# AN EXPLORATORY STUDY TO EVALUATE THE TEACHING STRATEGIES IN THE HYBRID HIGHER EDUCATION CLASSROOM

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ABSTRACT

This article presents the findings of a South African study conducted in a private Higher Education Institution. The aim of the article was to explore teaching strategies suitable for hybrid classrooms, to create an environment to integrate virtual and in-person student groups for optimal learning outcomes.

A hybrid classroom requires academic staff to engage both groups in student-centred activities and therefore, this article argues that traditional teaching strategies may not be optimal in achieving integration.

This exploratory study employed a practical action research design, to teaching strategies in hybrid classrooms. The data was collected by conducting class observation and two focus groups. The study used Braun and Clarke's (2006) thematic analysis for data analysis.

The findings indicated that academic staff have a limited understanding regarding teaching strategies that would bridge the gap between virtual and in-person students. The study emphasised the necessity of an inquiry-based mindset in the hybrid teaching environment. The focus groups unanimously advocated for adopting an "adapted student-centred instructional approach" to address hybrid classroom challenges.

This research contributes to understanding student-centred teaching strategies in hybrid classrooms. The key insight was that teacher-centred approaches by academic staff did not equally integrate virtual and in-person student participation. The study underscores the importance of lecturer training in effective student-centred teaching strategies for optimal learning in hybrid classrooms

**Keywords:** hybrid teaching, hybrid classrooms, student centred pedagogical strategies, heutagogical and andragogical strategies, learning styles, synchronous and asynchronous teaching, collaborative learning, higher education

## INTRODUCTION

This article presents the outcomes of a study conducted in a private Higher Education Institution in South Africa, to identify teaching strategies for hybrid classrooms. This study emanates from the emergence of hybrid teaching environments, which combine face-to-face and online tuition. The term "hybrid classroom" refers to classrooms which accommodate virtual and in-person students simultaneously, requiring academic staff to integrate both groups in student-centred activities (Binnewies and Whang 2019). The effectiveness of traditional teaching strategies in achieving this integration is questioned, hence an exploration of alternative teaching strategies in this study.

To determine teaching strategies which would facilitate the integration and equal engagement of online and in-person students in the hybrid classroom, the study set out to answer the following research sub-questions: To explore teaching strategies used in the hybrid teaching environment:

● To examine the various teaching strategies used within the hybrid teaching environment
● To examine the online and in-person students' hybrid classroom experience.
● To reflect on the future of teaching strategies which promote online and in-person engagement within the hybrid teaching environment within a South African context

The literature review examines existing research on teaching strategies aimed at encouraging student engagement in hybrid higher education classrooms. A survey of research into teaching strategies in hybrid classrooms is prompted by an acknowledgment of the potential shortcomings of traditional strategies to integrate virtual and in-person student groups in the hybrid classroom (Maatuk et al. 2022).

## BACKGROUND AND AIM

Hybrid classrooms pose specific challenges for academic staff, including engaging all students equally, creating equitable learning environments, and effectively using technology (Binnewies and Wang 2019; Li et al. 2023). Challenges identified include institutional infrastructure, digital literacy, and selecting suitable active learning strategies.

Academic staff must adapt teaching to integrate both in-person and online students, avoiding alienation (Lorenzo-Lledó et al. 2021). Challenges faced by students include loneliness, technical issues, and limited engagement with academic staff.

Adopting a practical action research design, this exploratory study systematically observed teaching strategies in hybrid classrooms. Two focus groups were conducted to identify

challenges, and Braun and Clarke's (2006) thematic analysis was employed for meticulous data analysis.

## THEORETICAL BACKGROUND

### Introduction

The literature review addresses the aims of exploring teaching strategies, examining hybrid learning environments, and understanding the challenges and pedagogical approaches in hybrid higher education classrooms. The literature highlights several important considerations in the design and development of teaching strategies in the hybrid classroom.

### Pedagogical approaches

Firstly, the literature on the design and development of teaching strategies emphasises the importance of cognitive, social and affective engagement needs within teaching strategies. Secondly teaching strategies must address diverse student profiles, considering the learning needs and approaches of students in the 21st century (Shorey et al. 2021). Thirdly, pedagogical approaches, including andragogy and heutagogy, play a pivotal role, especially in preparing students for 21st-century workplaces (Uday 2019). Heutagogy, emphasising self-determined learning, and social constructivism, promoting collaboration, are integral to creating an active learning environment in hybrid classrooms. And fourthly, technological skills of both academic staff and students have an impact on learning and teaching in the hybrid classroom (Binnewies and Wang 2019).

### *Cognitive and affective engagement*

The challenge in the hybrid classroom is to ensure meaningful engagement for both face-to-face and online students. Teaching strategies rooted in the Social Constructivist, Active Learning, and Community of Inquiry Models are crucial for effective engagement (Cleveland-Innes and Wilton 2018).

### *Community of Inquiry framework*

The Community of Inquiry (CoI) framework, (Garrison, Anderson, and Archer 2000), emphasises the interaction between cognitive presence, social presence, and teaching presence in online and blended learning environments. Several studies have examined its application in hybrid education settings (Bower et al. 2015) which concluded that its application in hybrid education settings is vital for facilitating meaningful student engagement. The CoI framework

highlights the need for academic staff to facilitate cognitive and social processes to ensure meaningful student engagement in a hybrid classroom environment.

### *Constructivist theory*

The Constructivist theory, focusing on Cognitive and Social Constructivism, places the student at the centre of the learning process, highlighting the importance of social interaction and collaboration (Mentzer et al. 2023). As explained by Mentzer et al. (2023, 272), the Social Constructivist theory emphasises "peers and instructors as co-constructors of knowledge along with the student". The role of academic staff changes to that of facilitator as students construct knowledge guided by academic staff. In a higher education hybrid classroom, constructivist teaching strategies are essential for creating an active learning environment.

### Influence of pedagogical approaches

Andragogical and Heutagogical approaches, catering to adult learners and emphasising self-directed learning, are crucial in the higher education environment (Hase and Kenyon 2000; Uday 2019). Considering the changing profile of student populations, with Generation Z and Millennial students, teaching approaches need to adapt to their learning styles and preferences (Shorey et al. 2021).

Heutagogy and social constructivism are two different approaches to learning, but equally important to consider in the implementation of teaching strategies in a hybrid classroom. Heutagogy emphasises self-determined learning allowing students to apply their learning to workplace settings (Hase and Kenyon 2013, in Hase and Kenyon 2016); Halsall, Powell, and Snowdon 2016), while social constructivism emphasises the role of social interaction and collaboration in the learning process (Adams 2006). Both approaches recognize the importance of students taking an active role in their learning and constructing their own knowledge.

### Teaching strategies for hybrid classrooms

### *Hybrid teaching redesign*

According to Uday (2019, 1231), traditional ways of teaching have become inadequate and "modern organisational structures require flexible learning practices". Hybrid teaching necessitates a redesign of activities, including techniques, assignments, and evaluations, fostering both cognitive and affective engagement (Binnewies and Wang 2021; Raes 2022) and social interaction and collaboration in the learning process (Adams 2006). As stated by Ramsey et al. (2016 in Raes et al. 2020, 1403), the hybrid classroom "requires radical shifts in the

teachers' pedagogical methods in order to accommodate the new technology".

## Factors for successful engagement

Clearly communicating expectations for both online and face-to-face components helps students navigate the hybrid environment (Hartnett 2016). In the hybrid classroom the challenge is always to ensure meaningful engagement of both face-to-face and online students.

Factors such as clear communication of expectations, creating a sense of community through online discussions, and providing continuous feedback are essential for successful engagement in hybrid classrooms (Hartnett 2016; Berry 2019; Ahea, Ahea, and Rahman 2016).

Teaching strategies encouraging active online and in-person student engagement include, the flipped classroom model, as a constructivist teaching strategy, allows for face-to-face class time to be devoted to active discussions, collaborative activities, and problem-solving (Bishop and Verleger 2013; Heilporn, Lakhal, and Belisle 2021). Bishop and Verleger (2013), define the flipped classroom as an "educational technique" which involves interactive group activities which are done in the classroom and individual learning opportunities in digital format outside of the classroom. This approach leverages technology for content delivery and utilises face-to-face sessions for deeper engagement. The flipped classroom teaching strategy is underpinned by theories which promote student-centred learning and teaching (Bishop and Verleger 2022).

Combining asynchronous activities, such as online discussions and self-paced assignments, with synchronous activities, such as virtual class sessions, and real-time Q&A, offers students flexibility while maintaining real-time interactions (Means et al. 2013). Carr-Chellman and Duchastel (2000 in Binnewies and Wang 2021) advise that mini-lectures rather than long recorded lectures of classroom lectures are more effective especially for students online. Creating a sense of community through online discussions, virtual office hours, and collaborative projects fosters a supportive learning environment (Garrison et al. 2000, in Berry 2019). Continuous and prompt feedback formative assessments keep students engaged by providing opportunities for improvement (Ahea et al. 2016)

A learning management system facilitates equivalent access for face-to-face and online students, to all learning materials, activities and discussion forums. The design of the learning management system to provide media-rich interactive resources for collaborative and individual work augments the teaching in the hybrid classroom. Hartnett (2016) states that while in the online environment, creating a community of students facilitates meaningful learning, the opportunity for the individual to construct knowledge should not be neglected. Hartnett (2016, 5) states that "Student interactions with course content in particular, frequently occurred at an individual level in the online learning contexts".

Incorporating a variety of digital tools, from interactive simulations to multimedia presentations, enhances student engagement and caters to diverse learning styles (Johnson et al. 2016). Binnewies and Wang (2021, 4) mention the use of "purpose-made short videos, information presented in multiple ways, and discussion boards". These are useful for enhancing the integration between in-person and online student group activities.

Collaborative and Cooperative Learning is at the essence of the Social Constructivist and Community of Enquiry theories. Providing students with the opportunity to collaborate on tasks, promotes a sense of community where students feel connected to each other and academic staff. Collaboration on tasks facilitates a meaningful active learning environment. The types of collaborative and cooperative activities which would encourage critical and reflective thinking, would include group activities, creating meaningful learning opportunities through problem based and case studies, discussion forums, group projects, online reflection journals, peer review activities and in-class discussions. These teaching strategies of active learning, problem based learning and inquiry learning are in line with the Cognitive Constructivist theory of learning as mentioned by Kirshner, Sweller, and Clark (2006 in Hartnett 2016).

The literature underscores several critical factors important to the design and implementation of teaching strategies in a hybrid higher education classroom. Considerations include cognitive, social and affective needs of a diverse student population as well as the impact of varying levels of technological skills of academic staff and students. Teaching strategies which encourage active participation and meaningful engagement contribute to the integration of both in-person and online students.

## METHODOLOGY

This study was exploratory in nature utilising a qualitative approach to evaluate the teaching strategies academic staff used to engage the online and in-person students within a hybrid environment. Action research as a methodology was used to evaluate if the teaching strategies currently being implemented in the hybrid classroom are successfully driving engagement between online and in-person students. Action research methodology allows for the researchers to be involved in studying a local problem in which the researchers are directly involved. It required the identification and implementation of a plan of action. Reflection on the action was important to make suggestions to further improve the situation. Therefore, this study was done in two phases. Phase one was seen as exploratory in which the academic staff lecturing second year modules of the Private Higher Education Institution was used as the population. The non-probability, purposive sampling, method addressed the criteria set which was that these academic staff had at least a semester of teaching at the Private Higher Education Institution

and that they were subject experts. This systematic sampling yielded the list of candidates and through purposive sampling the final list of participants was identified. In the first phase of the data collection an academic staff focus group and class observations were used to explore which teaching strategies were utilised within a hybrid teaching environment. The study considered the influence of the hybrid teaching environment on the academic staff's teaching strategies for the second year students. The data analysis for the academic staff focus group and class observations were done by utilising reflexive thematic analysis as prescribed by Braun and Clarke (2006).

The researcher used the results of phase one to create an intervention. The findings, of phase one, indicated that the academic staffs' ability to use digital tools was very limited. Therefore, the researchers presented training (the intervention) on digital collaborative tools for the academic staff to implement in their teaching strategies.

Once the intervention was completed the researchers were able to collect data in the second phase. The collection of data in phase two addressed sub-research questions 2 and 3. The researchers used two academic staff from the initial sample group to implement teaching interventions. Both the academic staff' classes were recorded and their teaching strategies were analysed to gain more insight into strategies that can promote online and in-person engagement. A second set of data was collected, in this phase, through student focus groups to gain insight into the in-person and online student experience and the recorded online class observations analysis.

In the next section the phase one's findings will be presented, incorporating the academic staff's focus group and the class observations.

## SUMMARY OF FINDINGS: PHASE ONE

The objective of phase one was to explore the choice of teaching strategies used by academic staff in a hybrid environment. The research findings are presented in themes, supported with quotes from the participants follows.

- Sub-research question 1: To examine the teaching strategies used within the hybrid teaching environment

An analysis of data resulted in the identification of four themes, *teaching strategies, managing student participation, training of teaching staff, and training of students,* in relation to sub-research question 1 which are discussed in no predetermined order of importance below.

### Theme 1: Teaching strategies

The focus group data indicated that the academic staff within the hybrid teaching environment

did not necessarily adjust their teaching strategies. This can be due to the fact that only three of the five participants had previous teaching experience. As Participant A pointed out, "My teaching style has not changed, I've always had an interactive way of teaching and getting them involved in discussions, however, if you would like to get the online students involved in the discussion, I find that difficult." Participant C indicated that "Yes I have, our approach is more interactive and student centred, we tried to engage the student more and have them think and prompt them to answer, instead of telling them. An asset is this, this and this, but prompt them by asking them what do you think an asset is?" Participant C went on to add "that in the past it was more teacher centred and now it is more student engaging". However, participant C indicated that "it is more the change was due to understanding the teaching philosophy than adopting the teaching strategies".

Four of the participants demonstrated an overwhelming use of a teacher-centred approach, which involved one-way communicating with students during a lecture while students listened passively. Thus, the focus was on teaching to a passive group of students. Two of the four lectures did incorporate a degree of discussions centering around multimedia and audio-visual aids accompanied by introspective questions. However, Participant E pointed out "I found it difficult to incorporate online teaching tools due to the nature of my subject, which is FM2 [Financial Management]"

This was supported by the data collected from the class observations. The class observation indicated that:

> "There is very little engagement between lecturer and students. The Lecturer is asking rhetorical questions, giving students every opportunity to respond."
>
> "The same students always answer the questions. Others are not drawn into the discussion."
>
> "The students did respond to the lecture's question, but very little discussion was drawn."

The data therefore highlighted that the academic staff do not fully understand the concept of student-centred teaching within the hybrid environment. This was supported by the class observation data which clearly indicated that the role the lecturer had adopted was transmitter of information as indicated in Figure 1.

When reflecting on the findings of the focus group, academic staff found it challenging to incorporate technology as part of teaching strategies. Commenting on the role of technology in the hybrid class room collectively the participants found the technology challenging to incorporate into their teaching. The data pointed out that firstly, there were challenges that were out of the control of the lecturer, but had an impact on the lesson. Participant B "Sound problems, students online cannot always follow discussion in class", participant E supported
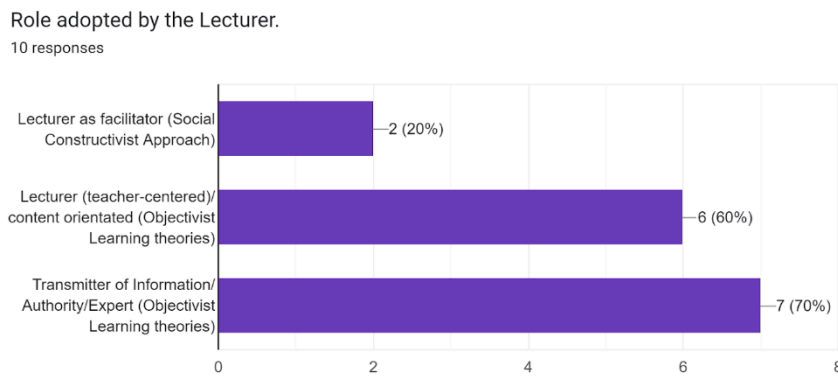
Role adopted by the Lecturer.
10 responses



**Figure 1**: Role adopted by the lecturer

this: "Online students did not always follow the discussion in class, I had to repeat to them what was said." Participant E and Participant C agreed that the sound in the room is problematic "Sound is sensitive, students' movements in the class are being picked-up by online students".

Another challenge with technology in class was as participant E indicated that "in-person students did not bring their devices to class and therefore made engagement difficult". Participant B pointed out that "videos embedded in presentations are problematic, sound for in-class would be perfect, however, for online would be problematic".
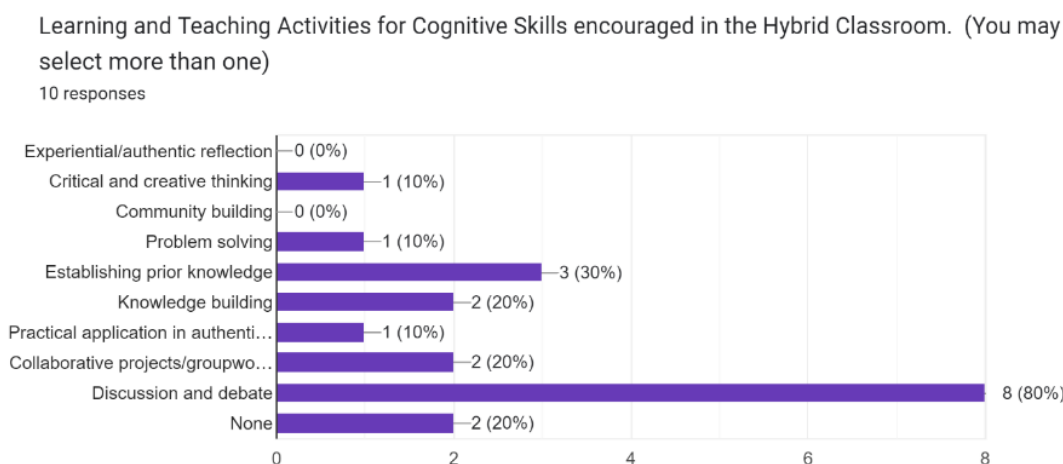
Learning and Teaching Activities for Cognitive Skills encouraged in the Hybrid Classroom. (You may select more than one)
10 responses



**Figure 2**:   Learning and Teaching activities for cognitive skills encouraged in the hybrid classroom.

## Theme 2: Managing student participation

A recurrent theme in the focus group was that they found it challenging to integrate the in-person and online students. Participant A pointed out that it was difficult to connect to the online students because "they did not turn on their cameras". Participant A also noted that "the in-person students got distracted by the online students". However, Participant B experienced that "I had one online student, and she had her camera on all the time. There were no problems with the students in-person and online students' interaction." It is worth noting that Participant B

had a small group of students, six in total and therefore as participant B pointed out "I got to know them very well, and the students feel comfortable with each other", in comparison with the other participants who had between 10 and 24 students in their groups.

The class observation data indicated that there was limited integration of in-person and online students in the classroom activities, see Figure 3. The class observer indicated that in a class where group activities were done that:

"The lecturer did use break away groups, but the virtual and in-class groups were kept separately."

"The lecturer did not use any activities in the class to try and integrate the two groups. The online students had their cameras off and the in-person students were on their phones."

"The lecturer did not use technology optimally to create an inclusive learning environment. She treated the two groups as two separate groups."

Integration of in-person and virtual students in classroom activities
10 responses

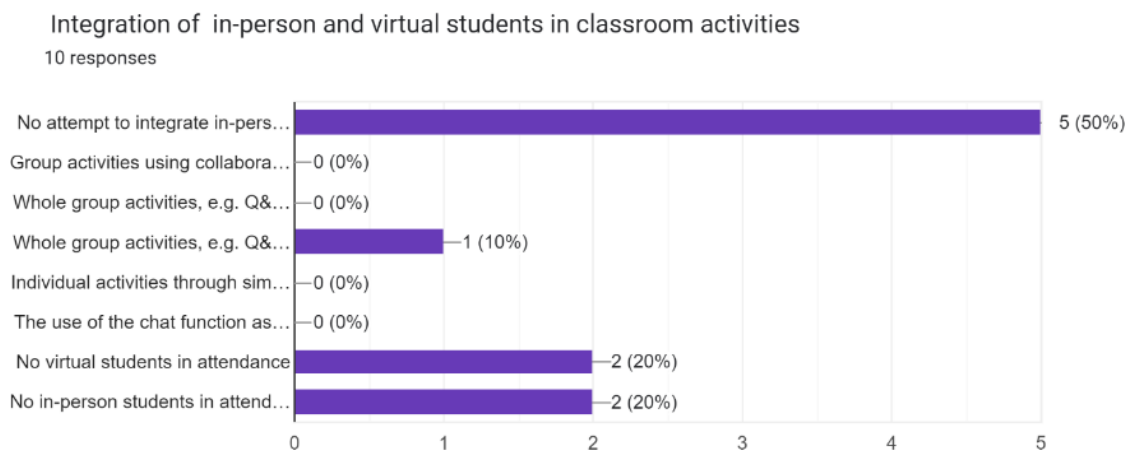| Category | Value |
|---|---|
| No attempt to integrate in-pers… | 5 (50%) |
| Group activities using collabora… | 0 (0%) |
| Whole group activities, e.g. Q&… | 0 (0%) |
| Whole group activities, e.g. Q&… | 1 (10%) |
| Individual activities through sim… | 0 (0%) |
| The use of the chat function as… | 0 (0%) |
| No virtual students in attendance | 2 (20%) |
| No in-person students in attend… | 2 (20%) |

**Figure 3**: Integration of in-person and online students in classroom activities

These results suggest that group dynamics and size play an important role in various teaching strategies that the academic staff can use within the hybrid teaching environment. A significant finding was that the different group dynamics among the students influenced the teaching in the hybrid environment. Participant D commented on teaching in the hybrid environment "I've enjoyed teaching this group of students because they are very interactive. Although, I don't see them [not switching on cameras] but they ask a lot of questions, maybe it is because of the nature of the subject, FM2 [Financial Management 2]." Therefore, the focus group participants used different strategies to engage students: Participant D, "I call out the names of the online students, and I ask the in-class students not to respond. I called out so-and-so, can you tell me the answer, and they typed the answer." Participant E added that "They rather prefer to type out the answers than speaking, unless I don't totally get what they are asking, then only will they switch on the mics and vocalise their questions". As Participant C said that "I will give students

a problem and asked them for the answer, I try to encourage them to answer, even if the answer is wrong I don't 'It's wrong' I just try to get an understanding how they got to the answer, and does everyone else in class agree, what did they get. And then only come to a conclusion." Participant C pointed out the importance as a lecturer to be aware of group dynamics "We continuously encourage students to participate in the discussions, that this [classroom] is a safe place, this is where we learn, no one has a monopoly of knowledge, and that you need to exchange ideas, and that is how we improve in terms of knowing the subject".

Interestingly, the class observation data indicated that the academic staff mostly asked questions to elicit response from both online and in-person students (see Figure 4 and Figure 5).
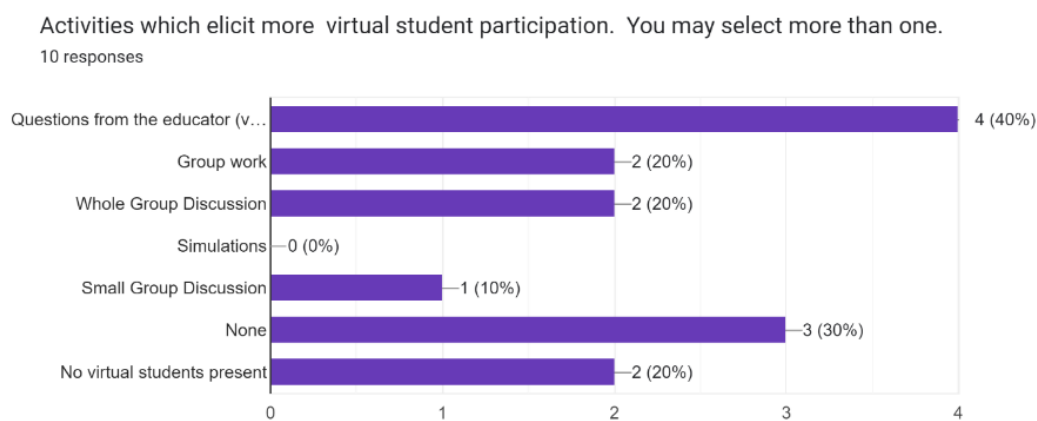
Activities which elicit more virtual student participation. You may select more than one.
10 responses

| Activity | Responses |
|---|---|
| Questions from the educator (v... | 4 (40%) |
| Group work | 2 (20%) |
| Whole Group Discussion | 2 (20%) |
| Simulations | 0 (0%) |
| Small Group Discussion | 1 (10%) |
| None | 3 (30%) |
| No virtual students present | 2 (20%) |

**Figure 4:** Activities to elicit more participation from online students

Activities which elicit more in-person student participation
10 responses

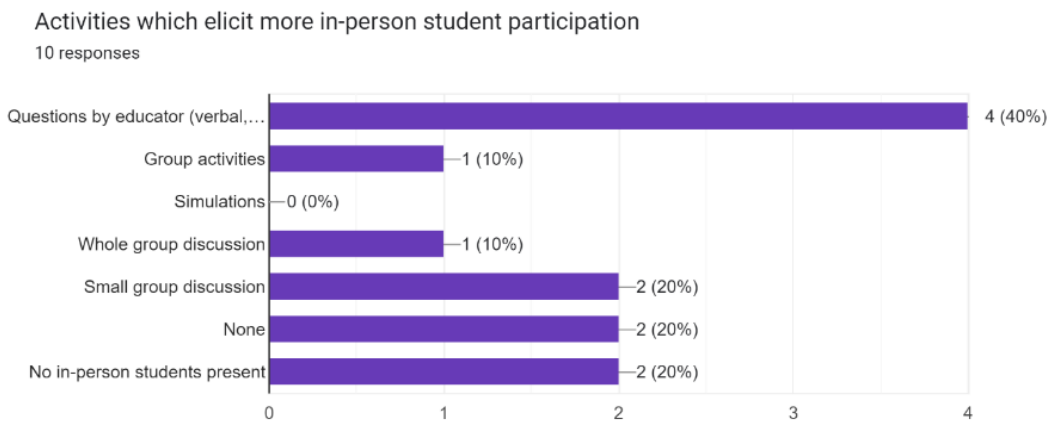| Activity | Responses |
|---|---|
| Questions by educator (verbal,... | 4 (40%) |
| Group activities | 1 (10%) |
| Simulations | 0 (0%) |
| Whole group discussion | 1 (10%) |
| Small group discussion | 2 (20%) |
| None | 2 (20%) |
| No in-person students present | 2 (20%) |

**Figure 5:** Activities to elicit more participation from in-person students

Furthermore, from the class observation data found the following were identified:

"Discussions were only with one student. Others were disengaged."
"There was an attempt to have a discussion around certain concepts."

The above observations were supported by Figure 2 which summarised the learning and teaching activities used in the hybrid classroom to encourage cognitive skills, which clearly indicates that discussion and debate are used the most.

## Theme 3: Training of teaching staff

In response to the question if they would be open to training on digital collaborative tools the response from the participants were positive Participant A "Happy to look into it, I'm more than happy to try"; Participant B "I'm open to learning, and I think it would be nice to be an observer in other classes to see how different classes work"; Participant E "My class is limiting me, FM [Financial Management], how will I do group work. I need to get my mind around this". This statement was supported by the class observations.

A significant finding from the class observation was that the academic staff's ability to use digital tools was very limited. Although the academic staff used video and the chat function in their classes they used multimedia and audio-visual aids accompanied by introspective questions as indicated in Figure 6.
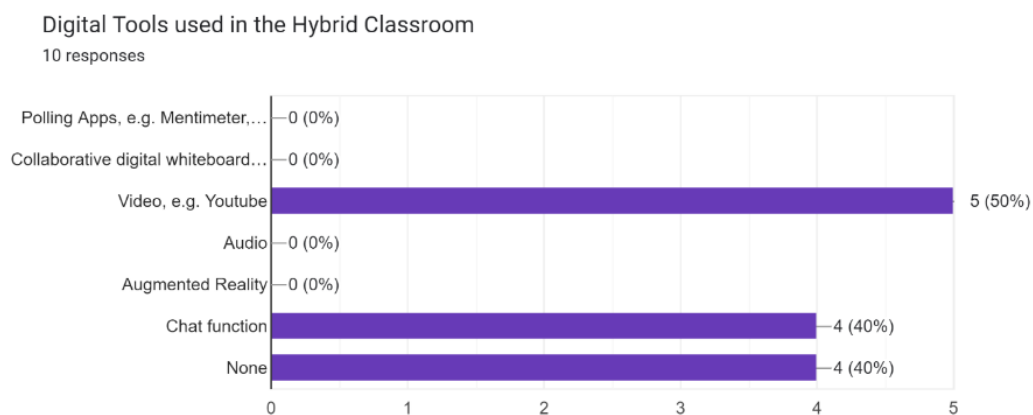


Digital Tools used in the Hybrid Classroom
10 responses

| Tool | Count |
|------|-------|
| Polling Apps, e.g. Mentimeter,... | 0 (0%) |
| Collaborative digital whiteboard... | 0 (0%) |
| Video, e.g. Youtube | 5 (50%) |
| Audio | 0 (0%) |
| Augmented Reality | 0 (0%) |
| Chat function | 4 (40%) |
| None | 4 (40%) |

**Figure 6**: Digital Tools used in the hybrid classroom

The class observations highlighted that:

> "Students were not provided with a task while watching the video."

> "Lecturer made use of a YouTube video. However, it is used as a passive tool. The lecturer did not ask the student to consider certain aspects of theory that were discussed while watching the video."

> "Chat function was not used optimally, it was a one-way of communication."

## Theme 4: Training of students

A minority of participants mentioned that there is an opportunity to train the students on hybrid

classroom etiquette. Participant E indicated that "in-person students did not bring their devices to class and therefore made engagement difficult". Participant A believes that "Once online students understand their role in the hybrid classroom, this can be an effective teaching environment" and the participant highlights the importance of "Making students aware of what it means to be a student in a hybrid environment".

To conclude it was clear from the first phase of data collection that the academic staff do not fully understand what it means to adopt a student-centred approach in a hybrid classroom. The data indicated that their approach was still very teacher-centred and that they see their role as a transmitter of information and that they are the subject experts. The teacher-centred approach observed resulted in the under-utilisation of digital tools to encourage student participation in the hybrid classroom.

## SUMMARY OF FINDINGS: PHASE TWO

Turning now to addressing the findings of phase two of the students focus group and the recorded online class observations analysis, which addressed the following sub-research questions:

- Sub-research question 2: To examine the online and in-person students' hybrid classroom experience.
- Sub-research question 3: To reflect on the future of teaching strategies which promote online and in-person engagement within the hybrid teaching environment within a South African context.

The research findings of the student focus group and the recorded online classroom observation (after the teaching intervention) presented the following themes identified in the data sets from the discussion were *technical challenges, inclusivity, and group work.*

## Theme 1: Technical challenges

These challenges can impede active participation, rendering it imperative to address these technological impediments. Online students express challenges related to sound quality, connectivity, and issues with cameras and microphones, which can affect their ability to participate effectively.

In the literature it is evident that the hybrid classroom "requires radical shifts in the teachers' pedagogical methods in order to accommodate the new technology" (Cain 2015; Ramsey et al. 2016 in Raes et.al. 2020, 1403). The data indicated that the academic staff are not

always comfortable with using collaborative teaching aids and therefore have not made the radical shift. The lecturer's overuse of the chat box function does not drive engagement between online and in-person students (see Figure 7: Chat box). Although the data revealed that breakout rooms were used, it was also highlighted that this did not allow the in-person students to feel connected or engaged with online students. Recent studies suggest that active learning strategies like group discussions, case studies, and peer teaching promote student engagement and critical thinking (Prince 2004). The integration of asynchronous activities (e.g., online discussions, self-paced assignments) with synchronous activities (e.g., virtual class sessions, real-time Q&A) provides flexibility for students while maintaining real-time interactions (Means et al. 2013). Additionally, the use of various digital teaching aids, including interactive simulations and multimedia presentations, enhances student engagement and accommodates diverse learning styles (Johnson et al. 2016).
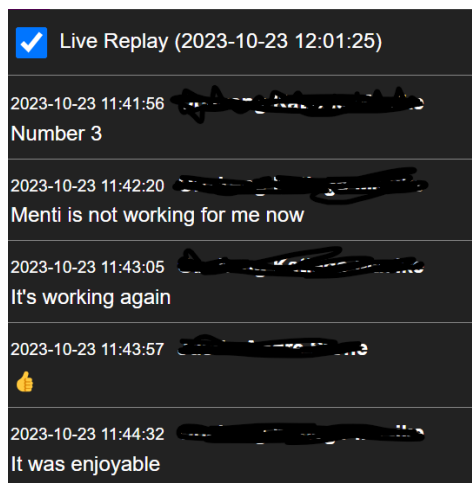


**Figure 7**: Feedback in Chat box

## Theme 2: Inclusivity

The student focus group data indicated that inclusivity emerges as a central concern where the online students often express feelings of exclusion from classroom discussions and activities, prompting a quest for strategies to enhance their integration and engagement within the learning process. There is a consensus among academics that a lecturer must adapt the teaching to ensure that both groups of students are fully integrated into the classroom activities.

If not fully integrating all students into the hybrid classroom activities, may leave some students feeling alienated and "on the outside, looking in" rather than feeling that they are active participants of the learning experience (Lorenzo-Lledó et al. 2021).

However, an interesting fact that emerged from the student focus group data set was that

in-person students felt that the online students are not adapting to the hybrid learning environment. This is worth noting that a proactive approach to engagement and learning is encouraged, given the distinct demands of this educational model. In contrast, the online students pointed out the benefits of the hybrid class environment such as accommodating students' different needs and providing flexibility, especially for students who may have health or other constraints that make attending in-person classes difficult.

## Theme 3: Group work

The students did emphasise the significance of group work in the context of a hybrid classroom. The students indicated that the hybrid classroom allowed them to participate, collaborate, and engage, whether in a physical classroom or as an online student. This aspect of the data is in correlation with Mesquita and Oliveira's (2022) study, which strongly supported small group discussions as the most effective pedagogical approach and the use of technology in general. Following on from the most effective pedagogical approach, according to students, was the analyses of case studies and group work and projects. This is also borne out by research conducted by Martin and Bollinger (2018 in Berry 2019), which found that small group discussions increased student engagement.

An interesting finding was the value of in-person interaction (Figure 8: Group work activity). The in-person students express the value of interacting with peers and instructors in a physical classroom setting, which can enhance the learning experience. This finding is aligned to Raes' study, published in 2021, which indicated that there was a significant difference in affective engagement which appears to be more positive for face-to-face students.

Lastly, the data set emphasised the value of in-person interactions, as students underscore the enrichment and personal connections fostered through physical classroom experiences.



**Figure 8**: Group work activity

**Figure 9**: Example of Miro as a collaborative tool

These findings offer valuable insights into the hybrid classroom experience for both online and in-person students. Table 1 illustrates the different experiences of in-person and online students in the hybrid classroom environment. This highlights the way in-person students are engaging with the hybrid classroom as opposed to their online counterparts.

**Table 1:** Summary of emerging themes from hybrid student focus group

| Themes | In-person students | Online students |
|---|---|---|
| Integration | Enjoyed the participation and collaboration in the groups. | Disconnected or neglected, not integrated in the discussions |
| Technology | Hybrid class set-up works for them, feel that online students should do more to be part of the class, switch on cameras | Technology challenges such as sound and connectivity played a significant part in their learning experience. The lack of collaborative tools to connect online students with their in-person peers stood out. |

## Reflection on the future of teaching strategies

As mentioned under Hybrid Teaching Redesign in the Theoretical Background section, the emergence of hybrid higher education classrooms, blending online and face-to-face teaching, has presented academic staff with several challenges to fostering student engagement across diverse modalities (Raes 2022). The challenges of making hybrid learning successful in a hybrid learning environment involve unifying student groups composed of in-person and online students and providing a consistently high quality experience in both as well as addressing technical issues for both students and academic staff (Raes 2022). Academic staff who participated in this study had little experience of teaching in a hybrid classroom. Training and mentoring of academic staff who teach in a hybrid classroom environment should not be

neglected.

The success of the hybrid mode of teaching largely hinges on the design and implementation of teaching strategies that engage students in both environments (Garrison and Kanuka 2004). Teaching in a hybrid classroom environment requires deliberate planning and use of effective teaching strategies to increase student participation to ensure an equal and engaging experience for both groups of students.

It is evident from the findings of this study that several factors need to contribute to the successful design and implementation of teaching strategies. Interventions to assist in-person and online students to engage with each other and the online materials, include recurrent training of academic staff on creating a sense of community among in-person and online students, the design of learning activities which are adaptable for online and in-person students, on the use of digital teaching aids, which foster collaboration and teaching strategies and increases active learning among students. Added to the strategies to create inclusivity and a sense of community and active engagement among both in-person and online students, is ensuring the optimal functioning of technology in a hybrid classroom. Ensuring that in-person and online students are able to follow discussions by either group is paramount to both groups' ability to participate in the hybrid teaching environment.

## Limitations of the study

Limitations of this study are firstly the findings can only be generalised to the sample and secondly the researchers' recognised that the lecturing staff had intermediate skill levels using edTech and teaching methods within a hybrid classroom environment. Lastly, the study was conducted over two teaching semesters, however, the researchers understand that it is a short time period to see an improvement in teaching strategies. Notwithstanding these limitations, the study will be of interest to academics and teaching and learning staff in both private and public higher education institutions.

## CONCLUSION

The research reveals that technical challenges, including sound quality, connectivity issues, and limited use of collaborative teaching aids by academic staff, impede effective engagement. Lecturers are urged to make radical pedagogical shifts, integrating active learning and asynchronous activities to adapt to new technologies. Inclusivity is a significant concern, with online students expressing feelings of exclusion, necessitating the adaptation of teaching methods to integrate both groups and prevent alienation. An intriguing finding is in-person students perceiving online students as not adapting, emphasising the need for a proactive

approach to engagement. However, online students highlight the hybrid environment's benefits, such as flexibility and accommodation of diverse needs.

Group work is a vital aspect of the hybrid classroom, fostering collaboration between online and in-person students through effective methods like small group discussions, case studies, and projects. In-person interaction is valued for the enrichment and personal connections it provides. The data stresses the importance of addressing technical challenges, promoting inclusivity, and recognizing the value of group work and in-person interactions for an enhanced hybrid learning experience.

In conclusion, the findings underscore the complexities of the hybrid classroom, emphasising the need for innovative teaching strategies to overcome technical barriers, ensure inclusivity, and leverage the benefits of group work and in-person interactions. These insights have implications for educators in the South African context, urging them to adapt their approaches for a more inclusive and engaging hybrid learning environment in a concise manner.

## Disclaimer

The authors have used AI to assist in various aspects of academic editing, including language refinement, coherence improvement, and adherence to British English standards.

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