Silence over the wire: student verbal participation and the virtual classroom in the digital era

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Abstract

This paper addresses the pervasive absence of verbal student participation in the online class, a phenomenon observed by many lecturers and instructors expressing the frustrating and uncomfortable experiences of encountering silence from their students, particularly when it came to responding to their questions. Added to the frustration is the observed preference of students to not turn on their videos. Whilst studies on student silence in classroom discourse have been well documented in the research literature, this phenomenon has taken on new significance in the virtual classroom, the new norm in the learning context during, and most likely after, the COVID-19 situation. This study attempts to capture the perceptions of the students themselves on student silence in terms of frequency, reasons and its impact on classroom communication and meaningful learning. A questionnaire was distributed to students at a local university, followed by student focus group interviews. Data collected were then subjected to a combination of quantitative and qualitative methods of analysis. The results show that student silence is a common feature in the online classroom and that students do perceive their silence to negatively affect the flow of communication both between themselves and with their lecturers. However, the question of whether meaningful learning still occurs despite the silence is more complex and less clear, raising questions not only about what is meant by meaningful learning but also the claim by classroom discourse studies and writings that student verbal participation is key to successful learning.

Introduction

The COVID-19 pandemic has brought considerable changes to the education sector worldwide (Murphy, 2020) where an estimated 1.6 billion students are affected by the closure of physical classrooms, and the absence of face-to-face learning (UNESCO, 2021). In order to conform to social distancing guidelines in an attempt to curb the spread of the coronavirus, schools and other educational institutions have switched to online classrooms (Weeden & Cornwell, 2020). Given the breakneck speed of the change, and following the 'norms' of e-learning or online learning, many schools and instructors have had to implement new teaching and learning procedures. Even before COVID-19 there is observed to

be a general trend towards virtual learning. The pandemic that resulted in lockdowns in many countries around the world precipitated the wholesale and sudden move towards digital and distance learning (Burgess & Sievertsen, 2020; OECD, 2020) with many educational institutions and parents struggling to cope with this sudden move. Over the last 2 years, there have been a substantial number of studies on the positive and negative aspects of online learning experienced by teachers and students in various contexts. Amongst the focal areas of study is the impact of the online classroom on student verbal participation. Many studies showed that online learning does not promote student verbal participation (Arora & Srinivasan, 2020; Baris & Cankaya, 2016; Chen et al., 2001; Jin, 2005; Kaya & Önder, 2002) which negatively affected meaningful learning and classroom communication. Joshi et al. (2020) believes that due to the absence of face-to-face student–student and student–lecturer socialisation, it is questionable if online learning actually leads to successful learning. Before proceeding any further, it is

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necessary to carry out a review of the literature on online learning, student silence or non-verbal participation and communication,

Online learning, student silence and communication

Online learning, also known as remote or distant learning, means that students and teachers are physically distant from each other and are connected via virtual platforms (Fry, 2001; Wang et al., 2013; Wilde & Hsu, 2019). In simple terms, it means "instruction offered via the internet to students using their own computers" (Means et al., 2020, p. 4). Students and teachers may be able to interact and cooperate with each other provided that the technology is used effectively (Bower, 2019; GarcíaBotero et al., 2018; Gonzalez et al., 2020), the users comply (Tarhini et al., 2016) and it is seen to be practical (Kemp et al., 2019; Yakubu & Dasuki, 2019). On the student participation front, some studies suggest that online learning could generate self-confidence, classroom interaction, improve pedagogical standards and conversation skills (Bailey & Lee, 2020) in the sense that online learning provides more time for students to ponder on instructors' questions before responding. Furthermore, written responses via the chatbox feature available in many online learning platforms could help promote students' writing skills (Carter et al., 2020). The opportunity given to re-read and reconsider responses before sending them online may also contribute towards personal reflection (Guiller et al., 2008; Kim et al., 2007). In addition, virtual classrooms may benefit shy and introverted students who are unwilling or reluctant to participate in face-to-face classes (Altuwairesh, 2021; Belcher, 1999). Studies have found that students can benefit more from their learning when given the option to participate either verbally or non-verbally (Bailey & Lee, 2020; Belcher, 1999; Sun & Chen, 2016; Yamat, 2013). Many online platforms provide written chat functions so students may opt to send a private non-verbal question to their teacher or their classmates, particularly when they want to avoid being seen as confused and uncertain by classmates. Apart from the written chats, there are paralinguistic cues in the form of icons for students to communicate with their lecturers (Kohnke & Moorhouse, 2020). Many online learning platforms also have breakout rooms which students can use to interact with one another, although it is not clear how these breakout rooms help in student–lecturer interaction.

It has to be noted that the positive aspects of student participation gathered from these studies tended to be in the written mode, largely via the chat box and other virtual functions provided in many e-learning platforms. It is recognized that the instructional practices for online classrooms may be quite different from physical classes, and therefore present a different set of communication features in place of the traditional oral features such as turn-taking, face, repair and immediate feedback (Luff et al., 2003). The main complaint in online learning is the absence of these oral features of communication on the part of the students (Bannink & Van Dam, 2021; Weiner, 2020). According to Weiner (2020), online college classes in the United States of America are deathly quiet where no one talks. There are lengthy pauses as professors wait for student responses that never come and the only kind of responses are brief and weak just to avoid the awkwardness of the silence. Although this picture of the silent online classroom may appear to be dramatic, a review of the current literature on the issue of student silence in the on-line classroom may not be confined to colleges across the United States but can also be found in other contexts. Bannink & Van Dam (2021) in their study of university students in the Netherlands found that because they could not share the same physical space with their teachers, students felt isolated, invisible and demotivated. Moreover, the absence of the physical paralinguistic cues such as eye contact, laughter, body and facial gestures presented added problems in terms of turn-taking and backchannel responses, resulting in students feeling very confused about who speaks next and the limited teacher feedback. In a three-year study of graduate and undergraduate students in a university in the United States, Cole et al. (2013) found that the top reason for student dissatisfaction with online learning was the absence of verbal interaction.

Bailey & Lee (2020) found that the main challenge amongst instructors appears to be clear communication channels. Instructors find it difficult to communicate effectively with their students in online classes due to limited opportunities to initiate genuine face-to-face interaction. The result is student fatigue, anxiety and boredom. Lau et al. (2020) assert that the quality of the physical face-to-face interaction will never be matched by other modes of communication that prioritizes any kind of non-human interaction". Similarly, in the Saudi context, the major obstacle reported by students was the absence of face-to-face interaction with their instructors and students (Mahyoob, 2020) which affected their motivation and focus. The overall impression from such studies is that online learning is largely a one-way channel of communication that lacks dynamism, elicits fewer immediate student responses, and creates confusion and misunderstanding (Jonassen & Kwon, 2001; Meyer, 2003). Bannink & Van Dam (2021) note frequent student frustrations and awkwardness often arise from clashes in speaking turns, little verbal feedback from instructors and the absence of backchannel repair tokens from the listening party.

One reason why students hold back from participating in online classrooms may be due to their reluctance to interrupt their lecturers. Another reason may be because they wish to avoid overlapping the speech of those who tend to dominate classroom discussion. Thus, it is the outspoken ones who

share their ideas willingly, and other students would be quiet to avoid confrontation or disagreements to maintain the harmony of the classroom (Hewitt, 2005; Liu et al., 2008; Murphy & Coleman, 2004). Students may also be reluctant to speak up because of the complexity of the questions asked, and the fear of losing face by giving incorrect responses (Schellens et al., 2005).

What can be gleaned from the above review is that the main issues with student online verbal participation, or lack of it, appear to be conversational, that is, not knowing when to take a turn especially when the cameras are turned off and not being able to provide backchannel responses. These are often defined as reactive and proactive responses that a listener provides to show his/her presence in the conversation (Clancy et al, 1996; Tolins & Tree, 2014; Yngve, 1970)) as well as to show support or affirmation or attention to what is being said by the listener. Subsumed under the wide area of discourse markers in conversational analysis, backchannel responses are crucial for successful communication. In a sense, online learning is not very different from telephone conversations where because of the absence of face-to-face interaction, the absence of these backchannel tokens from the listener may be unnatural and can often cause awkwardness and a breakdown in the conversation. Whilst the research literature shows that student silence in online learning may cause problems in successful communication, there is the question of whether it also negatively affects meaningful learning. Does meaningful learning occur despite the absence of student verbal participation in online classes?

Student silence and meaningful learning

Studies have shown that student non-participation and unresponsiveness are generally prevalent in online classrooms (Beaudoin, 2002; Jones, 1999; Malesic, 2022; Weiner, 2020; Zembylas & Vrasidas, 2007). It is noted that student silence is not confined to the virtual classroom. It is also a common feature in physical classrooms (Bao, 2019; Flowerdew et al, 2000; Harumi, 2011; Yu, 2021), although in online learning, silence can make people more nervous and self-conscious due to the absence of paralinguistic cues such as gaze, eye contact, body gestures and so forth. Thus, these prolonged pauses can disrupt communication, thus create confusion and misunderstandings (Bannink & Van Dam, 2021; Vrasidas, 2002; Vrasidas & Chamberlain, 2002; Zembylas & Vrasidas, 2007). The absence of paralinguistic cues could also restrict student participation which makes it more difficult for students to be engaged in class (Moorhouse, 2020). Earlier studies suggest that student verbal response in the classroom plays a key role in successful and meaningful learning (Bakhtin, 1986; Johnstone, 2002; Sinclair & Coulthard, 1975). Meaningful learning occurs when

students actively respond to teacher questions to further expand, negotiate and develop their knowledge and analytical skills. According to Sinclair & Coulthard (1975), the 'R' in the I-R-E (Initiation—Response—Evaluation) pattern of classroom talk is important as it elicits the 'E' or evaluative response from the teacher. This teacher evaluative comment or feedback is an important aspect of learning. Thus, student silence became a matter of great pedagogical concern amongst educationists (Wright, 1989) between the 1970s and 1990s.

More recently, however, there has been a change in the perception of student silence. In a survey conducted across the United States, Allen & Seaman (2013) found that seventy-seven percent of university leader respondents rated learning outcomes to be similar or even better with online education when compared with face-to-face learning. The findings, however, were from the educators and not students involved in online learning. Nevertheless, according to Bao & Nguyen (2020), student silence in the classroom is much misunderstood. Effective communication is both about "speaking and silence" (p.1). Students who are silent may not be socially or intellectually incompetent. Nor do they make poorer progress in their performance. Studies by Bao (2019, 2020) show how students use silence as a form of engagement not very different from verbal interaction. A number of studies have proven the impact of students' silent negotiation of their social world (known as internalisation) in acquiring knowledge (Frawley, 1997; Roberts, 2010; Winegar, 1997). The internalisation of input occurs in silence and allows the learner to think about the response before verbalising it. According to Nijstad et al. (2010), this mental process helps the learner to silently rehearse their response much in the same way verbal self-repair is manifested via pauses and correction tokens such as "I mean" (Goodwin, 1981; Tannen, 1993). This self-talk or inner speech allows the learner an adequate amount of time devoted to thoughtful participation and thus meaningful learning (De Guerrero, 1991).

Based on today's changing globalised contexts and domination of online learning, precipitated by the COVID-19 pandemic, the definition of silence may now include being quiet from writing (Zembylas & Vrasidas, 2007). What this means is that if students participate actively via the chat box, they cannot be considered to be silent and therefore not learning. Jurewitsch (2012) and Nguyen (2015) found that online learning can increase student performance because it accommodates to different student learning styles suited to their own needs. In Carter et al. (2020), students claimed that online classes allowed them more time to respond via the chat box. Furthermore, they could improve on their written skills when typing out their responses. The chance to re-read and reconsider responses before sending it online may also

contribute towards personal reflection (Guiller et al., 2008; Kim et al., 2007).

It is, however, difficult to understand how this inner talk or internalisation of input, and development of writing skills help in developing communicative skills within the framework of language learning (Bachman & Palmer, 1996). Indeed, someone who remains silent from the social conversational skills of turn-taking, initiation of talk, overlaps, opening and closing of conversations and use of discourse markers such as backchannel responses may actually find communication a challenge. And this verbal communication in the classroom discourse is, according to Sinclair & Coulthard (1975), paramount to successful learning. Weiner (2020) states that whilst the break-out rooms and interactive polls in many on-line learning platforms provide temporary solutions to break the silence and promote interactive activity, they do not generate the level of discourse that makes learning a transforming experience. Lino Guzzella, president of ETH Zurich, insists that "meeting people, interacting with peers, students and supervisors—in short, a real university environment—is the key to deep understanding" (Lau et al., 2020, p.3).

The present study examines one aspect of online learning at tertiary level in the Brunei context: the notion of silence in terms of student verbal participation in online classes and its effect(s) on learning. It looks at the missing 'R' in Sinclair & Coulthard's (1975) 'IRE' (Initiation-Response-Evaluation) pattern of classroom discourse, or the 'D' in Bakhtin's definition of 'Dialogue' as an interactive exchange between/amongst interlocutors, and how student silence in online classes affects the "dialogic stance" between lecturers and students (Jaeger, 2019, p. A3) and meaningful learning in the instructional space. The study attempts to examine the impact of student silence in online classes on meaningful learning from the pedagogical aspect and successful communication from a conversational analysis perspective.

Significance of the study

The COVID-19 experience has signalled a new norm in classroom learning and the learning environment as a whole. Instead of the physical space we are all accustomed to, instructors and learners are now engaged within a virtual space. Online learning has brought about a change in a key area in classroom discourse, and that is the verbal participation of learners within that learning space. As such, the significance of this study is very clear in that it highlights the issue of student verbal participation in the online classroom. Furthermore, it provides insights into how students interact with their instructors and their peers in such a space, and the impact of such interaction on meaningful learning and in the ebb and flow of classroom communication.

Context of study

The context under study is a local English medium university in Brunei Darussalam, a tiny Islamic sultanate located in the north–western part of Borneo Island in Southeast Asia. Malay is the country's national language with English as a significant second language due to its long history as a British Protectorate up until it gained independence in 1984. Most young Bruneians are fluent bilingual Brunei Malay-English speakers. The university went into full online learning mode during the height of the COVID-19 pandemic in early 2020 where all lectures and tutorials were conducted virtually.

It has to be noted that studies on student silence in the Bruneian context have been far and few in between and whatever studies that were carried out were limited to the physical classroom at the primary and secondary school levels. These studies have highlighted Bruneian students' reticence in the classroom. The general impression from teachers is that Bruneian students are shy, gentle, collectivistic, and generally unwilling to attract attention in the classroom (den Brok et al., 2006; Ida Rafidah Haji Dzolkefflie, 1993; Larking, 1996). There are a number of factors that attributed to the pervasive silent classroom culture, amongst which are (i) an education system that adheres strictly to the textbook and discourages any attempt to deviate from it (Martin, 1996), (ii) students' fear of giving the wrong answers and thus the reluctance to take any risks in the classroom (Nicol, 2008; Pieronek, 1995), (iii) Bruneian students' tendency to avoid confrontational episodes with peers and teachers (Blunt, 1988; Burns, 1998), and the unequal relationship in terms of status between teachers and students (den Brok et al., 2006; Dhindsa, 2008). Added to this is the national ideology of the country where it is generally considered rude for a person to question or 'talk back' to people older than themselves or to those in authority (Burns, 1998; Clynes & Henry, 2004; Ghadessy & Nicol, 2002; Saxena, 2009). To date, there has been no documented study on this topic at the tertiary level. This study attempts to address this gap in the literature by looking at the phenomenon in the online classroom.

Purpose of the study and research questions

The purpose of the study is to examine non-verbal student participation in the online classroom at tertiary level and its effect(s) on classroom interaction in the online class. Specifically, it aims to gauge perceptions of non-verbal student participation in online classes from the students' viewpoint. For this purpose, four research questions are posited:

  (i)   To what extent is student silence a distinguishing feature in the online class?

  (ii) How often do students feel awkward when there is silence in their online classes?

 (iii) What possible reasons are there for student silence?

 (iv) Can meaningful learning still be possible with student silence?

Methods of data collection and analysis

The data for this study were collected from 263 undergraduate students through responses to a survey. The participants were students from different programmes and levels of study across the faculties in a local university. They ranged from first to final year undergraduates from both the sciences (e.g., Faculty of Science, School of Digital Sciences, Institute of Health Sciences) and non-sciences faculties (e.g., Faculty of Arts & Social Sciences, School of Business & Economics, Academy of Brunei Studies). All participants had been involved in online classes almost exclusively since the start of the COVID-19 pandemic in 2020 and so had ample experience of online learning. Following the survey, five-student focus group interviews (SFG) were conducted with the purpose of probing further the questionnaire responses. All interviewees were from the survey respondents and participation was voluntary.

This study adopted a combination of quantitative and qualitative methods for data collection and analysis. A semi-structured questionnaire was distributed to the participants (see Appendix 1). Items in the survey were drawn up by the researchers based on the issue of student silence raised in the research literature and their observations from their own online classes. Each survey consisted of three sections. The first section required participant details relevant to the study. The second section contained a number of Likert-scale type items on student verbal participation in online classes to gauge student perceptions. Included in this section was a sample scenario to help direct participants to complete the items in the questionnaire. The last section posed an open-ended question. The questionnaire is bilingual in that each item has a Malay translation to ensure full understanding amongst Malay non-English speaking students. A pilot study was carried out to address issues of clarity of items. The link to the questionnaire was distributed to students' emails across the faculties. The responses from students were exported to Microsoft Excel for coding and quantitative analysis. A PivotTable was used to summarise and present the sets of data. The items in the questionnaire were further divided into categories according to the research questions posed. Categories comprising two or more items were then subjected to the Cronbach Alpha reliability test for internal consistency. The results were then presented in the form of tables showing the survey items and percentages for frequency of occurrences of responses under each item.

Following the survey, and based on simple random sampling, five-student focus group interviews (SFG) were conducted. These interviews were deemed to be necessary to provide further insights into the significant responses gathered from the questionnaire data. Altogether twenty-three students took part in the focus group interviews with five students in three SFGs and four students in two SFGs. A focus group interview offers opportunities for interactive discussion of differing, complex personal experiences and beliefs amongst respondents (Kitzinger, 1994; Morgan, 1998). As students may have different perceptions and attitudes towards student silence in the online class, it was felt that a focus group interview would be an appropriate method to gather their perceptions. Although an interview guide was drawn up with possible topics for discussion (see Appendix 2), these group discussions were largely unstructured interviews much like informal conversations where the researchers as moderators introduced a topic which was then expanded upon or further explored based on the interviewee(s) responses. The interviews lasted between fifteen and thirty minutes.

For the purpose of analysis, the interviews were audio-taped with the consent of the participants. Each interview was then transcribed and the transcript was subjected to a thematic analysis according to Braun & Clarke's (2006) framework. A thematic analysis gives primacy to experience (Holloway & Todres, 2003; McLeod, 2001) which is particularly relevant in this study. The SFGs promote a deeper sharing of student verbal participation in the online class by students themselves, which in turn provides valuable insights into the phenomenon of student silence in question. The goal was to identify themes and patterns in the interview data that could help address the research questions. Furthermore, this study employed a bottom-up or inductive analysis, one where the themes emerge from the data itself. Because of the more subjective nature of this method of analysis, the transcripts were reviewed and interpreted by all four of the researchers separately to obtain reliable and valid findings.

Results and findings

The student questionnaires contained items based on the 6-point Likert Scale frequency descriptors: Never, Rarely, Sometimes, Not Sure, Often, and Always. Using Microsoft Excel, a frequency count of the responses in each category was carried out, tabulated in terms of percentages and presented in the form of tables. At the same time, a thematic analysis was carried out on the lecturer interviews and student focus group interviews (SFGs) data to identify prominent patterns or themes in the data.

To what extent is student silence a distinguishing feature in the online class?

To find out whether students think that student silence is an unmarked feature in the online class, a category consisting of six items in the student questionnaire were deemed to be relevant to addressing this question (Cronbach's Alpha score of 0.372). The student responses were subjected to a frequency count, tabulated and the results are presented in Table 1.

In Table 1, half of the students (50%) said they sometimes found their online classes to be engaging (Item 1). Thirty-seven percent of them claimed they were only sometimes interested in speaking out during their classes whilst 30% claimed that they were rarely interested in participating verbally (Item 2). When it came to confidence, 32% said they rarely have confidence in speaking out and 29% claimed that they sometimes have confidence in verbally participating during their classes (Item 3). As for responding to lecturers' questions (Item 4), only 5% of the student respondents claimed that they always responded verbally to questions asked by their lecturers. This, however, did not mean that they did not participate at all. Apparently, students preferred an alternative form of communication—via the chat/conversation box provided in many online learning platforms. The results in Table 1 show that students preferred to always (43%) and often (33%) use the chat/conversation box to communicate (Item 26), with 58% claiming that they always or often use it to respond to lecturers' questions (Item 27).

Data from the student focus group interviews appear to corroborate the results of the questionnaire. Data across all five SFGs revealed a main theme: that student silence is an unmarked feature in their online classes: *it is a common feature… so most of us just stay silent and just wait for someone who's active to answer … only a few of them would actually voice out any questions…* (SFG 1); *it is quite common …*

very common … pretty common … (SFG 2); *in my classes we do experience quite a lot of silence … really common for students to just not join in verbally* (SFG 3); *yeah, I think it's quite common* (SFG 4); *actually very common … actually very common for students to remain silent … I have this one class that's just all non-verbal, where all the students are just non-verbal haha …* (SFG 5). From the analysis, it was apparent that students were aware of the lack of verbal participation on their part supporting findings from studies elsewhere (Cole et al., 2013; Mahyoob, 2020). This raises the next question—how do they feel about the long silences and lengthy pauses that is endemic in their online classes?

How often do students feel awkward about non-verbal student participation in their online classes?

Table 2 shows the responses in the student questionnaire as to the extent to which the lack of verbal participation in their online classes made them feel awkward and uncomfortable.

When students were asked how awkward they felt when no one responded to the lecturer's questions (Item 14), 50% said they always felt awkward, 27% often felt awkward and 16% said they sometimes felt awkward. The results show that students generally felt awkward when there was silence in their online classes. A thematic analysis of the data from the student focus group interviews yielded three main themes:

(i) students felt awkward and uncomfortable when no one responded to the lecturer questions*: very, very awkward … and uncomfortable …* (SFG 1)*; I actually feel a bit annoyed … there's like this pressure for you to kind of answer the question cause no one else is doing it* (SFG 2); *for me, I find it really awkward …* (SFG 3); *I feel bad, awkward, sometimes even pres-*

Table 1 Student responses to whether student silence is a common feature in their online classes

	Items	Percentages and numbers of Participant responses						
		Never	Rarely	Sometimes	Not Sure	Often	Always	Total
1	I find online classrooms engaging	8% $n=21$	26% $n=68$	50% $n=131$	6% $n=15$	9% $n=23$	2% $n=5$	$N=263$
2	I am interested in speaking out in online discussion	11% $n=30$	30% $n=80$	37% $n=97$	6% $n=16$	11% $n=29$	4% $n=11$	$N=263$
3	I feel confident speaking up in the online class	14% $n=37$	32% $n=84$	29% $n=77$	7% $n=19$	14% $n=36$	4% $n=10$	$N=263$
4	I speak out whenever my lecturer asks questions in my online class	9% $n=23$	33% $n=87$	35% $n=93$	3% $n=7$	15% $n=40$	5% $n=13$	$N=263$
26	I prefer typing in the chat room than speaking up	2% $n=4$	6% $n=16$	14% $n=38$	2% $n=5$	33% $n=88$	43% $n=112$	$N=263$
27	I use the chat room to respond to my lecturers' questions	3% $n=8$	7% $n=19$	27% $n=71$	4% $n=11$	29% $n=77$	29% $n=77$	$N=263$

Table 2 Students' feeling of awkwardness of student silence in the online class

Items		Percentages and Numbers of Participant Responses						
		Never	Rarely	Sometimes	Not Sure	Often	Always	Total
14	I feel awkward when no one is speaking up when the lecturer asks questions	2% $n=5$	2% $n=5$	16% $n=42$	3% $n=8$	27% $n=71$	50% $n=132$	$N=263$

sured when no one responds to the lecturer's questions (SFG 5);

(ii) students felt guilty for not responding verbally: *I would feel bad for myself too because I didn't study or prepare for the class* (SFG 5); *I will also sometimes feel guilty for being one of the silent students… yeah I do feel guilty … because everyone is silent so I'm just gonna stay within the line of being silent … (*SFG 1) and

(iii) students felt bad for their lecturers: *I feel kind of sad for the lecturer cause no one answers …I think s/he [the lecturer] feels like talking to a wall and s/he may be wondering whether whatever she's delivering is something understandable to her students* (SFG 3); *I feel awkward for the lecturer and for everyone else in the class I guess … I think they're [lecturers] quite frustrated though …* (SFG 4); *I feel bad for the lecturer, I really really feel bad for them …* (SFG 5).

From the analysis of the interview data, it was quite clear that students had negative perceptions of student silence in their online classes and many appeared to be distressed and frustrated over their lack of verbal interaction, a finding similar to Bannink & Van Dam (2021). Furthermore, the analysis showed that students empathised with how their lecturers feel, even echoing the concerns expressed by the lecturers in the lecturer interviews. It is also clear from both groups of data that the awkwardness and frustration felt by the students were due to the absence of backchannel responses required by them as listeners in this case. The lack of tokens of affirmation, agreement, questions and so forth from the students resulted in a sense of uncertainty and frustration on both sides. The question then is why do students persist in being silent even when they claim it makes them feel awkward and guilty?

What are the reasons for student silence?

To answer this question, a category consisting of fourteen items from the student questionnaire (Cronbach's Alpha score of 0.759) was tabulated and analysed. Reasons ranged from personal reasons such as anxiety and vulnerability to objective reasons such as technical challenges and level of difficulty of the lecture content.

In Table 3, more than half of the 263 students (67%) indicated the main reason why they do not participate verbally was because they are always very reluctant to interrupt the lecturer whilst s/he is speaking (Item 7). They considered it impolite to interrupt an on-going lecture. When we refer to earlier studies on student silence in Brunei classrooms (Burns, 1998; Clynes & Henry, 2004; Ghadessy & Nicol, 2002; Saxena, 2009), it is quite clear that this is an extension of the culture of classroom discourse in the Bruneian context where students are expected to show respect to their lecturers/teachers by remaining quiet. It is interesting that the reluctance on the student's part to interrupt the lecturer was also a main reason listed in other studies (Hewitt, 2005; Liu et al., 2008; Murphy & Coleman, 2004). Another reason for the 38% of students who reported always feeling deterred from verbally participating is that they felt very much under the spotlight if they talk online, that they will be the centre of everyone's attention (Item 11). The other often cited reason was Item 13 where 39% of the student respondents claimed they prefer to wait for others to speak up before they do.

An analysis of the student focus group data, however, yielded a number of recurring reasons in addition to the main findings in the student questionnaire. One recurring theme in the focus group interviews was the fear of speaking up in online classes, expressed in various forms. There was the fear of being judged by others in the class: *it just feels like you're being judged by everybody, like everybody would think you're stupid in a way* (SFG 1); *yeah just the feeling of being judged or like getting your answer wrong even if it's correct* (SFG 1); *I think sometimes it's anxiety-inducing to put your opinion to so many other people in class, especially sometimes there are people who might also contradict your statements as well, so it's kinda scary* (SFG 3). Then there was the fear of getting their answers wrong: *I'm not confident sometimes with my answers, is it correct or is it wrong?* (SFG 5)*; I'm afraid about my answer so I tend to be silent* (SFG 1); *because I'm actually scared my answer is nonsense to some students* (SFG 3). This fear of getting their answers incorrect was also found

Table 3 Reasons for student silence in online classes

	Items	Percentages and Numbers of Participant Responses						
		Never	Rarely	Sometimes	Not Sure	Often	Always	Total
5	I feel anxious in online discussion	9% $n=24$	14% $n=36$	26% $n=68$	8% $n=20$	27% $n=70$	17% $n=45$	$N=263$
6	I prefer to listen to my lecturer rather than verbally ask questions or make comments during the online class	1% $n=2$	2% $n=5$	24% $n=64$	5% $n=14$	35% $n=93$	32% $n=85$	$N=263$
7	I don't want to interrupt whilst my lecturer is speaking	1% $n=2$	0% $n=1$	5% $n=13$	2% $n=6$	25% $n=65$	67% $n=176$	$N=263$
8	I feel awkward speaking up during online classes	5% $n=12$	8% $n=20$	30% $n=78$	7% $n=18$	24% $n=63$	27% $n=72$	$N=263$
9	Speaking out online leaves me feeling vulnerable	14% $n=38$	14% $n=37$	17% $n=44$	15% $n=39$	21% $n=54$	19% $n=51$	$N=263$
10	I don't speak up because I don't feel safe in online class	38% $n=99$	22% $n=57$	8% $n=22$	21% $n=56$	7% $n=19$	4% $n=10$	$N=263$
11	If I speak up, I think everyone's attention will be on me	5% $n=13$	6% $n=16$	20% $n=52$	3% $n=8$	28% $n=74$	38% $n=100$	$N=263$
12	I am unsure of the right moment to speak up	5% $n=13$	11% $n=29$	21% $n=56$	7% $n=18$	30% $n=79$	26% $n=68$	$N=263$
13	I prefer to wait for others to speak up before I do	2% $n=5$	5% $n=12$	22% $n=59$	2% $n=6$	39% $n=103$	30% $n=78$	$N=263$
15	I don't speak out because of time constraint in online class	23% $n=61$	25% $n=66$	20% $n=53$	16% $n=41$	10% $n=25$	6% $n=17$	$N=263$
18	I don't speak up because I don't know the topic(s) well enough	2% $n=4$	15% $n=40$	43% $n=112$	6% $n=16$	24% $n=64$	10% $n=27$	$N=263$
19	I do not find the topic(s) interesting enough to make any comments	13% $n=33$	27% $n=70$	35% $n=93$	13% $n=33$	8% $n=20$	5% $n=14$	$N=263$
20	I feel uncomfortable sharing my thoughts or ideas in an online class	8% $n=20$	20% $n=52$	31% $n=82$	6% $n=17$	20% $n=52$	15% $n=40$	$N=263$
21	I fear others will judge me if I speak up	8% $n=22$	17% $n=46$	20% $n=52$	5% $n=14$	25% $n=65$	24% $n=64$	$N=263$

in Schellens et al. (2005) where students avoided speaking because a wrong answer meant a loss of face.

Another recurring theme from the data was silence due to a personality trait—shyness. This was found in all five-student focus groups data. They felt too shy to speak up: *one of the reasons is basically of them being shy, especially in my case… (*SFG 1*); oh I think some people might be um too shy to talk* (SFG 2); *well, for me it's more of a shyness factor… from my point of view I think most students are pretty much also shy in terms of trying to vocally answer in the lectures* (SFG 3); *because we're quite shy* (SFG 5); *I think the reason why the students sometimes like to remain silent in class is like what S1 just mentioned, it's shy, number one* (SFG 5).

A third reason frequently mentioned by students in all the focus group interviews corroborated with a finding from the questionnaire data, and that was they preferred to wait for someone else to respond first: *because you expect other people to answer if the teacher asks a question, it's like, oh there's a lot more like for example, there's twenty students … I don't feel the need to do it then* (SFG 1*); if someone's already active then why should I be active, that's one of the reasons* (SFG 1); *I do hope that there will be someone else, that dependence on someone else to answer is always there* (SFG 1); *I would wait for my other friend to be the one answering* (SFG 5). It is quite clear that students gained confidence to speak up only when someone else started speaking first. From the interviews, it is also quite clear that students prefer to wait for others to respond to avoid overlaps in speaking turns. Apparently, they felt awkward and uncomfortable with overlaps, intensified by the fact that they generally had their cameras turned off during classes: *yes, if in classes, on ground classes, we can see the other students, oh they're gonna talk but whilst the cameras are off, we don't know who's gonna talk* (SFG 5); *I should give the floor to someone else, but at the same time, no one talks, but the moment I want to talk, there is someone talking, so yeah, it's like that* (SFG 2); *one of the reasons I think it's kind of awkward, even just now you saw S2 and S3 overlapping in their speaking… it just feels awkward for some students … yeah, you don't know when is the appropriate moment to speak* (SFG 3). The uncertainty of knowing when to take a speaking turn and the absence of supporting backchannel

responses interrupted the flow of a conversation and caused communication breakdown.

Other reasons that may be worth noting have to do with the technology issues, the poor internet connection, problems with the microphone and the learning environment that could hinder student participation: *maybe there's a possibility there's not much interaction, because they don't exactly have the devices, so it does prevent them from trying to speak out even though they want to speak out (*SFG 3*); I have some things to add on, the first one is their environment, some of my friends can't speak because the environment is too loud, like they have other people, they don't have their own space* (SFG 5); *if we have tutorials and discussion most of my teammates aren't able to use their mic, either their wifi is really laggy and they can't really contribute as much* (SFG 5). Perhaps the following excerpt from the interview data sums up how technology issues can affect student verbal interaction in the online classroom:

> cause one of my friends told me there was this one time when this one student that wasn't really contributing to the class, because she just didn't have her microphone on, she didn't have her video turned on for the whole time and when the teacher finally called her up and she finally contributed with her microphone, it was loud in the background and there was all this noise so I think sometimes some people just don't have the privilege of a silent area to do their online schooling. So that's what's affected us to why some people won't contribute because it's generally not the right space to do online learning (SFG 2).

Can meaningful learning still be possible with non-verbal student participation?

To find out the students' perceptions with regard to student silence and successful learning, a category consisting of two items from the questionnaire were thought to be relevant to providing insights to this question (Cronbach Alpha score of 0.232). Item 24 is about the frequency of feedback students

received from their lecturers in online classes, noting the importance of teacher feedback in the learning process whilst Item 25 sought to find out if meaningful learning could still be achieved without students speaking up in such classes. Table 4 presents the student responses pertaining to both items.

When asked how often they received more feedback from their lecturers in their online classes compared to their physical classes, 37% of the student respondents said they were not sure, indicating the challenge of measuring the 'more' of feedback. However, when it came to Item 25, 27% of the students claimed that meaningful learning could sometimes be achieved despite student silence whilst 26% said that it could often be achieved without students' verbal participation. From the student responses in the questionnaire, it appears that for them, meaningful learning still occurred despite the lack of student verbal participation.

When students were posed this question in their focus group interviews, sixteen of the 23 student participants across the five-group interviews claimed that student silence negatively affected their learning. The main theme from the interviews data appears to be that spoken interaction between lecturers and students and between students and students promotes discussion and motivation which were key to successful learning. This supports what Weiner (2020) calls transformative learning that goes beyond exam performance and grasping of subject content: *only the lecturer was talking, like he didn't really ask questions or anything so it was really not interactive and it really made me feel demotivated in class …* (SFG 2); *I think it's very important, I honestly think the lecturer wants the students to have verbal interaction with each other, with the lecturer as well* (SFG 2); *I do prefer interaction … something about the texting part just feels off, it doesn't give me the motivation to study* (SFG 3); *it doesn't feel like I'm learning actually, it doesn't feel like the class is progressing, like it just doesn't feel like I'm learning* (SFG 5); *every time we have an interactive learning (verbal interaction), I feel better at the end of the class, like oh it feels productive* (SFG 5); *… helps in allowing the students to understand the modules*

Table 4 Student perceptions about student silence and meaningful learning in online classes

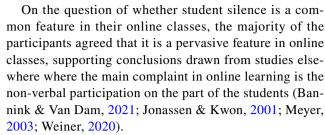|	Items	Percentages and Numbers of Participant Responses						
		Never	Rarely	Sometimes	Not Sure	Often	Always	Total
24	I receive more feedback from my lecturer in the online class than in the physical classes	11% *n*=29	22% *n*=57	19% *n*=50	37% *n*=96	10% *n*=27	2% *n*=4	*N*=263
25	I think that meaningful learning can still be achieved without speaking up in online classes	2% *n*=6	8% *n*=22	27% *n*=71	17% *n*=44	26% *n*=69	19% *n*=51	*N*=263

more and learning even more stuff with the simplest questions… (SFG 2*).*

Students also felt that speaking out helped them focus in class which to them was also important for meaningful learning to occur. In addition, they felt that focus was a challenge particular in online classes due to the many distractions that came with this mode of learning*: … plus since it's online learning, there's a lot of distractions… so I think it takes a hit on the learning experience* (SFG 1); *if the class is fully silent throughout the whole lecture, that would mean like some of the students might not even be focusing* (SFG 1). It is apparent that distractions came about when there is minimal student response resulting in negligible lecturer feedback and therefore loss of meaningful learning (Bakhtin, 1986; Johnstone, 2002; Sinclair & Coulthard, 1975).

On the other hand, a number of students felt that meaningful learning may not always be negatively affected by student silence. According to them, it depends on the programme of study. Those doing Sociology or Geography, for example, felt that meaningful learning still occurs even where there is absence of student verbal participation: *like just because I didn't say something in class doesn't mean I found the class not meaningful you know…. just because I don't say it out that hey it's meaningful doesn't mean that it's not meaningful.* (SFG 3); *we have one class, everyone texts in the chat box, but everyone discusses like really well. So in the end it's a very good class and I enjoyed that class because everyone was participating, like there's input and everything, but not verbally.* (SFG 2). This ability to communicate and connect with their peers and lecturers is perceived to be interaction and therefore meaningful learning: *um I think it's okay if we have less verbal interaction as long as we use the chat box to interact, as long as there's interaction then it's okay than not having any interaction at all* (SFG 2); *I don't think it's important like me, like if we have to talk on the spot, I kind of like, I cannot think of the answers, so I prefer typing it out because I can process my thoughts and put it all out and it's better on text* (SFG 2).

Discussion of results and findings

Student silence or non-verbal participation is a feature of classroom discourse that has been written about, discussed and debated over by educators, pedagogical scholars and classroom researchers even before the onset of virtual learning. In this study, the issue of student silence is revisited in a different learning context—the virtual classroom—and from the viewpoint of the students themselves. The results and findings from the student questionnaire and the SFGs following from it have provided a number of interesting insights on this phenomenon.

On the question of whether student silence is a common feature in their online classes, the majority of the participants agreed that it is a pervasive feature in online classes, supporting conclusions drawn from studies elsewhere where the main complaint in online learning is the non-verbal participation on the part of the students (Bannink & Van Dam, 2021; Jonassen & Kwon, 2001; Meyer, 2003; Weiner, 2020).

Furthermore, the findings from the SFGs show that students were aware of their lack of verbal participation in their online classes and that they viewed it negatively, similar to how students elsewhere view silence in their classrooms (Cole et al., 2013) and the resulting feelings of awkwardness and frustration it evokes in the classroom. Students generally felt uncomfortable when there was prolonged silence where no one responded to the lecturers' questions. In a sense, it is very much like how interlocutors feel when there is a moment of total silence in a conversation where no one is contributing to the talk. In their interviews, students expressed various degrees of guilt for their silence because they could imagine how their lecturers felt talking to blank space, especially since many students tended not to turn on their cameras as well.

Two reasons for student silence from the results and findings may be worth discussing. One is students' reluctance to interrupt their lecturers whilst they are teaching. It is apparent that this is a trait carried over from the school culture in Brunei (Burns, 1998; Clynes & Henry, 2004; Ghadessy & Nicol, 2002; Saxena, 2009) where students are expected to remain silent whilst their teacher is talking and that it is considered rude to interrupt the teacher with questions or comments. The other reason has to do with avoiding violating or flouting the unwritten rules of talk, similar to what is found in Bannink & Van Dam (2021). From the group discussion, students expressed the awkwardness of miscues in turn-taking. They were not sure when they could appropriately take a turn during the online class interaction, especially when the cameras were turned off and they could not see one another. Thus, to avoid the uncomfortable overlaps and interruptions in talk, they preferred to remain silent. Added to this was the lack of backchannel responses from their listeners when they do speak, so they were left with not knowing if they were heard, affirmed or otherwise. This not knowing when to speak was an unnerving feeling for the students and thus the safer alternative was to remain silent.

Finally, when it came to meaningful learning, students found it difficult to come to an agreement on whether student silence, verbally at least, actually led to a less meaningful learning experience in the online classroom. Whilst the participants generally agreed with Sinclair & Coulthard (1975) and Weiner (2020) that verbal communication in the classroom is paramount to meaningful

learning, many students also argued that the term 'classroom interaction' could be extended beyond the oral to the written mode via the use of the chat box and interactive emoticons for instance) to communicate in class. For them, using the chat box to interact actively with other students and the lecturer could not be considered as silence and therefore not learning. This supports what other writers have claimed, that in view of the domination of the virtual classroom today, student silence can also mean being quiet from writing their responses (Zembylas & Vrasidas, 2007). In fact, studies elsewhere have shown that there are advantages to using the chat box to interact when it comes to effective learning (Carter et al., 2020; Guiller et al., 2008; Jurewitsch, 2012; Kim et al., 2007; Nguyen, 2015), one of which was mentioned by the participants and that is writing their responses gave them time to reflect on their lecturers' questions and provide thoughtful responses

Pedagogical implications

This study has highlighted the following pedagogical implications on student silence and the online classroom:

(i) That communication is key to successful learning. Communication in the classroom entails interaction between students and their lecturers and their peers. This interaction, however, need not be confined to the verbal channel, but could include student written responses to lecturers via the interactive features such as the chat box and emoticons found on many e-learning platforms. As such, it may be paramount that teachers and lecturers are themselves well versed with navigating these online features to maximize online instruction and learning.

(ii) That the definition of student silence should be extended to being quiet from writing as well where students are not responding via the chat box or other interactive online features. This is important considering the new norm of learning where there has been a shift from the physical classroom to the virtual learning and teaching space.

(iii) That verbal communication skills should be included as a criteria within the premise of meaningful learning. Talk is an integral aspect of human interaction, and students should be taught the verbal communication skills as part of a well-rounded education, especially in today's e-classrooms where such skills have been downplayed dramatically. A learner who is not conversant with the social conversational skills of turn-taking, initiation of talk, overlaps, opening and closing of conversations and use of backchannel responses may actually find verbal conversations to be a challenge.

Limitations of the study

Due to the complex nature of the topic under study, it is inevitable that a few limitations will be encountered during the course of the research. Although the questionnaire was distributed to all faculties within the university and participation was voluntary, the bulk of the respondents were undergraduate students from the English medium programmes. Thus, graduate students and those in the Malay medium programmes may be under-represented. Moreover, it was felt that a cross tabulation of the questionnaire data could have been carried out to present the differing viewpoints of students from the individual programmes and thus a more representative picture of student silence. The other limitation to be noted was in the use of the Cronbach Alpha test to assess the reliability and internal consistency of categories of items in the questionnaire. Two of the tables in the results and findings section of the paper showed low scores (0.372 and 0.232), which could affect the reliability of the scale scores. Furthermore, it was noted that categories with many items were scored highly whilst those with fewer items had lower scores, and the test could not be applied to categories with single items. In addition, because items often do not show a linear correspondence to the question under study and their functions may be multi-dimensional in purpose, it affected the test scores. In a way, this reflects the inherent problem of using objective reliability tests to measure the more subjective nature of qualitative data. The study also highlights the overall dearth of tools available in qualitative research literature to ensure the robustness and reliability of such data. The third limitation is that the thematic analysis employed to analyse and interpret the focus group interview data could only highlight the recurring theme patterns in each group interview, and so individual student viewpoints that were considered outside these themes were not considered. These limitations were noted and every effort has been made to minimise them wherever possible. It is hoped, however, that they do not detract from the significance of the study in pedagogical research and its contribution to the pool of literature on this aspect of online classroom learning.

Conclusion

This study explored the phenomenon of student silence in online classes at tertiary level based on a student questionnaire and student focus group discussions. Four questions were posed to provide insights into student silence. The students felt that student silence was an unmarked feature

in their online classes despite there being ample opportunities for students to be verbally engaged with their lecturers. Furthermore, the absence of backchannel responses resulted in students generally feeling awkward and uncomfortable. In addition, they felt guilty for not responding to their lecturers. Student participants cited a number of reasons for not speaking up in their classes: they were generally reluctant to interrupt the lecturer during a lecture; they also feared being judged by their classmates for giving the wrong answers or for expressing their viewpoints. It is interesting to note that one main reason cited by the students was that they preferred to wait for someone else to speak up first due not only to lack of self-confidence but also because they wished to avoid the uncomfortable occurrence of overlaps because they were not sure who should take the next speaking turn. Analysis of the data showed that student silence in online learning did not promote conversational skills in terms of negotiating the speaking turns or providing important signalling markers such as backchannel responses to successfully sustain the interactive flow of communication. Whilst communication may be an issue, the results were less conclusive when it came to finding out if meaningful learning occurred despite the silence. The students generally felt that their online classes did not generate a high level of interactive verbal discussions between themselves and the lecturers which they felt to be key to their successful learning. However, many felt that this was compensated for by being able to write their responses via the use of the chat box and other interactive features provided in many on-line learning platforms. It has to be noted that this study was confined to looking at student silence in online learning at the tertiary level in the Bruneian context and may therefore not be representative of the phenomenon found elsewhere. The results and findings, however, add to the pool of research on student silence and the pedagogical implications. In addition, they also provide further insights into the role of conversational skills for successful communication.

Directions for future research

This study has raised awareness to a number of aspects in classroom silence that could lead to future research studies. It would be interesting, for example, to gauge the perceptions of the other party in classroom discourse, the instructors/teachers/lecturers, to provide more depth to the issue under study. Also, due to the intricate and subjective nature of such research, more meaningful and contextualised results and findings could be reached by including a cross tabulation analysis of the questionnaire data.

Appendix 1

Scenario/*Senario*

You have just entered a lecture via Zoom. The online class has thirty students and one lecturer. Some of your classmates have turned their cameras off. The lecture starts. During the session, your lecturer sometimes poses questions to the online class, e.g:

Lecturer: "So, can anyone tell me the answer?"

Students: (silence)

[None of your classmates are speaking up. Silence ensues. There is no verbal response to the question]

Anda baru sahaja memasuki laman Zoom bagi menghadiri kelas dalam talian. Kelas ini mengandungi tiga puluh orang pelajar dan satu pensyarah. Sesetengah rakan kelas anda telah mematikan kamera mereka. Kuliah pun dimulakan. Semasa kelas dijalankan, pensyarah anda kadangkala menanyakan beberapa soalan, contohnya:

Pensyarah: "Baiklah, ada sesiapa yang boleh berikan jawapan?"

Para pelajar: (diam)

[Tiada jawapan. Senyap sepi. Tidak ada sebarang percakapan terhadap soalan]

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for research purposes. Thank you very much for your help ☺

Kertas ini menyelidik tindak balas lisan para pelajar di kelas dalam talian. Sila baca semua yang tertera dibawah dan tandakan dalam kotak yang disediakan dari nombor 1 (Tidak Pernah) hingga nombor 6 (Selalu). Maklumat yang dikumpulkan akan digunakan untuk penyelidikan sahaja. Terima kasih atas kerjasama anda ☺

Example/*Contoh*

Example/Contoh

Statement/*Pernyataan*	Level of agreement/*Skala*					
	1 Never *Tidak Pernah*	2 Rarely *Jarang*	3 Sometimes *Kadang-kala*	4 Not sure *Tidak Pasti*	5 Often *Kerap*	6 Always *Sentiasa*
1 I answer my lecturer's questions in the online class *Saya menjawab soalan-soalan pensyarah saya di kelas dalam talian*					✓	

Statements/*Pernyataan*	1 Never *Tidak Pernah* 1	2 Rarely *Jarang* 2	3 Some-times *Kadang-kala* 3	4 Not sure *Tidak Pasti* 4	5 Often *Kerap* 5	6 Always *Sentiasa* 6
1 I find online classrooms engaging *Saya merasakan kelas dalam talian sangat interaktif*						
2 I am interested in speaking out in online discussion *Saya berminat untuk menyuarakan diri di kelas dalam talian*						
3 I feel confident speaking up in the online class *Saya berasa yakin untuk berbicara di kelas dalam talian*						
4 I speak out whenever my lecturer asks questions in my online class *Saya menyuarakan diri apabila pensyarah saya menanyakan beberapa soalan di kelas dalam talian*						
5 I feel less anxious in online discussion *Saya merasa kurang gelisah di kelas dalam talian*						
6 I prefer to listen to my lecturer rather than verbally ask questions or make comments during the online class *Saya lebih suka mendengar pensyarah saya daripada membuat sebarang pertanyaan lisan di kelas dalam talian*						
7 I don't want to interrupt whilst my lecturer is speaking *Saya tidak mahu mencelah semasa pensyarah saya sedang bercakap*						
8 I feel awkward speaking up during online classes *Saya merasa janggal untuk menyuarakan diri di kelas dalam talian*						
9 Speaking out online leaves me feeling vulnerable *Bercakap dalam talian membuatkan saya merasa terdedah*						
10 I don't speak up because I don't feel safe *Saya tidak menyuarakan diri kerana saya tidak merasa selamat dalam talian*						
11 If I speak up, I think everyone's attention will be on me *Jika saya menyuarakan diri, perhatian orang lain akan tertumpu kepada saya*						
12 I am unsure of the right moment to speak up *Saya tidak pasti dengan masa yang sesuai untuk menyuarakan diri*						
13 I prefer to wait for others to speak up before I do *Saya lebih suka menunggu orang lain untuk menyuarakan diri sebelum saya*						

Statements/*Pernyataan*	1 **Never** *Tidak Pernah* 1	2 **Rarely** *Jarang* 2	3 **Some-times** *Kadang-kala* 3	4 **Not sure** *Tidak Pasti* 4	5 **Often** *Kerap* 5	6 **Always** *Sentiasa* 6
14 I feel awkward when no one is speaking up when the lecturer asks questions *Saya merasa janggal apabila tiada orang menyuarakan diri setelah pensyarah menanyakan soalan*						
15 I don't speak out because of time constraint *Saya tidak menyuarakan diri kerana kesuntukan masa di kelas dalam talian*						
16 I feel that online communication is formal *Saya merasakan komunikasi di kelas dalam talian adalah formal*						
17 I turn off my camera during my online class *Saya matikan kamera di kelas dalam talian*						
18 I am camera shy *Saya segan untuk bergambar depan kamera*						
19 I don't speak up because I don't know the topic(s) well enough *Saya tidak menyuarakan diri kerana pengetahuan saya mengenai tajuk tidak mencukupi*						
20 I do not find the topic(s) interesting enough to make any comments *Saya tidak merasakan tajuk yang dibicarakan itu menarik untuk membuat komen*						
21 I feel uncomfortable sharing my thoughts/ideas in an online environment *Saya merasa tidak selesa berkongsi pemikiran atau idea saya di kelas dalam talian*						
22 I fear others will judge me if I speak up *Saya takut orang akan membuat anggaran terhadap saya jika saya bercakap*						
23 I feel that it is more difficult to communicate effectively in online classes than in physical classes *Saya berasa bagi memperolehi komunikasi yang berkesan adalah lebih susah di kelas dalam talian berbanding dengan kelas fizikal*						
24 Frequent misunderstandings occur in online interactions *Salah faham kerap berlaku dalam interaksi di kelas dalam talian*						
25 I receive more feedback from my lecturer in the online class than in the physical classes *Saya menerima lebih banyak maklum balas daripada pensyarah saya di kelas dalam talian berbanding dengan kelas fizikal*						
26 I think that meaningful learning can still be achieved without speaking up in online classes *Saya berpendapat bahawa pembelajaran yang bermakna masih boleh dicapai tanpa berbicara di kelas dalam talian*						
27 I prefer typing in the chat room than speaking up *Saya lebih suka menaip dalam ruangan* chat *daripada menyuarakan diri*						
28 I use the chat room to respond to my lecturers' questions *Saya menggunakan ruangan* chat *untuk membalas soalan pensyarah*						

(i) If your answer to **question 28** is '**Never**', what other alternatives do you use to communicate with your lecturer in online classes?

Jika jawapan anda adalah '**Tidak Pernah**' bagi **soalan nombor 28**, apakah cara lain yang anda gunakan untuk berkomunikasi dengan pensyarah anda di kelas dalam talian? Jika '**Ya**', sila nyatakan cara-cara tersebut.

Appendix 2

Interview topics for student FGs (interview duration 35 min).

A) Is it common for students to remain silent when lecturers ask questions in the online class? (by silence, we mean non-verbal student participation)

B) Why don't students respond verbally to their lecturers' questions?

C) How do you feel when no one responds verbally to lecturers' questions?

D) Do you think there is meaningful learning even where there is absence of student verbal participation? Why/why not?

Declarations

Conflict of interest There is no conflict of interest related to this work.

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