *looks* when it is used correctly.

**Interaction**

Learning occurs when students interact with content, the teacher, and other students. Interaction is both conversing with others (i.e., expressing one's ideas verbally) and listening to others converse in a specific content area. Language learning theories emphasize that it is

this interaction (Mills, 2014) that is essential for academic language development. The experiences of ELs in higher education are significantly influenced by their interactions with peers and instructors in coursework and their social identity development as ELs (Núñez et al., 2016). Thus, learning environments that do not include direct interaction with teachers and other students—as seen in many online asynchronous courses—might not be efficient environments for language-minority students in college.

**Synchronous Versus Asynchronous Learning**

First-year college students enrolled mostly in online classes report lower levels of collaborative learning, fewer diverse discussions with others, and a lower quality of interactions (Dumford & Miller, 2018). Research indicates that interactive, synchronous online courses are more effective in facilitating learning and students prefer synchronous courses that include high levels of interaction to asynchronous classes (Offir et al., 2008; Skylar, 2009). Research also suggests that asynchronous modules lack the resources for students to have meaningful dialogue with their instructor and with other students (Offir et al., 2008). In asynchronous modalities, students are not able to question their instructor, which hinders a deeper understanding of the material. This teacher presence is important for students' motivation to learn.

Asynchronous courses are generally more challenging for students because they lack the real-time interaction that occurs in traditional in-person or virtual synchronous classrooms. Success in undergraduate asynchronous courses is often dependent on the level of autonomous skill a student has (Linn, 1996). Autonomous learning ability requires students to have high levels of judgment and deductive thinking skills which include organizing time, placing reasonable goals, deciding on learning materials, and a familiarity with their individual learning routines.

There is a gap in the literature examining the difference in benefits for EL students' academic language development between synchronous and asynchronous online classroom modalities. The literature lacks information on ELs. There is also a dearth of research regarding college EL students' experiences and successes. What we do know is that teachers in higher education admit that EL students struggle in college and that some action is necessary to address this issue. The Master Plan of California (ICAS, 2002) suggests following the theories of second-language acquisition to address this issue, and that is what this study explores.

**Student Engagement**

Classroom engagement is a personal factor that has been linked to learning outcomes. Students' opportunities to develop and learn in a classroom environment include positive and active engagement with peers, instructors, and learning activities (Atkinson, 2011; Block, 2003; Gutierrez, 1995; Hawkins, 2004). Creating classroom activities that increase language input and language output opportunities for EL students will increase their chances for instructor and peer interaction and thus increase their academic language development. Engagement is an important component of the learning process, and research shows that online learning is not as engaging as in-person courses (Kemp & Grieve, 2014).

However, the level of engagement might differ between the two subcategories of online learning: synchronous and asynchronous. Previous research shows that U.S. college students perceive student-teacher engagement strategies (i.e., practices prevalent in synchronous classroom formats) to be more important than student-content (i.e., practices prevalent in asynchronous classroom formats) and student-student engagement strategies (i.e., practices could be employed in both formats; Martin & Bolliger, 2018). Creating situations for interaction and asking questions is very crucial for ELs. Students state that allocating time for questions and answers during the online class, posting regular

announcements, and emailing reminders are among the most effective student-instructor engagement strategies used in online learning environments (Martin & Bolliger, 2018).

Bilingual students whose second language is English might not be exposed to English academic language at home because they are generally first-generation college students (Harklau et al., 1999). Almost half (47%) of ELs had not enrolled in college and only 18% had advanced to four-year colleges two years after graduating from high school (Kanno & Cromley, 2013, 2015). Post-secondary outcomes of ELs are markedly lower than those of their monolingual peers (Núñez et al., 2016). Thus, the pedagogical preference should be to employ the online learning modality that would focus on retention for college EL students.

## Language Learning Theory

To examine whether students perceive themselves to have opportunities to express their ideas verbally and to listen to others express their ideas, this study used language learning theories and social learning theory. The interaction hypothesis (Long, 1996), the input hypothesis (Krashen, 1982), and the output hypothesis (Swain, 1985) form the rationale for this study. During second-language acquisition, an EL must receive clear input that is just above the learner's comprehension of that language. This should then be followed by a minimal amount of output in the language being learned. For efficient language acquisition, a learner needs to be involved with the negotiation of meaning that occurs during constant language input and output. A learner will create a response based on what they hear. However, if learners do not understand what they hear, they will not be able to comprehensibly respond. This debate for meaning happens by combining the input and output during an interaction.

## Research Objective

The primary purpose in combining the interaction, input, and output hypotheses is to examine differences in EL students' perceptions of language input, language output, and

interaction opportunities during synchronous and asynchronous online classroom modalities. The secondary purpose of this study was to explore EL students' perceptions of their engagement in their online synchronous and asynchronous courses.

**Research Questions and Hypotheses**

The following research questions and hypotheses were measured:

**Research Question One:** Are there differences in EL students' perceptions of language input, language output, and interactions with others in synchronous versus asynchronous online classroom modalities?

Since language learning theories presuppose that learning occurs with others, ELs college learning environments are affected by both their instructor and peer interactions. This research question is concerned with how beneficial these interactions are in an online learning environment.

Learners need to be involved with the negotiation of meaning that occurs during constant language input and output for efficient language acquisition. A learner will create a response based on what they hear. The following hypotheses assume that synchronous modalities offer more opportunities for real-time responses, which will provide more input and output opportunities than asynchronous modalities.

$H_{1A}$: The opportunities for language input (e.g., listening to others speak) will be perceived to be greater during synchronous online classroom modalities than during asynchronous classroom modalities.

$H_{1B}$: The opportunities for language output (e.g., expressing ideas verbally) will be perceived to be greater during synchronous online classroom modalities than during asynchronous classroom modalities.

H$_{1C}$: The opportunities for interaction (e.g., interaction with peers or with faculty) will be perceived to be greater during synchronous online classroom modalities than during asynchronous classroom modalities.

**Research Question Two:** Are there differences in EL students' perceptions of their engagement when taking synchronous versus asynchronous online undergraduate courses?

This research question is concerned with how students perceive their engagement given that social learning theory includes modeling is an essential aspect of learning, and because shared interaction among three determinants of behavior, personal factors, and environment occur differently depending on the modality.

**Methodology**

This study utilized both qualitative and quantitative approaches to investigate student perceptions of the opportunities for interaction provided in synchronous versus asynchronous courses. Using a mixed methods design enabled the researchers to combine the strengths of both qualitative and quantitative data (Creswell, 2008). Quantitative data provided the evaluation of the frequencies of occurrences, while qualitative data enabled the exploration of participant perspectives by asking open-ended questions that "provided actual words of people in the study, offered many different perspectives on the study topic and provided a complex picture of the situation" (Creswell, 2008, p. 552). The strengths of both methods provide unique, distinctive analysis.

The quantitative questions asked for responses for both synchronous and asynchronous courses (i.e., the survey included a side-by-side display of questions for each). A Likert-type scale was used for all questions on the survey. Qualitative data were collected at the end of each subcategory (i.e., opportunities for input and output, engagement, and interaction) on the survey, where students offered responses they felt were important.

**Participants**

EL participants ($n$=105) were selected from a large sample pool of 261 undergraduate student participants ranging in age from 18 to 35, the majority of whom were age 21-25 ($M$=23.8; $SD$=3.4). The majority of respondents identified themselves as female (71%; $n$=75), and 24% ($n$=26) identified as males. The remaining 5% ($n$=4) indicated that they were transgender. Respondents varied in their levels of bilingualism as 77% ($n$=81) indicated that they had spoken fluently to fairly fluently more than one language since birth, which would categorize them as *simultaneous bilinguals*. When it comes to acquiring English language skills, 65% ($n$=68) of the respondents indicated that they started learning English as a second language later in life, which would categorize them as *sequential bilinguals*. Student status was also included on the survey as this university has a large pool of international students. However, the majority (86%, $n$=90) of the students identified themselves as California residents, with 14% ($n$=15) identifying as international students.

**Procedure and Measure**

This study used data collected from a public American university in California between April 2021 and August 2021. Students were recruited from both online synchronous and online asynchronous classes and were offered extra credit for their participation. Students registered in online courses were provided with the link to a Qualtrics software survey, which included the informed consent form and the researcher's contact information. Participants took approximately 15 to 30 minutes to complete the questionnaire. Incomplete surveys were discarded from analysis. Ethical approval to conduct research was granted from the university (protocol number E14-120).

**Demographic Characteristics**

The demographic questionnaire asked for age, gender, current academic major, and student resident status (i.e., international, California, or another US state resident). Age and gender items were open-ended questions, which were then recoded into groups.

**Analytic Strategy**

Differences in students' perceptions of the level of opportunity for output (i.e., to express their ideas verbally) and input (i.e., opportunity to listen to others and converse with them) in synchronous versus asynchronous online courses were analyzed through paired sample $t$-test analyses. Statistical significance was established at $p \leq .05$. Effect size (Cohen's $d$) was determined for all synchronous versus asynchronous comparisons.

**Results**

For hypotheses $H_{1A}$-$H_{1C}$, the differences in EL students' perceptions of opportunities for language input ($H_{1A}$), language output ($H_{1B}$), and interaction ($H_{1C}$) during synchronous and asynchronous online classroom modalities from paired sample $t$-tests indicated significant differences between synchronous and asynchronous modalities, consequently rejecting null hypotheses $_{1A-C}$ (see Tables 1-3).

*Research Question One*

Students' perceptions of the level of opportunity to express their ideas verbally differed between synchronous ($M$=3.6, $SD$=.99) versus asynchronous ($M$=3.2, $SD$=1.1, $p$=.00, $d$=1.1) online courses. Verbal interaction is an important aspect of language development for ELs as it will help them improve their academic language, and also help their familiarization with academic culture as they are frequently first-generation college students. Results showed that students perceived there to be more opportunity to express their ideas verbally in synchronous online courses as opposed to in asynchronous online courses (see Tables 1-3).

Verbal interaction and opportunities to listen to others express their ideas verbally are crucial for ELs' development of their academic language. There were differences found in students' perceptions of the level of opportunity to listen to others express their ideas verbally in synchronous ($M$=3.8, $SD$=1.0) versus asynchronous ($M$=3.5, $SD$=1.1, $p$=.00, $d$=1.1) online courses. Students perceived there to be more opportunity to listen to others express their ideas verbally in synchronous online courses than in asynchronous online courses. One student wrote, "Asynchronous classes should have more detailed videos and more open availability for questions."

Another important variable for academic language development is the amount of interaction available to students in academic settings, as interactions with peers are as important as interaction with instructors. The results indicated that students look forward to interacting with instructors in synchronous ($M$=3.7, $SD$=.99) courses more than in asynchronous ($M$=3.5, $SD$=.89, $p$=.03, $d$=.92) courses. Students look forward to peer interactions only slightly more in synchronous ($M$=3.4, $SD$=1.0) courses versus asynchronous ($M$=3.2, $SD$=.92, $p$=.15, $d$=.88) courses, as well as look forward to group interactions only slightly more in synchronous ($M$=3.0, $SD$=1.1) courses versus asynchronous ($M$=2.9, $SD$=.92, $p$=.27, $d$=.89) courses. Peer and group interactions are not overseen by the instructor in synchronous settings as they are in in-person classroom settings. Students might be more hesitant to communicate with their classmates online via Zoom when they never met in person (see Table 3).

**Table 1**

*Item Analysis of Student Perceptions Toward Language Input and Output in Online*

*Learning Modalities (N = 105)*

| | Never | | Seldom | | Sometimes | | Frequently | | Always | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | f | % | f | % | f | % | f | % | f | % | Mean | Std. |
| 1. How often did your course provide opportunities for expressing your ideas verbally? Synchronous Courses | | | | | | | | | | | | |
| | 2 | 1.9 | 10 | 9.5 | 34 | 32.4 | 36 | 34.3 | 23 | 21.9 | 3.65 | .99 |
| 2. How often did your course provide opportunities for expressing your ideas verbally? Asynchronous Courses | | | | | | | | | | | | |
| | 10 | 9.5 | 14 | 13.3 | 37 | 35.2 | 27 | 25.7 | 17 | 16.2 | 3.26 | 1.16 |
| 3. How often did your course provide opportunities for expressing your ideas in written form? Synchronous Courses | | | | | | | | | | | | |
| | 3 | 2.9 | 9 | 8.6 | 39 | 37.1 | 36 | 34.3 | 18 | 17.1 | 3.54 | .97 |
| 4. How often did your course provide opportunities for expressing your ideas in written form? Asynchronous Courses | | | | | | | | | | | | |
| | 3 | 2.9 | 6 | 5.7 | 42 | 40.0 | 31 | 29.5 | 23 | 21.9 | 3.62 | .98 |
| 5. How often did your course provide opportunities for listening to others express their ideas? Synchronous Courses | | | | | | | | | | | | |
| | 3 | 2.9 | 8 | 7.6 | 23 | 21.9 | 40 | 38.1 | 31 | 29.5 | 3.84 | 1.03 |
| 6. How often did your course provide opportunities for listening to others express their ideas? Asynchronous Courses | | | | | | | | | | | | |
| | 6 | 5.7 | 10 | 9.5 | 38 | 36.2 | 28 | 26.7 | 23 | 21.9 | 3.50 | 1.11 |

Mean of 1=Never, 5=Always.

**Table 2**

*Item Analysis of Student Engagement Perceptions (N = 104)*

| | Never | | Rarely | | Sometimes | | Often | | Always | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | f | % | f | % | f | % | f | % | f | % | Mean | Std. |
| 1. In general, how often did you feel engaged during synchronous Zoom class meetings? | | | | | | | | | | | | |
| | 1 | 1.0 | 12 | 11.4 | 45 | 42.9 | 37 | 35.2 | 10 | 9.5 | 3.41 | .85 |
| 2. In general, how often did you feel engaged with your classmates in a breakout room during a synchronous Zoom class meeting? | | | | | | | | | | | | |
| | 7 | 6.7 | 17 | 16.3 | 36 | 34.6 | 33 | 31.7 | 11 | 10.6 | 3.23 | 1.06 |
| 3. In general, how engaged did you feel when you were making a presentation during synchronous Zoom class meetings? | | | | | | | | | | | | |
| | 3 | 2.9 | 27 | 25.7 | 42 | 40.0 | 32 | 30.5 | 1 | 1.0* | 3.01 | .84 |
| 4. In general, how often did you feel engaged during other student presentations in a synchronous class Zoom meeting? | | | | | | | | | | | | |
| | 4 | 3.8 | 16 | 15.4 | 36 | 34.6 | 35 | 33.7 | 13 | 12.5 | 3.36 | 1.01 |
| 5. In general, how often did you feel engaged with posting to the chat during a synchronous Zoom meeting? | | | | | | | | | | | | |
| | 5 | 4.8 | 17 | 16.2 | 43 | 41.0 | 31 | 29.5 | 9 | 8.6 | 3.21 | .97 |
| 6. In general, how often did you feel engaged watching a video tutorial online for an asynchronous class? | | | | | | | | | | | | |
| | 1 | 1.0 | 13 | 12.5 | 30 | 28.8 | 41 | 39.4 | 19 | 18.3 | 3.62 | .95 |
| 7. In general, how often did you feel engaged in posting to a class forum online for an asynchronous class? | | | | | | | | | | | | |
| | 2 | 1.9 | 12 | 11.7 | 31 | 30.1 | 34 | 33.0 | 24 | 23.3 | 3.64 | 1.02 |

Mean of 1=never, 5=always

Question 3: Mean of 1=minimally, 2=somewhat, 3=a good amount, 4=quite engaged 5=not applicable*

**Table 3**

*Paired Samples* t-*test for Differences in EL Students' Perceptions of Synchronous vs. Asynchronous Online Modalities*

| | Synchronous Online courses | | Asynchronous Online courses | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | df | $t$ | $p$ level | Cohen's $d$ |
| Opportunity to express ideas verbally | 3.6 | .99 | 3.2 | 1.1 | 104 | 3.6 | .00** | 1.09 |
| Opportunity to express ideas in written form | 3.5 | .97 | 3.6 | .98 | 104 | -.84 | .40 | .92 |
| Opportunity to listen to others express ideas | 3.8 | 1.0 | 3.5 | 1.1 | 104 | 3.1 | .00* | 1.13 |
| Look forward to instructor interactions | 3.7 | .99 | 3.5 | .89 | 104 | 2.1 | .03* | .92 |
| Look forward to peer interactions | 3.4 | 1.0 | 3.2 | .92 | 104 | 1.4 | .15 | .88 |
| Look forward to student/ student group interactions | 3.0 | 1.1 | 2.9 | .92 | 104 | 1.1 | .27 | .89 |
| I liked asking questions in class | 3.28 | 1.1 | 3.12 | .93 | 104 | 1.6 | .11 | .98 |
| I liked asking my friends to share/discuss their work | 3.41 | .97 | 3.33 | .93 | 104 | .97 | .33 | .80 |
| I liked knowing my classmates were in class with me | 3.71 | .97 | 3.63 | .90 | 104 | .92 | .35 | .95 |

Mean of 1=Strongly Disagree, 5=Strongly Agree

Sig. $\leq$.05* .00**

Although this next set of questions showed no significant $p$ level, the questions had high Cohen's $d$ effect size values, which indicates large practical differences. A substantial part of the learning process is providing students with opportunities to ask questions, which becomes even more important for ELs trying to acquire academic language, because asking questions can lead to a conversation, which is a crucial building block of language learning. Student responses indicated that they like asking questions in synchronous ($M$=3.3, $SD$=1.1) online classes more than in asynchronous ($M$=3.1, $SD$=.93, p=.11, $d$=.98) online classes, which was also reflected in their responses stating that they like asking friends to share and discuss their work in synchronous ($M$=3.4, $SD$=.97) online classes more than in asynchronous ($M$=3.3, $SD$=.93, $p$=.33, $d$=.80) online classes. Students also indicated that they like knowing their classmates are in class with them in synchronous ($M$=3.71, $SD$=.97) online classes more than in asynchronous ($M$=3.63, $SD$=.90, $p$=.35, $d$=.95) online classes (see Table 3). Because of the significant $p$ levels and high Cohen's $d$ values, working hypotheses $H_{1A}$-$H_{1C}$ were accepted and null hypotheses $H_{1A}$-$H_{1C}$ were rejected.

**Research Question Two**

The level of engagement during activities that provide exposure to language input and language output was explored. In language learning, engagement leads to academic language development. The results indicated that EL students perceived themselves to be engaged during classroom activities that provide exposure to language input and language output. For example, 70% of EL students indicated they were engaged when making a presentation (i.e., language output) during a synchronous class meeting. Students also felt more engaged during other students' presentations, as about a third of them indicated they felt engaged sometimes (35%) and another third said they are engaged often (35%) in that circumstance. When it came to being engaged during a real-time Zoom meeting and communicating via chat, 41% indicated they were sometimes engaged and 30% often engaged. See Table 2. One student

commented, "I really enjoy being able to share my opinion in settings like the chat, forums, and just being able to talk in class."

The results of this study also indicated that students felt sometimes engaged with their peers in an online group interaction platform on Zoom called a breakout room. However, they also indicated that it was difficult to get started with discussions in breakout rooms because of hesitancy to participate. One student wrote, "Although it is difficult to teach online, just as it is to learn as a student, I would limit breakout rooms as oftentimes students do not participate or even speak."

The majority of students indicated that they felt engaged (33% often engaged, 20% always engaged) when posting to forums during an asynchronous class. However, one student said, "I preferred when professors made engagement with my peers be through video chat rooms instead of forum posts. I felt as [though] posts aren't nearly as engaging as a live video chat."

The Zoom platform was used for synchronous class meetings in online courses. One student wrote, "I like Zoom; I think it's a good way to learn if we can't go to school physically." However, there was also a recurring theme in the qualitative student comments about wanting to take courses in person rather than online in general. One student wrote, "In my opinion, being on Zoom is not that engaging since we have to take the classes in areas that may distract us." Another students wrote, "Online class will save some traffic time, but I become lazier than before." Another student wrote, "I felt that it was not as much engaging as it is in a physical in-person class."

**Conclusions**

This study provided evidence that undergraduate EL students perceived that there was more opportunity to express their ideas verbally in synchronous than in asynchronous online courses. It is important for undergraduate EL students to have opportunities to express

themselves verbally in an academic subject so that they continue acquiring academic language throughout college. These results support the output hypothesis (Swain, 1985). which underscores how conversation provides the motivation for students to produce a comprehensible, grammar-complex output. The language learner then has the opportunity to notice their mistakes and then learns the correct form of language structure.

These results also demonstrated that undergraduate EL students perceived there was more opportunity to listen to others express their ideas verbally in synchronous than in asynchronous online courses. It is also important for undergraduate EL students to have opportunities to listen to others express themselves verbally in an academic setting. Listening to others express themselves also helps EL students understand the culture and pragmatics of the language they are acquiring. These results also concur with the input hypothesis, which emphasizes that being exposed to language input helps ELs acquire a language (Krashen, 1982). The input hypothesis states that the input learners receive must be both understandable and sound natural. In academic settings, the learner has the freedom (i.e., naturalistic) to ask questions if they do not comprehend an idea. The question could be answered in real time by a teacher or peers in a synchronous classroom setting, but it would be more difficult to ask the question or receive an answer to it during asynchronous classroom instruction, requiring more steps to contact the teacher or peers to ask the question. There is also a response time lapse as emails are not always immediately answered.

Thus, asynchronous learning could impose barriers for EL students striving to attain a college degree. Online asynchronous courses may be convenient and give students the ability to work and maintain family obligations. So, with adjustments they could be more beneficial to EL undergraduate students; for example, incorporating some synchronous course meetings.

**Viewing Academic Language Development Through Bandura's Lens**

To summarize, social learning theory examines human behavior resulting from "triadic reciprocality," which involves shared interaction among three determinants: behavior, personal factors, and environment (Bandura, 1986). The interaction of the triad helps explain the findings of students' perceptions of online learning environments. EL students learning will be more efficacious when interaction occurs amongst the three determinants.

The level of engagement during activities that provide exposure to language input and language output was explored. In language learning, engagement leads to academic language development. The results of this study indicate that EL students perceived themselves to be engaged during many of the classroom activities that provided exposure to language input (Krashen, 1982) and language output (Swain, 1985). For example, the majority of EL students indicated they were engaged when making a presentation (language output) during a synchronous class meeting. Students also felt more engaged during other students' presentations.

When it came to being engaged during a real-time Zoom meeting and communicating via the chat, more than half of the EL students said they were engaged, a result that was also confirmed by qualitative student responses. Communication via chat during Zoom can easily lead to a verbal discussion on platforms like Zoom, which supports the opportunity for language input and language output. This finding supports Leki's (2007) sociocacdemic relationships which occur when instructor and student interactions occur and then influence EL students' literacy development. The breakout room functionality on Zoom allows the instructor to put students into groups for discussions in real time. Although many students felt somewhat engaged being in the breakout rooms, some indicated in their qualitative comments

that there was hesitancy to participate in discussions while in breakout rooms as the teacher would normally not be present and able to monitor groups' discussions.

Just over half of the EL students indicated that they also felt engaged when posting to a forum during an asynchronous online class. However, participation in a forum cannot lead to a verbal conversation as a chat might. Qualitative student responses indicated that students preferred engagement with peers via real-time video chat over forum posts. In conclusion, an asynchronous modality does not provide as many opportunities for students to converse in real time; thus, there is not enough opportunity for language input and language output to occur. There are only opportunities to communicate in written form in asynchronous courses, which is not sufficient for EL students and their academic language development.

These findings are similar to previous research that measured differences between synchronous vs. asynchronous modalities but did not indicate whether any of the students were EL students (Offir et al., 2008; Skylar, 2009). These authors also found that interactive, synchronous online courses are more effective in facilitating learning and students prefer synchronous courses that include high levels of interaction to asynchronous classes (Offir et al., 2008; Skylar, 2009).

It is worth mentioning that many EL students noted in their qualitative comments that they would prefer going back to in-person courses rather than being online, even though there was no mention of in-person courses on the survey. It appears that the next best thing to in-person classes for EL students in higher education is the synchronous learning modality with real-time meetings. To support EL students in higher education it is recommended that a synchronous online classroom modality should be utilized.

**Recommendations**

The findings of this research lend themselves to two specific recommendations for higher education educators and administrators in order to increase retention and graduation

for EL students. The pedagogical preference is to employ synchronous online learning modalities. Therefore, online asynchronous courses should be adjusted to incorporate at least some synchronous opportunities. Additionally, admission administrators should develop a system to classify ELs by language proficiency when they enter college, as well as to track their progress in order to develop future protocols. Leki (2007) suggested that it is currently difficult to identify EL students' needs in higher education when their language strengths and weaknesses are unknown.

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