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Article

Students' Perceptions of Interactions from Instructor Presence, Cognitive Presence, and Social Presence in Online Lessons

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Abstract
As a result of the COVID-19 pandemic lockdowns across the globe, many English Language Teaching (ELT) practitioners swiftly switched to teaching fully online. This paper explores students' perceptions of the durations and types of interactions in online synchronous lessons that focus on teaching technical oral presentation and report writing skills, as well as the benefits and challenges that students experience. The data were collected from a group of 18 Computing Engineering students who completed a post-course survey approximately 3 weeks after the course completion. The results of this study reinforce the importance of instructor, cognitive, and social presences in an online learning community. Despite the challenges that students may encounter in online lessons, students still find online education beneficial if instructors support students before, during, and after lessons, and are able to use technologies to effectively scaffold materials with adequate instructor-student and student-student interactions to engage students in learning.

Keywords
Online lessons, student engagement, teacher presence, social presence, cognitive presence

1 Introduction

Like many English Language Teaching (ELT) practitioners, I have used different technologies and methods to teach and engage students in flipped and/or blended lessons in the past. However, the COVID-19 pandemic lockdowns to varying degrees across the globe forced many of us to swiftly switch to teaching fully online using tools like ZOOM and Microsoft Teams. Although online education was not new for me, teaching fully online was new for many instructors like me in universities that thrived on student life on campus, where laboratory work, lectures, and tutorials were conducted in a face-to-face (f2f) setting, in blended/flipped modes. Due to the ongoing pandemic across the globe, online education will likely continue in many parts of the world. In Singapore, the Singapore Minister of Education, Ye Kung Ong, has stated that "home-based learning (HBL) will be a regular part of school life" particularly because of its potential learning benefits in promoting independent and self-directed learning (Ong, 28 June 2020). Therefore, it is critical for ELT practitioners to explore effective pedagogies for online education as part of HBL.

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ELT instructors who have not taught online modules might not be familiar with what is required but they need to quickly familiarize themselves with the online mode in the current pandemic. Extensive research has revealed that the success of online teaching depends crucially on three aspects:

1. The extent of instructors' technological, pedagogical, and content knowledge (Koehler & Mishra, 2006, 2009; Shulman, 1986);
2. The extent of instructor presence, cognitive presence, and social presence (Garrison et al., 2000; Garrison & Arbaugh, 2007; Garrison & Cleveland-Innes, 2005);
3. The vigour of student-student and student-instructor interactions (Abrami et al., 2011; Joksimović et al. 2015) to engage students in learning, where students are still able to construct knowledge and skills (Bryant & Bates, 2015) once students see the value and relevance of the knowledge or skills taught (McBain et al., 2015).

There is no prescribed pedagogical framework for teaching technical oral presentations and writing online in tertiary education to date. However, researchers and practitioners have consistently believed in the benefits of teaching oral and written communication skills in synchronous online lessons if instructors can facilitate the teaching of content and support student learning using technology (Koehler & Mishra, 2009; Mishra & Koehler, 2006), create a community with instructor presence, cognitive presence, and social presence (Garrison et al., 2000), and engage students in the construction of knowledge with a right balance between student-student and student-instructor interactions (Banna et al., 2015; Martin & Bolliger, 2018). Results positively show that online learning can indeed improve students' academic performance and promote independent learning, and critical, higher order thinking skills (Roddy et al., 2017).

Nevertheless, research must further examine the appropriate balance between student and instructor interaction to achieve the learning objectives and ensure learning takes place in oral and written communication skills lessons. Therefore, this study seeks to explore students' perceptions of the durations and types of interactions in online synchronous lessons that focus on teaching technical oral presentation and report writing skills. It also reports on the benefits and challenges that students experience, and suggests possible ways to further engage students in online lessons.

The study is conducted in a Year 1 undergraduate Computing Engineering module, where the communication skills are taught in a series of four workshops at the Faculty of Engineering, the National University of Singapore. This paper will share insights on effective ELT practices that support students and engage them in learning by providing an appropriate balance between instructor presence, cognitive presence, and social presence in online lessons during this time of the coronavirus.

2 Literature Review

It was critical for me to consult the literature to examine effective practices to engage students in online lessons by providing sufficient instructor, cognitive, and social presences, as well as an appropriate balance between student and instructor interactions. Therefore, I begin this paper with a literature review on the essential elements of an online learning environment, focussing on oral and writing communication: instructors' competencies to facilitate student learning online, instructors' ability to build a community that promotes a conducive online environment for learning, and the appropriateness of student-student and student-instructor interactions to allow students to construct knowledge and skills.

2.1 Instructors' competencies to facilitate student learning online

Although no framework has been proposed for teaching oral and written communication online, the Technological Pedagogical and Content Knowledge model (TPACK) (Koehler & Mishra, 2009; Mishra

& Koehler, 2006) highlights the necessity for instructors to have technological, pedagogical, and content knowledge to deliver online courses. The model proposes that, firstly, instructors must have sufficient technological knowledge to use online tools and resources, and adapt to technological changes to facilitate online lessons. Secondly, as required in a f2f setting, instructors must have effective pedagogical knowledge to teach the subject matter. For example, to ensure the successes of teaching in an online course, instructors must present materials online (technological knowledge), and adapt the instructional materials to meet the students' needs (pedagogical knowledge). Lastly, instructors must have expertise in the content knowledge, and translate sufficient theories and concepts to students (Koehler & Mishra, 2009; Mishra & Koehler, 2006; Shulman, 1986).

The TPACK model has not been explicitly referenced as an online education framework for teaching in the past. However, instructors with sufficient technological, pedagogical, and content knowledge can improve students' academic performance (Magagula & Ngwenya, 2004; McPhee & Söderström, 2012) and student satisfaction (Palmer, 2012) in both online and f2f lessons. For instance, instructors have reported that online teaching can be successful if they use technology to provide instant feedback to students, facilitate lessons through live chats with videos/webcams, and use small-group breakout rooms to build rapport with students (DiPeri, 2020; McBain et al., 2015; Roddy et al., 2017). The instructors must also use appropriate pedagogies by carefully planning online lessons to scaffold materials by systematically explaining content that increases in difficulty over time to build students' knowledge. Very importantly, the instructors must also engage students in learning by adopting a flexible and responsive approach, navigating through the technologies with students, and actively encouraging students to participate and self-regulate learning (Roddy et al., 2017; Rovai & Downey, 2010).

2.2 Instructors' role in building a community of inquiry for learning oral and written communication skills online

The success of online teaching depends on the instructors' ability to build a Community of Inquiry (COI) (Garrison et al., 2000). Similar to a f2f setting, instructors must create a conducive online learning environment in a community by engaging students with sufficient instructor presence, cognitive presence, and social presence (Garrison et al., 2000 Garrison & Arbaugh, 2007; Garrison & Cleveland-Innes, 2005). Instructors must provide appropriate student-student and student-instructor interactions to promote student engagement and high-order thinking, either synchronously or asynchronously (Carini et al., 2006).

Firstly, instructors must provide instructor presence by providing a positive education experience for students. The instructors should organise and present the course content in a well-designed curriculum, and facilitate student learning by scaffolding content using multiple learning activities and assessments. Secondly, instructors must also provide cognitive presence by teaching students how to critically analyse information and providing opportunities for students to construct meaning. Thirdly, instructors must create social presence by being approachable, and creating a space for instructors to support students and peers to support each other in developing higher-order and critical thinking skills (Garrison et al., 2000).

Garrison et al. (2005) iterate that all three elements must be present for student learning to take place. Cognitive presence alone is insufficient in promoting student learning. Research has substantiated the criticality of instructors' role in a learning community of inquiry. An instructor can create an environment for students to engage in interactive learning and feel a sense of belonging. This could in turn increase student engagement and reduce student drop-out rate (Anderson et al., 1999; Oomen-Early & Murphy, 2009; Roddy, 2017). This also means that social presence affects students' cognitive and critical thinking development (Garrison, 1997). The three 'presences' are thus inextricably linked. The subsections below describe the importance of promoting instructor presence, cognitive presence, and social presence within a COI of oral and written communications course.

2.2.1 Instructor presence: instructor-student interactions

Instructor presence can increase student engagement and promote deep learning if there is a good balance between instructor-student and student-student interactions (Cannady, 2015). Instructor presence in online videos and synchronous lessons can make students feel more closely connected to the instructors (DiPeri, 2020; Malik, et al., 2017). Instructors must provide clear instructions, organise learning activities, facilitate discourse with students and create opportunities for collaborative and reflective learning. Since the success of students' completion of online courses depends largely on the degree of engagement in activities and self-regulate learning, instructors must support students by providing constructive feedback even if it means the feedback sessions have to be conducted outside lesson time (Pascarella & Terenzini 2005; Dumford & Miller, 2018).

In online oral and written communications courses, instructors have found higher student engagement levels with increased instructor and student presences during the feedback process (McBain et al., 2015). Instructors' interactions with students during the online feedback sessions encourage students to ask questions and seek clarification about the course materials and their own performances. This feedback process allows students to deepen the understanding of the materials and reflect on their own performances so they could improve on their communication skills (Bérešová, 2015; Dzubinski, 2014; Shinge & Kotabagi, 2020).

2.2.2 Cognitive presence: students' interaction with content

To ensure a vibrant learning community, instructors should promote cognitive presence with the materials by presenting subject materials as instructional videos, interacting with multimedia, and ensuring tasks are aligned with assessments (Garrison et al., 2000 Garrison & Arbaugh, 2007; Garrison & Cleveland-Innes, 2005).

Research shows that students are able to learn oral and written communication skills online if the materials are relevant and valuable to students (DiPeri, 2020; Hägg, & Kurczewska, 2019; McBain et al., 2015). For example, research shows students improved on delivery skills in public speaking and oral presentation skills because instructors provided videos such as TED Talks that modelled delivery skills in class, and then allowed students to practise. Instructors then provided students feedback through either synchronous live chats or asynchronous video outside class time (McGain et al., 2015). Students reported that they were still able to learn to deliver presentations to convey their knowledge/information to others concisely, succinctly, and communicate in a format easily understood by others even though oral presentation skills are challenging to learn.

Similarly, research online academic writing courses could also promote learning if students see relevance and value in the content they learn, and therefore become more cognitively engaged in the content (Cai, 2016). Numerous studies in genre writing have highlighted the importance of students learning how to write on the basis of contextual needs within their disciplines (Dugartsyrenova, 2020; Lin, Liu, & Wang, 2017; Swales, 1990). Similarly, Bérešová's (2015) online synchronous course on academic study skills, such as effective notetaking, citation, referencing, paraphrasing, summarising, using academic language, and practising academic integrity, improved students' writing skills and academic integrity. Students also became curious to learn, more confident in presenting their ideas and building arguments to support their ideas in writing and in oral presentations.

2.2.3 Social presence: student-student interactions

Interactions with peers through collaborative learning and discussions are important elements of student engagement (Dumford & Miller, 2018). Instructors' effort in creating strong social presence is important as that minimises the distance between instructors and peers, and builds a stronger community for peers

to offer social support for each other in their learning. With the advancements in technology, practitioners have fostered student-student collaborations and community synchronously using video-conferencing and asynchronous on discussion boards (Abrami et al., 2011), and social networking sites, such as Facebook and Twitter (Tess, 2013).

Previous research findings suggest that students can improve in oral communication skills in online courses even though some felt awkward about talking to themselves, were self-consciousness about being recorded, were overwhelmed by the tasks, and felt uncomfortable being recorded in an online learning environment. Nonetheless, students recognised the benefits of having the recordings as they were able to review comments and get peer feedback (McBain et al., 2015; Hunukumbure, et al., 2017; Wu et al., 2017), found it enjoyable and were able to learn from each other in the online oral communication lessons. They also felt more comfortable to give and receive peer support when they were given opportunities to interact with each other (Srivastava, 2018). Therefore, the presence of students' social support could lessen students' fear and enhance their learning oral communication skills in an online learning environment.

Similarly, for writing, instructors must create strong social presence online by promoting an interactive environment that allows student-student interaction in online lessons (Garrison et al. 2000). Online tools such as wikis, blogs, Google docs create collaborative writing opportunities that promote deeper learning (Bryant & Bates, 2015; Quitadamo & Kurtz, 2007), encourage student initiatives, creativity and critical thinking (Hodges, 2002; Limbu & Markauskaite, 2015) in an online learning environment.

Understandably, online writing tasks are very challenging as they require higher-order cognitive learning and critical thinking skills. Students (especially novice writers) may not be able to carry out a writing task in the collaboration (Ens et al., 2011; Lin & Yang, 2011; Lowry & Nunamaker, 2003). Therefore, students may feel inadequate, confused, and embarrassed if they cannot finish the writing tasks, or make mistakes which will become visible to others (Limbu & Markauskait, 2015; Lin & Yang, 2011). This may lead students to conform to others' ideas rather than sharing ideas in frank discussions, which does not promote critical thinking or deep learning, and become passive learners who only cooperate instead of collaborating with other group members (Selwyn, 2014). Students often did not trust their peers' competence and requested their instructors' feedback (Ge, 2011).

For these reasons, instructors play a central role in building social presence between students so that students could experience positive learning outcomes. Students' social presence in writing tasks can only be effective if instructors equip students with the necessary writing skills to participate in a writing community (Daemmrich, 2010; Lin & Yang, 2011; Limbu & Markauskaite, 2015). This means instructors must clearly communicate the value, purpose, and guidelines of the online writing tasks (Wheeler & Wheeler, 2009), guide students on how to support their peers by providing modelling and feedback so they can gain confidence in completing a task (Limbu & Markauskaite, 2015; Daemmrich, 2010; Ens et al., 2011; Lin & Yang, 2011). Through the collaboration between peers, students will feel a sense of improvement and achievement (Elola & Oskoz, 2010), understand the task requirements (Strasma, 2009), gain better content-related knowledge and skills (Lin & Yang, 2011; Wheeler & Wheeler, 2009), and build new relationships (Strasma, 2009).

Research has consistently highlighted the importance of content, instructor, and social presences, as well as the benefits of instructor-student and student-student interactions in online education, but without much detailed descriptions of the balance between these interactions in synchronous online lessons. Further research must examine the appropriate balance between instructor-student and student-student interactions in teaching oral and written communication skills in synchronous online lessons.

2.3 Context of the study

Limited research has examined the proportion of instructor and student interactions in synchronous

online lessons, and students' perceptions of such interactions during online lessons that took place during the COVID-19 Pandemic. Therefore, this study seeks to explore students' attitudes toward online learning during the COVID-19 Pandemic lockdown. It also examines instructor and student interactions in a series of online synchronous lessons for technical oral presentations and report writing for Computing Engineering students. More specifically, three research questions are proposed to measure students' perceptions of the balance between instructor presence, cognitive presence, and social presence in online writing and oral presentation lessons:

1. What were students' attitudes toward learning technical report writing and oral presentations online?
2. What were students' preferences toward interactions in learning technical report writing and oral presentations online?
3. What were the benefits and challenges that students experienced in the online learning this semester, and suggestions on what can be done to further engage them in learning?

3 Methods

This section describes the participants, the course design and the questionnaire.

3.1 Context and Participants

The participants in this study were one class of 24 Year 1 undergraduate Computing Engineering students. They were required to take 4 lessons on communicating technical and oral presentations embedded as part of the Year 1 undergraduate Engineering, Principles and Practices curriculum at the University's Faculty of Engineering (FoE).

3.2 Course design

In a series of four lessons, the University's Centre for English Language Communication (CELC) instructors taught students technical oral presentation and report writing skills for tasks specifically assigned by the FoE content professors. The main learning objectives of the lessons were to teach students how to deliver technical oral presentations and write technical reports based on their course project on building a robot called 'Alex', set by the course content instructors. This means the skills and knowledge taught specifically related to the writing and oral presentation requirements set by the content professors. Students should have been able to see the relevance and understood the value of the technical oral presentation and writing skills and knowledge taught.

The most appropriate time to teach communication skills is when students have content so they know what information needs to be communicated (Boiarsky, 2004). Therefore, the oral and written communication skills lessons conducted by CELC instructors were held between Week 9 and 11, and the oral presentations were assessed in Week 13 in the semester (See Table 1).

All lessons were conducted in f2f lessons in the past. However, the implementation of the increasingly stricter restrictions on social gatherings and distancing due to COVID-19 toward the end of the semester meant instructors had to conduct three lessons online via Zoom and Google docs, and one f2f lesson where students practised their oral presentations (See Table 1). The only reason students practised their oral presentations in a f2f session was because the content professors still wanted their students to conduct their Week 13 final presentations f2f at the time of the Week 10 work workshops. However, the Week 13 final oral presentation assessments had to be conducted online due to COVID-19.

All students were given materials at the beginning of the course so they could preview the materials and complete pre-lesson tasks, understand the online lesson objectives, and anticipate the class activities. Students were also given additional instructions such as Zoom meeting details, online meeting etiquettes, groupings, and times of group activities.

Table 1

Design of the Technical Oral and Writing Communication Skills Lessons

Week	Focus	Learning Outcomes	Preparation	Activities
9 Friday 20 March 2020 (online)	Workshop 1: Writing a Project Design Report (2 hours)	By the end of the session, students will be able to: - Write a clear, well-structured design report on their team project.	1. Read project design report template (uploaded on LUMINUS). 2. Prepare 1st Design Report and upload to LUMINUS (due Sunday 17 March). 3. Review additional materials: (a) Language Usage (b) Referencing (IEEE)	1. Students reflect on their writing processes. 2. Tutor reviews the parts of a project design report and highlights the next phase of the project. 3. Tutor provides language related guidance. 4. Students prepare for phase 2 of their written design reports.
10 Mon 23 March 2020 (online)	Workshop 2: Team Project Presentations (2 hours)	By the end of the session, students will be able to: - Deliver an effective oral presentation as part of a project team face-to-face and online via Zoom. - Handle questions from the audience.	1. View e-Lecture on *The Structure of a Presentation.* 2. View this presentation by Amel. 3. View this sample team presentation.	1. Review the Assertion-Evidence Approach in technical presentations. 2. Discuss the presentation preparation process. 3. Evaluate the sample videos together.
10 Wed 25 March 2020 (f2f)	Workshop 3: Team Project Presentations Practice Session (3 hours)	By the end of the session, students will be able to: - Deliver an effective oral presentation as part of a project team. - Handle questions from the audience.	Students finalise and practice their project design presentation.	Each group presents their project design in a "dry-run" and receives on-the-spot feedback from the tutor. Presentations are videotaped.
11 Fri 3 April 2020 (online)	Workshop 4: Final Project Report (2 hours)	By the end of the session, students will be able to write a clear, well- structured final report on their team project.	1. Students read Final Project Report template (uploaded on LUMINUS). 2. Students prepare a draft of the final report and upload it to the LUMINUS by Wed 10 April 11:55pm.	1. Students peer review final report drafts. 2. Tutor provides general feedback and discusses strategies for improving the final reports. 3. Students combine comments and feedback and revise the final reports.
13 (online)	Final Presentation Assessment (3 hours)		Students finalise and practice their project design presentation.	Project teams present their final designs. Tutors evaluate the presentations.

Table 2 below shows that lessons differed in the amount of instructor-student and student-student interactions:

- Lesson 1 (First and Final report writing): instructor's explanation (about 45 mins), group task (about 30 mins) and class discussion (about 20 mins), with about 2x5 min breaks in between getting in and out of breakrooms.
- Lesson 2: (oral presentations): instructor's explanation (about 20 mins), group task on video oral presentation evaluation (about 30 mins), class discussion (about 30 mins), and instructor's explanation on online oral presentations (about 15 mins), with about 2x5 min breaks in between getting in and out of breakrooms.
- Lesson 3: (Final Design Report +and Feedback): instructor's explanation (about 20 mins), group task (about 40 mins), group discussion with 2 groups of students: peer reviewer group and group that received peer review (about 10 mins per group). Students stayed online, but were free to have breaks until it was their turn to either provide or receive peer review. At the end of lesson, all came back to summarise strengths and weaknesses of report.

Table 2

The Breakdown of Instructor-Student and Student-Student Interactions in the Three Lessons

Activity	Workshop 1	Workshop 2	Workshop 3
Instructor's explanations	45 mins	20 mins	20 mins
Group tasks (breakout rooms)	30 mins (review own report)	30 mins (watched videos on OP skills)	40 mins (peer review)
Class discussion	20 mins	30 mins	60 mins (2 groups met to give and receive feedback; abt 10 mins per group). Other students stayed online, but were free to have breaks until it was their turn to either provide or receive peer review.
Instructor's explanations/ wrap-up		15 mins	15 mins
	2x5 min breaks in between getting in and out of breakrooms	2x5 min breaks in between getting in and out of breakrooms	

3.3 Questionnaire and Data Analysis

A post-course survey with questions pertaining to the three research questions was presented as a Google Form, and students were sent the Google link via email after they finished their final examinations, approximately 3 weeks after the completion of the course. Students were told participation in the survey was voluntary.

The survey consisted of questions pertaining students' pre-class instructions, online class interactions in classes for report writing (Lesson 1), oral presentations (Lesson 2), and peer feedback on writing (Lesson 4), as well as future online course suggestions for improvement for learning in future online courses.

To address the first research question ("What are students' attitudes toward learning technical report writing and oral presentations in online synchronous lessons?"), students were asked if:

- they thought they would miss out on learning before the oral presentation and writing online lessons and whether they had changed their minds.

- the very detailed specific instructions given prior to lessons were needed, and whether they read through the materials to prepare for class.

To answer the second research question ("What are students' preferences toward interactions in learning technical report writing and oral presentations in online synchronous lessons?"), students were asked if:

- they understood the instructor's explanations for report writing, oral presentations, and explanations on report writing and peer feedback requirements.
- the length of time used to explain was appropriate (about 15 minutes before the first activity).
- students preferred more interactions and discussion time on the content and evaluation reports and oral presentation video tasks.
- there was sufficient interaction with the instructor and if instructor had sufficient time to answer questions in the breakout rooms.
- there was sufficient interaction with the instructor in the main classroom.
- they felt comfortable asking questions in the oral presentation class.
- sufficient breaks were given in the lessons.

As for the third research question ("What are the benefits and challenges that students experienced in the online learning lessons this semester, and suggestions on what can be done to further engage them in learning?"), students were asked:

- about the ease of using Zoom + Google Docs.
- about the benefits and challenges students experienced in the online lessons this semester.
- what can increase students' participation in online lessons (e.g., class size or more preparation time).
- what can raise students' interest in taking online lessons.

Students also were asked which of the following applies to each of the items in RQs 2 and 3, and provide comments where possible:

0: not applicable1 not at all

2: good, but could be better

3: just right

4: better than expected

4 Results

This section reports the results from the questionnaire given to students after the completion of the course. Eighteen students (75%) responded to the post-course survey for online learning.

4.1 Students' attitudes on the online courses

This section provides results of the students' attitudes toward learning report writing and oral presentation skills online.

4.1.1 Overall description of students' attitude

In an attempt to reduce instructor talk and to ensure students understood what to expect in the lesson, additional instructions were given to students lesson etiquette (e.g. log into lessons with names, and mic/camera use), class discussion topics/questions, group activities and breakout room arrangements, and

links to other platforms (See Table 3). Students felt it was important to receive clear instructions and all the materials before the workshop so they could review the materials to prepare for the lesson, and find out what to expect in the lesson (n=17).

Table 3

Students' Responses on Pre-Class Instructions

Number of responses	Yes, pre-lesson instructions needed	No, pre-lesson instructions not needed	Needed, but I didn't have time to check instructions
	17 (94%)	1 (6%)	0

After completing the module online, students generally indicated they preferred to learn technical writing and oral presentation skills in a f2f setting. Table 4 presents student preferences on the mode of learning (f2f or online). About half of the students (n=10, 56%) would still prefer to learn f2f, only about a quarter (n=5, 28%) of the students would prefer to learn online, and a few indicated they were happy to attend either online or f2f lessons (n=3, 17%).

Table 4

Student Preferences on the Mode of Learning: F2f Vs. Online Learning

Number of responses:	Online	F2F	Both
i. Preferences to learn online or f2f	5 (28%)	10 (55%)	3 (17%)

As can been seen from the quotes below, students who reported they would prefer to learn online because of its convenience, and appreciated the use of the breakout rooms to participate in group discussions.

> *The face-to-face group discussions were done in a class room with other groups which can be a bit distracting.*
>
> *The online workshop. The group discussions were done in breakout rooms on zoom which allowed us to discuss conducively.*

Students reported the reasons they preferred to learn f2f are the benefits of class interactions and ability to focus in a f2f setting. The quotes below illustrate the importance of communication, interactions and connections with instructors and classmates in a f2f environment, where the real the 'human touch' exists and in the same physical space.

> *Face-to-face. It has a more human touch to it and I feel that I am more attentive during face-to-face session.*
>
> *Face-to-face. In CG1111, it was easier to communicate with my group mates and physically see what everyone is working on.*
>
> *Face-to-face as it would be clearer to see the facial expressions of the speaker and at the same time able to react to changes in audience attention or behaviour.*
>
> *I preferred the face-to-face workshops because they were more interactive and easier to pay attention to.*

Furthermore, the quotes below illustrate students felt they could pay more attention in a f2f setting with less distraction, discuss and modify/correct answered.

> *Face-to-face. It's just a personal preference as only through face-to-face we are able to clearly state what is the issue we have and have a better understanding of what issue is being addressed. Also via face-to-face lessons I feel better connected to the instructor and feel like I can understand them better. Also when conducting lessons online, it's easier for me to drift apart from the lessons due to the many distractions available (for example phones).*

I preferred the face-to-face workshops because I felt it was easier to focus on the lesson in a physical setting.

I prefer face-to-face workshops. It is more convenient to discuss and do modifications.

The quotes below show some students' preference for learning in f2f or online environments depended on the learning objectives. Students preferred learning oral presentations in a f2f environment.

Having the report writing workshop done online was really a plus because we could edit the report together. For presentation, I would usually say that having it face-to-face would be better, but given the COVID situation and how we ended up having to present via video conferencing, having it online was okay too.

I think having both was actually the best solution. With the way the world looks to be changing, I think having the skills to communicate, and indeed, absorb information, both in person and online will be an important skill to have.

For oral presentation, I prefer F2F as I would like to improve my confidence in speaking in front of an audience. For content, online workshops is better as I am able to rewatch the recordings and absorb better.

4.1.2 Students' attitudes toward learning oral presentations and writing online

Students were asked if they felt they might miss out on learning when they were informed the technical report writing and oral presentations would be conducted online instead of f2f due to COVID-19 restrictions. More students (n=13, 72%) did not feel they would miss out learning online for report writing compared to oral presentations (n=5, 28%). However, more students were worried about not being able to learn the necessary oral presentation skills (n=6, 33%) than report writing skills (n=3, 17%) online. Interestingly, some students who were initially concerned about learning report writing and oral presentation skills online were not concerned about learning online after the online lessons because they realised they were able to learn the necessary skills online (n=2, 11%; n=7 39%, respectively) (See Table 5).

Table 5

Students' Thoughts about Whether They Would 'Miss Out' in Online Learning

Number of responses	No	Yes	Attitude change (Ss reported only 'yes', worried initially, and changed mind after workshop)
Report writing	13(72%)	3 (17%)	2 (11%)
Oral presentations	5 (28%)	6 (33%)	7 (39%)

4.1.3 What students think about learning report writing online?

As can be seen from Table 5, only a few students (n=3) believed they might 'miss out' on learning report writing skills online. The quotes below show students were concerned about the online writing lessons because they believed it would be easier to discuss content in a f2f setting and it would be easier to clarify answers with classmates and instructors f2f.

Yes. I have always felt physical lessons are better especially when it is easier to discuss with classmates or clarify doubts after class.

My opinion has not changed, except for the fact that it is easier to ask small questions in an online chat but harder to follow up as the teacher is responding to many questions at once.

Yes, as online lessons may be distraction compared to face-to-face lessons where you are 'forced' to sit in and lesson. I feel I learnt slightly less than expected due to reasons mentioned above.

However, a large majority of students (n=13, 72%) believed they would not miss out on learning how to write reports in online lessons. As reported in the literature (McBain et al., 2015; Hunukumbure, et al., 2017), instructors' guidance given to students outside class could largely affect students' ability to learn online. As illustrated in the quotes, students also understood they would be able to ask questions before, during, and after class, so they were not worried about missing out on learning report writing skills because they thought learning writing skills should be same in f2f and online environments as the necessary materials (PPTs and other resources) were given beforehand, and they had plenty of time to prepare for the online lesson.

No [I was not worried]. I did feel that the online teaching for report writing is actually very useful as our tutors can provide us with feedback via ZOOM consultations and explain the various issues in the report on the screen to everyone. This allowed me to absorb much better as compared to a F2F session as the tutor may not have as much time to focus on individual teams.

No as there were pre-prepared videos and slides that taught us on how report writing would be done. My opinion hasn't changed and it turned out to be more effective than I expected as we still managed to be within our groups with the breakout room and able to discuss.

No. Since the material were given beforehand. We had ample time to read through them and clarify our doubts during the online sessions. After the workshop, I was more assured as my tutor, Prof Misty encouraged us to contact her if we had any issues.

Interestingly, only a few students (n=2) revealed they were initially worried about missing out on learning how to write a technical report when the course was online. As can been seen from the quotes below, students who worried about the first class were concerned about the technical difficulties and that content would not be conveyed accurately. However, after the writing class, the students did not worry as they realised they had materials, clear instructions and annotations in the reports to refer to.

Yes, I was at first. I think the report writing workshop came first? I was afraid that poor internet connection or other technical difficulties would affect my learning. After the first workshop, I was assured that it would be okay though. It's online so I know I have material I can refer to when I'm unsure while writing my report. I did learn more than anticipated. :)

I felt 50-50. I felt that some parts of the report writing would not be able to be conveyed accurately. Yes, my opinion changed after the workshops as even though lessons were conducted online for report writing, the instructor gave clear annotations of what she wanted and the group chat with her in it made a great way of clarifying doubts. Yes.

Initially, yes. I was afraid of the weak wifi connection at home, preventing me from keeping up with the profs. After the workshops, my fear was confirmed as I did face issues with the wifi connection. However, I learnt more than I anticipated as for the things that I missed out, I can ask my group mates for help.

The results indicate a majority of students believed they were not concerned about learning report writing skills online. Although some students were afraid of lesson interruptions due to poor internet connections, they had no problems learning report writing skills because the materials given to them before the lesson were useful, and the actual writing could be done online via Google Docs.

4.1.4 What students think about learning oral presentation online?

About one-third of the students reported they were not concerned about missing out on learning online because students:

1. knew they would still be able to learn online based on their experiences in the f2f and the report writing workshop,
2. understood learning should be same for f2f and online,
3. welcomed the chance to learn oral presentation skills online.
4. realised they would still be able to ask for help from classmates, and
5. were informed they would get a chance to practise their oral presentation skills in another session, f2f.

The reasons that students were not concerned about learning online are illustrated by the quotes below:

> *because from my experience with the report writing workshop, I knew it would be okay. I did learn more, especially with presenting via video conferencing. That was slightly different from face-to-face presentations.*
>
> *It almost the same as conducting face-to-face. After the workshop, I actually learnt more than anticipated.*
>
> *No. Because I can ask classmates or tutors about something I missed out. No. Yes, I did.*
>
> *No. I believed that online presentations would be easier, so I wasn't afraid of not being able to learn the necessary presentation techniques to give an online presentation. No. No.*

In contrast, some students were worried about missing out on learning oral presentation skills online. The quotes below reveal students were worried because they felt they could experience and learn more delivery skills for oral presentations f2f, and that they would be corrected if they made mistakes in a f2f lesson.

> *the oral presentation yes because there is a lot to be learnt by observing others and of course the instructor. Hence, when it was taught online, even though we learnt a lot there was some learning that was missed.*
>
> *Yes. F2F allows us to gain more exposure to the audience awareness aspect of presentations as compared to online, where we can only focus our attention on one 'person', AKA the camera. Content wise I have learnt quite alot from the online workshops.*
>
> *A bit, since through F2F we are able to practice our speaking skills right on the spot can get corrected if there's any mistakes, but through online sessions that opportunity is gone. However, I'd say it's still effective. My opinion hasn't changed, and I didn't learn more than anticipated.*

Surprisingly, about one-third of students changed their minds about the thought of missing out on learning oral presentation delivery skills online after the oral presentation class. This is because students were worried about:

1. technical difficulties,
2. the vast differences between presentation skills in f2f and online presentations,
3. inability to maintain eye contact and connect with the audience, and
4. gauge the audience based on their facial expression.

However, as can be seen in the quotes below, students felt better once they learned other effective ways to still project oneself in online presentations; for example, guiding audience through slides and the use of voice. Very importantly, when students found out the relevance of learning for assessments and even in internships and future needs, and how technologies also enabled learning.

> *Yes I was afraid that the context of online presentation is vastly different from real-life presentation and the skills aren't that transferable. And maybe technical issue might happen a lot for online presentation such as non-working mic or internet connection issue. I did change my opinion a little, it became more neutral. I felt that I learnt exactly what I anticipated.*

Yes as online oral presentation, it is hard to look at all the audience and your facial expressions maybe hard to see to the audience as well. My opinion changed as it turned out that there were other ways to project oneself through the slides as well as the voice to effectively present through online. Yes I learnt more stuff.

Initially, yes. Due to the weak wifi at home. After the workshops, my opinion has changed as in the future, we might have to do online presentation instead (when we joined the workforce or during internship) and I think this prepares us for that.

After the session, I realised that with the ongoing covid 19 situations, there is a need to hone our online presentation skills too which this workshop gave us an opportunity to.

The results reveal students believed they were able to learn oral presentation skills online. Although some students were concerned they might miss out on learning some essential oral presentation skills online before they attended the oral presentation lesson, they reported they were also able to learn oral communication skills in the online lesson. This is because they realised it was important to learn online presentation skills, especially during the COVID-19 period.

4.2 Interactions

This section provides results of the students' preferences on the instructor-student and student-student interactions in the report writing and oral presentation online lessons.

4.2.1 Students' preferences on interaction proportions

The results below show students' perceptions of the quality of instructions and the student-student and student-instructor interactions in the technical report writing (Lesson 1), oral presentations (Lesson 2), and peer feedback on reports workshops (Lesson 4). As can be seen from Figure 1, about half of the students (44.4%) preferred Lesson 3 to Lessons 1 and 2. Students liked less instructional time, with more group task and discussion time, and some off-screen time to complete tasks. Only about a quarter of the students preferred both Lessons 1 and 2 with more instructions, as well as group tasks and discussion time even though students were given two 5-miunte breaks, 27.8% and 22.2% respectively.

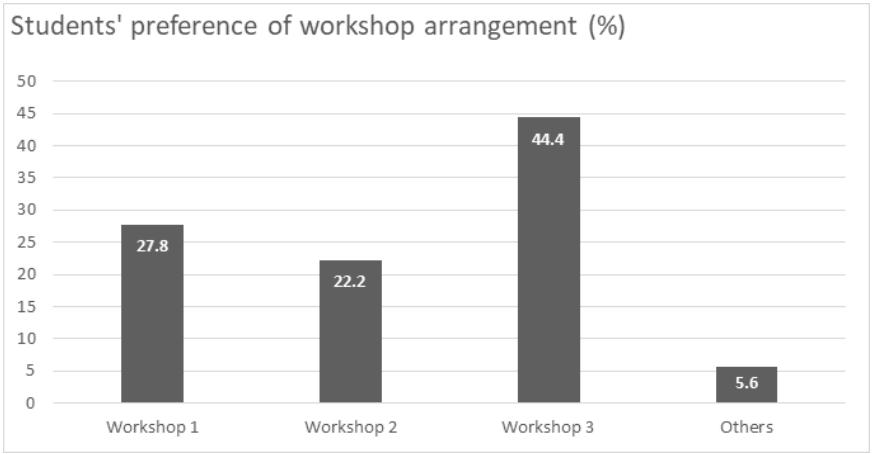

Figure 1. Students' preferences on interactions in the lessons

Table 6 further reveals students' perceptions of interaction proportions in the report writing, oral presentation, and peer review lessons. Students preferred more instructions than interactions in the report writing lessons (n=15, 83% and n=3, 17% respectively) compared to the oral presentation and peer

review lessons. About half of the students preferred more instructions and half preferred interactions in the oral presentation (n=8, 44% and n=10, 56% respectively) and peer review lessons (n=9, 50% and n=9, 50% respectively). These results are not surprising because students think the technical report writing is more difficult and would need more class time to learn the necessary writing skills. The oral presentation and peer review lessons require students to demonstrate more evaluative skills and, therefore, would need more class time to complete tasks.

Table 6

Students' Perceptions of Interaction Types

Interaction types	Report	OP	Peer review
-instructions > interactions to explore as group	15 (83%)	8 (44%)	9 (50%)
-interactions to explore as group > instructions	3 (17%)	10 (56%)	9 (50%)

Ranking: 0-4: 0=not applicable / 1=not at all / 2= good, but could be better / 3=just right / 4=better than expected.

Students preferred either with two 5-minute or one ten-minute breaks in the lessons (Table 7).

Table 7

Students' Preferences for Breaks in the Lesson

Break timing	No. of responses
1 x 5-min break	2 (11%)
2 X 5, every 30-40 mins	9 (50%)
1 x 10 min break	7 (39%)

4.2.2 Interaction types

Table 8 shows students' perceptions of instructor-student and student-student interactions in the report writing, oral presentation, and peer review lessons.

Table 8

Averages of Students' Perceptions of Instructor-Student and Student-Student Interactions

	Report	OP	Peer review
iv. Was there sufficient interactions with the instructor and peers (breakout rooms)	3.22	3.33	3.33
v. Was there sufficient interaction with the instructor and peers in the main classroom	3.33	2.94	3.17
vi. Did you feel comfortable asking questions in the lesson?	3.28	3.22	3.22

Ranking: 0-4: 0=not applicable / 1=not at all / 2= good, but could be better / 3=just right / 4=better than expected.

As can be seen from Table 8, students believed there were sufficient instructor-student and student-student interactions in the report writing, oral presentation, and peer review lessons. In general, students

were satisfied with the instructor-student and student-student interactions in the breakout rooms in the report writing, oral presentation and peer review lessons (Averages = 3.22, 3.33, and 3.33 respectively).

As seen from the students' quotes provided, it is likely that students felt sufficient interactions were given in all three lessons because both instructor presence and social presence existed in the breakout rooms and the main classrooms in all three lessons.

For instance, in the breakout rooms, the instructor demonstrated instructor presence by going into the breakout rooms to check if students needed help, for students to ask questions and seek help, and students knew how to reach out for help even when the instructor was not in the breakroom room during the lesson, and even before and after the lesson. As illustrated by the following quotes:

> *The interactions with the instructor was sufficient and enough time was allocated for the instructor to answer our questions.*
>
> *The breakout rooms made asking questions less daunting and more personalised to the group.*
>
> *The instructor is extremely understanding and helpful during the consultations. This helped our group to fix many of the issues in our report.*
>
> *Most of our questions came when we were writing the report and less during the breakout room. So, even though the time for the instructor to answer our questions in the breakout room was short, it was sufficient.*
>
> *The instructor handled the interaction in the group pretty well given that there's quite a lot of coordination.*

As indicated in the quote below, students commented on value of social presence because students were able to interact with each other in the breakout rooms during the report writing and oral presentation lessons. Even though only some time was allocated for the breakout rooms, students still had sufficient time to discuss and complete work, and for students to ask questions.

> *sufficient time was given. I like that we were given time to discuss with our group mates with the breakout rooms.*

However, the quotes below reveal students also recognised a potential disadvantage of breakout rooms is that students must responsibly contribute.

> *I think it's better to have these breakout rooms for discussions. The main advantage of having online lessons is the breakout rooms in my opinion. However, it is also harder to ensure everyone is disciplined and doing what they should be, but that's just what I think.Similarly, as seen in the quotes below, students were also satisfied with the interactions in the main classroom for the report writing and the peer review lessons. Students reported instructor presence was effective in providing and facilitating group discussions in the main classrooms:*
>
> *Most of the time it was the instructor communicating with us and we ask questions in the chat. It's understandable as it was the main classroom and the interaction felt sufficient.*
>
> *The instruction was clearly conveyed.*
>
> *There was enough interaction with the instructor and the class.*

As reported in the quotes below, students also benefited from social presence in all three lessons because students were able to share their work and learn from each other.

> *We were able to critique other groups' proposals and have them critique ours as well. This peer review is very helpful as it allows us to understand what other people think about our report and how we can improve it.*
>
> *We had time to explain the report and take down advises from the other groups which helped us better improve the report. This also gave us an opportunity to do a mini presentation.*

It is likely that the main classroom time Interactions could be reduced due to repeated comments across the group sharing. For instance, one student commented "It might be better to reduce individual sharing to the entire class as points were often repeated."

4.2.3 Instructors' explanations

As can be seen in Table 9, in general, students indicated they were able to understand the instructor's explanations in class and the time given to explain the report writing (x=3.44 and 3.11 respectively) and oral presentation skills (x=3.44 and 3.28 respectively) were 'just right'. However, since students were given instructions on peer reviewing task and students were not told the parts of the report (but no details were given on 'how to give feedback as such'), students felt they did not understand explanations as well as they could (x=3.167) and instructor could have spent more time on giving explanations on the peer review task (x=2.94).

Table 9

Averages of Students' Perceptions of Instructor's Explanations

	Report	OP	Peer review
i. clarity of instructor's explanations for report writing, oral presentations, and peer feedback requirements.	3.44	3.44	3.17
ii.. Length of time used to explain	3.11	3.28	2.94

4.2.4 Students' perceptions of benefits and challenges of online learning:

Overall, students reported the following benefits and challenges in the online learning lessons this semester (See Table 10). Quite a few students reported one of the main challenges was the distractions from learning online and difficulties in paying attention to the lesson, followed by worries of possible technical difficulties, and interactions with classmates. In contrast, students reported the benefits as the convenience of not having to commute and being about to study in the comfort of their own home, ability to participate online that led to increased productivity, ease of referring to materials used and review materials again, and the use of breakout rooms.

Table 10

Students' Perceptions of Instructor's Explanations

Challenges (students can report more than 1)	**16 responses**
Focusing/distractions: • Lack of concentration after some time • Harder to focus • some challenges were that is most difficult to pay attention for long periods when it was online • Challenges are trying to stay focussed and not distracted • The challenges were that i find it hard to follow • The challenges were that i find it hard to follow the lesson and my attention would usually drift after the 40 mins mark of the lesson • The challenge is that sometimes I am not very focused. • Complacent due to this fact and may not pay as much attention because lessons can be recorded. • but I feel that I would be more focused if it were done face-to-face	9

Technical difficulties: • challenges- 1) technical difficulties that no one has control over, like a wonky internet connection. Sometimes these interrupted the video conference and that was a bit annoying. • Challenges, probably technical issues like lag. • weak wifi connection at home	3
Interaction with classmates: • less sociable, lessons were often watered down • Challenges: unable to physically interact with group mates to check on them	2
Quality of lessons: • Online learning was very comfortable as I could learn right from my home. However, certain lessons such as oral presentation would be much better in F2F conditions.	1
Others: Challenges were the many changes throughout.	1
Benefits (students can report more than 1)	**18 responses**
Convenience: • benefits: no commuting, comfy chair at home • Benefits are freedom and comfort of learning • Online learning was very comfortable as I could learn right from my home. • It was very convenient to do it online • Benefit is to be at the comfort of home. • The benefits was that there was lesser time wasted on travelling to school. • Benefits: No need to travel to class; • Benefits: we could learn new things at the comfort of our own home	8
Participation/Interaction: • However, it can be easier to ask questions in class. • Benefits were that interaction and discussions were somehow made easier and more productive. • I learned how to present online and to work effectively with group mates via online platforms. • The benefit is that we can use breakout room to ask questions so that it will not bother other groups. • Presenting online was a new experience but it also better prepared students for online presentations.	5
Materials: • easy to find materials and annotate anything important (unlike face-to-face lessons where we'd probably have to constantly look at the board and then back at our laptop screens) • breakout rooms where we could discuss with our group mates without the interruption of other groups (in a real classroom situation we would probably be bothered by the noise/discussions around us)	2

4.3 Students' perceptions of future online learning

As can be seen from Table 11, students reported that the most effective ways to engage students to participate are to involve students in completing and sharing tasks, provide more interaction time, conduct smaller classes so they could engage more closely with instructors, and ensure students are given breaks so they could take breaks from the lessons.

Table 11

Students' Perceptions of Possible Ways to Encourage Student Participation—Might Leave Out This Section

Ways to encourage student participation (students can report more than 1)	17 responses
• Participation time and interaction time • I think if each group is given something to present about/ a question to answer to, we can ensure a higher participation rate. • More student sharing time • More group discussion or interesting interaction time • Asking questions to the students would definitely help to check if the students understood the previous point. • Directed questions	7
Smaller class size • Class size can be smaller so that every group can have more time on discussing with instructor.	4
More incentive to pay attention • Have some interesting trivia questions maybe.	2
Breaks • have a break every 30 mins • have 5-min breaks	2
Prep time before class	1
Others: To be honest I think it can't be help, it all depends on the interest of the students.	1

Accordingly, instructors could increase students' interest in learning online by providing more opportunities for them to interact with instructors and peers in games and activities that require thinking and responses. This could also be done via Zoom breakout rooms, and shared Google Docs with slides and Kahoot quiz that students can work on during instructional and group activities, with rewards (perhaps in terms of point tabulation throughout the semester). Students mentioned that focusing in a 2-hour lesson was difficult and they become distracted easily. This means that the online materials presented must be clear, concise, and easy to understand.

Table 12

Students' Perceptions of Possible Ways to Raise Student Interest

Ways to increase student interest (students can report more than 1)	23 responses
A more interactive session	5
fun games/activities-kahoot	4
materials: interactive slides. Word-filled visuals make it harder to concentrate.	3
Length--not too long. Be concise	2
rewards	2
interesting/relevant topic	2
Breakout sessions	1
useful materials online	1
tech: stable convenient platform: zoom is fine	1
not sure	1
more time for collaboration online, as it's hard for students to find time online	1

5 Discussion

Although the results of this study are based on a small cohort of 18 students who responded to the post-course online survey, the quantitative and qualitative results provide insights into students' perceptions toward learning report writing and oral communication skills in three online synchronous lessons. The results also shed insights on students' perceptions of the balance between instructor presence, cognitive presence, and social presence in online writing and oral presentation lessons.

RQ1. What are students' attitudes toward learning technical report writing and oral presentations in online synchronous lessons?

As reported in the literature, instructors should support students outside the classroom by providing instructions on the lessons and assessment tasks (Garrison et al., 2000). The students in this study believed the instructors sent sufficient critical for students to receive explicit instructions about ways to log into lessons with names, and mic/camera use, class discussion topics/questions, group activities and breakout room arrangements, and links to other platforms. Such details were sent to students so that they could be informed of the class activities arrangement and know what to expect to learn in class. It was also an effective way to prepare students for the lessons so they could reduce 'talking time' in class time. Students' indication on the need to receive these detailed instructions before class may seem intuitive to all instructors.

Although students rated learning report writing and oral communication skills was 'just right' and 'better than expected' in terms of the how and the amount of content taught in an online learning environment, about half of the respondents still preferred to learn in a f2f environment. In general, students who preferred online courses felt the breakout rooms were conducive for learning as the f2f environment could be distracting as different groups of students could talk at the same time. However, students who preferred to learn in a f2f environment reported the 'human touch' was missing in an online environment, and there were fewer opportunities to communicate with group mates to discuss projects and instructors, and would be less distracted.

Additional results reveal that even though students generally preferred learning in a f2f environment due to limited interactions with instructors and peers, they did not necessarily feel they would 'miss out' on learning content and skills if courses were conducted online. Students' perceptions on 'how much' and 'what' they missed out on differed between learning writing and oral presentation skills online. Very interestingly, a higher number of students reported that they did not feel they would miss out in the writing class compared to the oral presentation class. Students were given all the materials and tasks to preview, and they received specific detailed instructions on the group tasks and group arrangements in the breakout rooms before the writing, oral presentation, and peer review workshops. This is likely a conducive online learning community was created with three essential elements instructor presence, cognitive presence, and social presence existed inside and outside class (Garrison et al., 2015). As an instructor, I ensured I provided an appropriate balance between instructor-student and student-student interactions to scaffold to meet the lesson objectives.

Indeed, the critical elements that made students feel they did not miss out on learning skills and knowledge in online lessons were cognitive, instructor, and social presence. The students in this course were given materials on how to write the technical reports and deliver oral presentations that were specifically designed for their content course. This means the students were very cognitively engaged, as indicated by the results. In addition, results also strongly supported the importance of instructors' role in online education. Students revealed the frequent contact between instructors was beneficial to them. The instructor contacted students and shared materials before class so students had time to prepare, clearly explained information, provided constructive feedback in class and via Zoom consultations

before and after class, facilitated the breakout rooms and main classroom by ensuring the content taught was relevant and had a time for instructor-student and student-student interactions, and assured students could contact her at any time outside class. Social presence critically provided by means of instructor's explanations in the main classrooms and breakout rooms and the instructor-student and student-students interactions in the breakout rooms allowed students to effectively discuss the reports. The few students who were worried about online lessons initially also recognised that the online classes could also provide opportunities for students discuss work, ask questions, clarify doubts in the main classrooms during the lessons, and outside class time.

A few students reported they were initially worried but realised they did not need to worry about the online writing class due to the possible technical difficulties, and they realised the content would still be taught accurately in an online lesson. In terms of technical difficulties, students realised they did not need to worry as they were familiar with using Zoom and Google Docs to write reports and to give peer feedback on another group's report. The students knew what to expect in the way the workshop would be conducted, how they could learn, and reverted to the materials when they did not understand. In fact, even the few students who experienced minor internet connection problems reported they did not feel they had missed out on learning after the writing class. Perhaps this was because students recognised instructor presence in effectively delivering the content and social presence with a balance between instructor-student and student-student interactions. Students did not worry they would miss out after the class once they realised that they also had the materials to refer to, and clear instructions and annotations were given on the reports.

Furthermore, a majority of students realised from the start that they would not miss out on learning oral presentation skills because they were able to discuss and clarify doubts with their classmates in the online lessons. In contrast, students thought they might miss out on learning oral presentation skills in online lessons also highlight the importance of cognitive presence, social presence and, very importantly, instructor presence. Students initially thought they might miss out learning knowledge/skills were similar to the disadvantages reported in the literature (Dumford & Miller 2018). These concerns were related to the possible lack of instructor presence as they would not be able to model and learn from peers and instructors, as well as not receive feedback from the instructor. Students' concerns about social presence related to the lack of interactions and that giving a presentation online is 'like talking to the wall'. In addition, students were anxious about cognitive presence as they were concerned because they were unfamiliar with the idea of delivering an oral presentation online, online presentations skills would be vastly different from real-life presentation and the online skills would not be transferable to real life presentations, and could not connect with the audience with a feasible way to learn oral presentation skills (like how it was done traditionally).

Very few students reported they did not initially feel they would miss out on leaning oral presentation skills because they would learn new online presentation techniques (cognitive presence). They believed the oral presentation class would be fine based on their experience in the first class on report writing, and working internet connection (connection via video conferencing). They knew they could ask questions and seek clarification before, during, and after class (instructor presence). The students also felt they were also able to connect and seek help from their classmates (social presence).

Interestingly, about half of the students who reported they felt they might miss out on learning oral presentation skills online changed their minds about missing out on learning once they were able to associate and connect with cognitive presence. That is, students recognised the value of learning new skills related to online presentation deliveries, as well as the relevance and importance of the oral presentation skills learned for future presentation skills in situations where they have to deliver online presentations during internships and jobs, beyond their course assessments. Equally important was that students realised they were also able to interact in the online main classroom and breakout rooms.

More importantly, as the literature has also highlighted, instructor presence inside and outside the classroom is critical when tasks could potentially be more challenging to learn in an online environment.

Students did not worry when they understood that they would able to ask for help from classmates, and they would get a chance to practise their oral presentation skills in another session. This shows that instructor presence is extremely important in promoting learning. When students believe that the instructors could facilitate learning, they would be able to learn. Instructor presence is critical in ensuring students feel confident about learning. Instructors have to be able to clarify doubts, facilitate breakout rooms, answer questions, and attend to students in the breakout rooms. Students knew they could ask questions at any time.

The differences between students' perceptions of what they might miss out on learning in the writing and oral presentation classes could be attributed to students' previous experiences in learning in a f2f environment. Writing skills can be learned and writing tasks can be collaboratively done online, so it is understandable that students would not feel they would miss out on learning. Students were likely to be more anxious about oral presentations because in a f2f environment, oral presentations would be taught and conducted in a f2f environment. It is the instructors' ability to create a safe online community with a 'human touch' to learn by providing support before, inside, and outside the classroom, scaffold materials, and create social interactions that can potentially reduce students' anxiety to learn in an online environment.

RQ2. What are students' preferences toward interactions in learning technical report writing and oral presentations in online synchronous lessons?

The literature so far has consistently reported on the importance of including instructor-student and student-student interactions in online courses (Banna et al., 2015; Martin & Bolliger, 2018). This study contributes to the existing knowledge by providing further insights on the proportion of online learning preferred, the nature of the interactions, and the clarity of instructors' explanations.

Half of the students preferred to learn with the format of Lesson 3, which had less instruction time, more group discussion and activity time, and even some asynchronous learning time to complete tasks. This suggests that, while synchronous online lessons are consistently found to be an effective way to engage students to learn, instructors also need to give them time to work offline in their time, and then bring them back to share and discuss with feedback. Students also appreciated the opportunity to collaborate with their team mates to co-construct knowledge during class time, without necessarily needed much instructor-student interaction. Students reported they were satisfied with the instructor-student and student-student interactions in the breakout rooms and class interactions. In addition, students in this course were more likely to participate and self-regulate their own learning if instructors used appropriate pedagogies online by carefully producing materials, and planning lessons to scaffold learning with the necessary online technologies to cater for individual differences. The instructors must promote student learning by using easy-to-access technologies and online platforms such as Zoom (McBain et al., 2015; Roddy et al., 2017; Rovai & Downey, 2010).

Overall, students reported there was 'just right' amount of interaction with the instructor and peers in the breakout rooms and in the main classrooms to learn knowledge/skills. This again highlights the importance of instructor's presence in online education as students repeatedly mentioned the importance of communication before, during, and after the lesson, and the need to support students when they need help inside and outside class.

RQ3. What are the benefits and challenges that students experienced in the online learning lessons this semester, and suggestions on what can be done to further engage them in learning?

Students in this study also reported the benefits of online lessons were the convenience of not having to commute, ability to enjoy learning in the comfort of their own space, as well as the freedom to access materials anytime, anywhere so they could preview, during, and review materials. Students also appreciated having interactions with their peers in Zoom breakout rooms, opportunities to learn to deliver presentations online as the taught skills are relevant for their future.

Students in this class only had minor internet connection issues and this group of Computer engineering students were familiar with the use of technologies such as Google Docs and Zoom. However, many students reported their lack of attention span, excessive number of online distractions, a lack of interactions with classmates, and the thought of having watered-down quality lessons as their biggest challenges. This issue could be addressed by increased engagement. Interestingly, students' suggestions on possible ways to engage them in class are related to cognitive, instructor, and social presences. Instructors must cognitively engage students by providing interesting and relevant topics, post useful materials online, and use interactive slides in the lessons. Instructors must also facilitate online lessons with appropriate scaffolding of materials using fun games/activities on kahoot, and allow time for student-student discussions and collaborations in breakout sessions in online lessons.

6 Implications

Aside from technical difficulties, one of the biggest challenges in an online learning environment is distraction and students' ability to concentrate on the lessons (more specifically at the 40-minute mark),. Online learning or Zoom fatigue has been repeatedly reported (Degges-White, 2020; Rockwell, 2020). This has significant implications for online education. To a large extent, teaching online should not be a true replicate of a f2f lesson. In a physical classroom, many of us would not let students leave a classroom and come back after 40 minutes (or at least for this long period of time). However, as the results of this study indicate, most students preferred to have a balance between providing instructions and discussion time to work a group task in their breakout room, followed by some free time to re-check work without close monitoring (even asynchronously), before meeting up for discussion/peer feedback, and followed by my instructions again. It is critical to give students more flexibility to do group work within the lesson. Therefore, online lessons should include an appropriate balance between instructor-student and student-student interactions. Instructors should systematically explain and scaffold relevant course materials and allow time for student discussions in class, and support and guide students beyond class time.

Students were also initially worried about not being able to learn the necessary oral presentation skills online, but then realised they were able to learn the needed skills during the lesson. This suggests that students come to our online (and f2f) classes with different learning experiences and expectations/ knowledge of how and what to learn, and with different abilities to use technologies. Therefore, instructors must provide students with clear lesson objectives and expectations before the lessons so they can prepare and anticipate what should be learned in the lessons.

To ensure students are engaged in learning, cognitive presence, social presence, and instructor presence must be addressed. Among the challenges, students also expressed concerns about cognitive engagement, so we must make sure we send all necessary instructions and materials to students before lessons, so they know what to expect. Instructions are important in a lesson, but more time should be allowed to scaffold learning. Students' suggestion on creating interactive slides is a good idea because we can monitor what students are doing in the breakout rooms. Instructors must also engage students cognitively by ensuring relevant materials are given to students before class so they could preview and review the materials. The materials must be concise, topics must be relevant to enable interactions throughout class, materials posted online must be useful. It is also a good idea to prepare a set of slides that students can co-construct knowledge and skills together during class.

Instructor presence is critical in any teaching, especially in online teaching. Since it is likely that Instructors teaching online would not have as many visual cues and have less spontaneous interactions with students, it is important for them to share information and be supportive to students before, during and after the lessons, and add a 'human touch' to student learning. In a typical classroom, instructors could freely walk around and chat casually with students before and after lessons, and during group discussions. An instructor's presence in facilitating group interactions in breakout rooms to promote social presence is also of great value to students. Additionally, instructors should consider scaffolding learning and engaging students in a more creative way by leveraging on technological platforms such as kahoot in the lessons, and conduct student-led lessons with instructors' support in learning.

7 Conclusion

In conclusion, the results of this study suggest that teaching technical oral presentations and report writing skills in synchronous online lessons can effective. As instructors, we must be aware that students attend online courses with prior experiences and expectations in how and what they should learn. Students may feel challenged if they know they are presented with a new learning experience, but their uncertainties can be overcome if instructors provide a safe online learning platform, with sufficient cognitive, instructor, and social presence. The successes of online education ultimately depend on an instructors' ability to use technologies to effectively scaffold materials and provide adequate instructor-student and student-student interactions.

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