

## 2. Themes, sub-themes & comments: Teachers' views of the value of Virtual Reality in primary school lessons

The thematic analysis of the themes, sub-themes and comments of the value of Virtual Reality (VR) in primary school lessons, when exploring the teachers' views, during the study of the influence of Virtual Reality as an educational tool on teachers' pedagogy.

Pseudonyms were used instead of participants' names

The comments reflected in Table 1's summary, are demonstrated in Tables 2 to 13 below.

**Table 1: Indicating the themes and sub-themes for the overall topic theme: Value of VR in lessons.**

Overall theme: Value of VR in lessons			
Themes	Subthemes	Participants	Comments
Self-growth	Teacher PD	6	19
Planning	Subject integration of VR into the curriculum (CAPS).	8	10
	Lesson preparation & planning	8	38
	VR linked to lesson content	8	11
	Covid-19 Impact	4	7
Use of Technology	Tech Integration	8	15
	VR Integration	8	14
	Learner Safety	4	7

**Table 2: Theme: Self-growth, Sub-theme: Teachers professional development**

Participants referred to their or other teachers' self-growth, whether within their pedagogy, professional development (PD) and / or learning.

Seven participants and nineteen comments were identified.

Participant pseudonym	Teachers' comments and views	sub-theme descriptors
Thandiwe	You know, as the teacher, I always say there's always room to improve. We are all learning. We are all learners, lifelong learners and we learn, they, we sometimes we also tell them, I learn from you guys. I'm a teacher, but I know everything. That's true. So I always learn from you. You learn from me. I also learn from other teachers and I learn, I still learn. So it's always nice to have to have people come over. I think it is	PD learning PD for teachers

	important to learn, to attend courses and to keep learning.	
Sarah	Well, I think teachers need to learn to play. That sounds really weird, but teachers need to learn to play. Um, and they need to experience it themselves so that they can see the value in it. And um, they, so yeah. And they're so focused on teacher workshops need to have to say your presentation, if it didn't spark interest in, in teachers thinking, um, and starting to look at what they, they practice and, and what, how relevant it is for the future, then you know, they <laugh> need to rethink what they're doing. You know what I mean? That, that did word. Sorry, but that's yeah. I think teachers, you best teach what you most need to learn. So come and learn, listen to teacher training. I think teacher training, um, because it's not enough for one person on the team.	PD learning  PD for teachers
Kgomotso	Looking at our learners, because most of them are so used to technology these days, and they can operate phones. So, I think it is a great tool to try and use in schools, because it's linked to their everyday life. In their everyday life, it's not about the teacher narrating every time like you know it, and remember what I explained and if it is explained from another point of view. Certain learners may understand the other person better than they understand you, because it is now bringing variety. I would say it is a great tool for teachers to try and use, of course, I would like to use something like that. Because they're certain and learners who learn, if they're excited, number one. Number one, they're excited. Number two, they're in their own environment, there are no disturbances, they learn even better. So I think it's something that given a chance, I would like to try it.	PD learning  PD for teachers
Dhriti	aligned with the san and the whole reason that we said we, um, actually teach them about the san	Pedagogy  Teacher learning
Dhriti	How did it relate to what you are teaching now? Speaker 1: Perfectly, absolutely related perfectly because it's, uh, aligned with the san and the whole reason that we said we, um, actually teach them about the san. I feel it is to show them how um, how they should learn about respecting the environment, and of being grateful for what we have, things like that. So it definitely is very much aligned with not just their knowledge, but also the skills and values that we'd like to teach them as well. So, I loved it.	Pedagogy  Teacher learning

Bhavna	<p>And then if you look at teaching strategies or methods, what kinds of strategies do you use?</p> <p>don't use the chalkboard much. I like to have discussions with children. Asking questions, getting comments quite often. Could have been done maybe if you had, but I don't really use the board. How I teach is I immerse myself within the topic with the students.. I go into my classroom and I discuss. so I have the chat with the kids.</p> <p>So as the teacher you know the content, and what page they are using in the textbook, so what I do is I have them have the textbooks open. We have a general discussion. I link it to the VR and the textbook information. And I find this much better, the kids ask a lot of questions. uh, based on the discussion that we have. And I just find it, um And I just find it, um, that just needs to be more approachable generally, than specifically standing behind the table and saying, okay guys, and we'll draw the board. I prefer the discussion and getting the children engaged and involved. So that's my teaching style that I like to be involved with them in having a discussion. I have, sometimes I make them close their eyes and see the pictures and I find that if you make them visualise and see, I see this come back when they are doing assessments. They do really well and recall the information. That is what I do, we have discussions and have a lot of Q and A and they discuss the topic.</p>	Pedagogy
Thandiwe	<p>For life skills. Um, I think, well, I'm not sure when to put it, would it be a good thing to start by watching the video first on, on any topic given that, that time we did, uh, bullying, I would watch the video of bullying before I teach was this time. They kind of watched it after I had done the lesson and it kind of hard to clear some of the things that we had already spoken about or watch it before. And then we introduced the lesson or something. I think it's something that I have to do, to figure out it went well here now, because when I talk about cyberbullying, I thought they understood me. But now when they watch this, now they say, oh, Uhha, this is what cyberbullying is. Yeah. This is what it is. So now it makes me wonder, when is the right time to do it before you introduce a topic or do it after a topic, then like starting up that lesson and saying, this is what we are talking about. So this is what we see.</p>	<p>Pedagogy</p> <p>Teacher learning</p>

Thandiwe	<p>how would you add it into the prep? Um, Speaker:</p> <p>Um, cause yeah, that's a, I think it's a good question. How to incorporate it. The one that we did today I did to do, uh, listening and speaking and maybe writing instead of them reading the test themselves. Cause maybe I had a challenge of now copy the story and having to print it when I have it here. So I just said, let me read it to them and then, then do the task later. But um, I think maybe it'll work more on the reading and, and, and speaking, when you read, when I'm sorry, not reading when listening and speaking. Yeah. They actually watch and then answer question questions. We could answer orally and then maybe that will also help learn the, my comprehension instead of just them text all the time they read them, read them. They said maybe just to forget it, then they would have to just watch this and then maybe sometimes we'll speak about it and then maybe answer questions, um, or return questions afterwards. Um, yeah, I think that would be a different kind of comprehension that we'll be doing instead of doing this reading or watching the story and then having a text again, to read, I think maybe the text would be, could be done on a different day or something or a different story altogether result should be just based on what they have seen. And yeah, that's what I think for now.</p>	<p>Pedagogy</p> <p>Teacher learning</p>
Bharva	<p>Not so much special needs, but we have learning with difficulties with grasping concepts. , but we have a few learners, um, who have some learning needs. But with VR it really helps, as it is visual, and it is practical So some of them, I have to take a little bit more time, going throughout the unit to explain to them such as the science stuff, they would talk about it or create a drawing as opposed to writing down things. So if we do have kids with learning needs, because we do so much of discussion in terms of school and exposing them to outside experience it benefits these kids. So I have these kids, I haven't had to adjust my teaching style drastically as I consider them when I am planning.</p>	<p>Pedagogy</p> <p>Teacher learning</p>
Thandiwe	<p>Maybe it's having different, putting it in at different times, depending on the content of the video, the topic of, or the content of the lesson. And maybe it's also nice to vary it from the children's point of view too</p> <p>To see what they want. I, they want to watch, I would want to watch, I also enjoyed it myself. I enjoyed watching it and it also helped me to, to see, oh, so this is what bigger Cause I could here them in class about the turtle even ask me ma'am can I have the spelling of, to I'm like, but where is to in the story? I went back to my text that I read to them. I there's no toe here, but let me not, let me just give what they want. And then when I watched and it helped say, oh, oh, so what the, to is about. So yeah, I think I'll see, I really help. I think it'll really</p>	<p>Pedagogy</p> <p>Teacher learning</p>

	<p>help teaching difficult things, concepts, even from the smallest things. Sometimes you think this is, this is easy even in language, teaching nouns, things like that. Cause I exactly have been since term one, I've been talking about proper nouns,, common nouns, and the difference between common noun and proper noun you will think it's something easy for everyone to understand, but maybe if they read visually or, or that I, it is basically a fantastic tool to use. VR that is.</p>	
Sarah	<p>Changed pedagogy from not using much technology, to exploring how to use VR more, even asked principal to purchase VR goggles and phones</p>	<p>Pedagogy</p> <p>Teacher learning</p>
Dhriti	<p>How did it relate to what you are teaching now?</p> <p>Speaker 1: Perfectly, absolutely related perfectly because it's, uh, aligned [00:00:30] with the san and the whole reason that we said we, um, actually teach them about the san. I feel is to show them how um, how they should learn about respecting the environment, and of being grateful for what we have, things like that. So it definitely is very much aligned with not just their knowledge, but also the skills and values that we'd like to teach them as well. So, loved it.</p>	<p>pedagogy</p>
Dhriti	<p>Thank you for assisting with the setting up, and helping the technology to work. The children really loved it, I see great value in using it, and want to incorporate it into my lessons.</p>	<p>Pedagogy</p> <p>PD learning</p>
Sarah	<p>What tips would you give teachers so that they would do it?</p> <p>Well, I think teachers need to learn to play. That sounds really weird, but teachers need to learn to play. Um, and they need to experience it themselves so that they can see the value in it. And um, they, so yeah. And they're so focused on teacher workshops need to have to say your presentation today, if it didn't spark interest in, in teachers thinking, um, and starting to look at what they, they practice and, and what, how relevant it is for the future, then you know, they &lt;laugh&gt; need to rethink what they're doing. You know what I mean? That, that did word. Sorry, but that's yeah. I think teachers, you best teach what you most need to learn. So come and learn, listen to teacher training. I think teacher training, um, because it's not enough for one person on the team. So if you think about our team, it's not enough for one person on the team to come in and say, guys, you know, this is, it's amazing ladies, you, we need to try this cuz I've tried this</p> <p>And, and that was the approach was flip to the back, you know? And, and we'll make it extension work as opposed to, how can we, I think the focus needs go on the child as well as opposed to what we are, what our end results is, our</p>	<p>PD</p> <p>Pedagogy</p> <p>PD for teachers regularly</p> <p>Teachers learning</p>

	<p>curriculum stipulates. Cause that's teacher focused really, if you think about it.</p> <p>So I think to truly say, you know, what, what are the it's to become child center and child center display child center is experienced child centered is, is, is so completely different to standardized tests and yeah.</p>	
Kgomotso	<p>How do we get teachers to change?</p> <p>I think if we are learning all the time, we, we make it less. Um, what's the word. Um, if I'm not afraid to make mistakes in front of kids, I'm not afraid to say, I don't know. I'm not afraid to say let's find out, you know, I think that creates lifelong learners where you, where there's no limits and you're not the boo and you're not the, you are just you part of the process. And so learning becomes exciting because actually I'm learning too. Yeah. So this is amazing. Let's see how we, we can do this and let's see how we can go further here and that's yeah.</p>	PD learning
Tammy	<p>Yes we do training and learning, it is actually quite nice we have done DeBono training, and thinking hats training. So now with this calendar</p> <p>Now, we are focusing on these skills, focusing on those skills and then in our lessons we have to incorporate those skills. So using VR to assist with the skills and the lesson content is useful, another resource.</p>	PD learning
Mary	<p>a VR experience for me, which was interesting, was working with teachers.</p>	<p>PD working with teachers.</p> <p>Teaching strategy</p>

Sarah	<p>do you think that using that kind of tech would change your methodology if you had the option you Would change?</p> <p>Oh, absolutely. Absolutely. If I had the option, definitely definit, I would take, you know, the life and living that we do or the history of transport that we do and, and definitely change it. It would become more, you know, I, I know there's, there's on expeditions, there's a, the transport museum. So it would be more to guide their initially to guide their looking. Cuz I think that they're so used to looking at a screen, but they're not used to looking in yeah. Or, or yeah. Looking in detail. Yeah. And I think that taking away the sound like we always have in the YouTube video where they either disengaged because of the person's accent or whatever, to have it, just the quiet looking and guiding their looking look at that, look at how buses compare that with today's buses and compare that to, what do you think buses would be like in the future?</p> <p>You know, so it's it's to bring that comparison in, so it's still to guide them, but it's a different kind of context. So I don't need to know when a bus was meant that I can Google that. I don't need to know who you know, who look the, I can Google that. So yeah. I think it needs to turn on its head and I think people are scared. I think teachers are scared cause you're so used to quantifying knowledge. Yeah. You know, I think, I definitely think it would change the methodology. It have to, it would have to, it can't be a clip on which is what we do now. It can't be a clip on, it must be the whole, the whole thing. Yeah. The methodology would definitely change.</p>	<p>Pedagogy</p> <p>Teacher learning</p>
Tracy	<p>What tips would you give teachers so that they would do it?</p> <p>Well, I think teachers need to learn to play. That sounds really weird, but teachers need to learn to play. Um, and they need to experience it themselves so that they can see the value in it. And um, they, so yeah. And they're so focused on teacher workshops need to have to say your presentation today, if it didn't spark interest in, in teachers thinking, um, and starting to look at what they, they practice and, and what, how relevant it is for the future, then you know, they &lt;laugh&gt; need to rethink what they're doing. You know what I mean? That, that did word. Sorry, but that's yeah. I think teachers, you best teach what you most need to learn. So come and learn, listen to teacher training. I think teacher training, um, because it's not enough for one person on the team. So if you think about our team, it's not enough for one person on the team to come in and say, guys, you know, this is, it's amazing ladies, you, we need to try this cuz I've tried this</p>	<p>Pedagogy</p> <p>Teacher learning</p>

	<p>And, and that was the approach was flip to the back, you know? And, and we'll make it extension work as opposed to, how can we, I think the focus needs go on the child as well as opposed to what we are, what our end results is, our curriculum stipulates. Cause that's teacher focused really, if you think about it.</p> <p>So I think to truly say, you know, what, what are the it's to become child center and child center display child center is experienced child centered is, is, is so completely different to standardized tests and yeah.</p>	
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**Table 2: Theme: Planning, Sub-theme: Subject integration of Virtual Reality into the curriculum (Curriculum Assessment Policy Statements ) of various subjects, teachers views and comments.**

<b>Participant's pseudonym</b>	<b>Subject integration of VR into the curriculum (CAPS).</b>
Bhavna	VR opportunities were incorporated into the lesson planning, sometimes more than one VR example was added for learners to select and learn and show responsibility in use and observe what learning takes place.
Bhavna	The VR videos take the kids well beyond the topics that we are exploring.. I put a list on the board of the videos they can explore in VR. I use quite a lot of Youtube, as I feel it is accessible. um, and we use expeditions as well, when I first started using Vr. So I put the topics on the board, that I want them to look at, and I say to them choose one of them and go with it. .... I had a child literally lying on the floor, because they were looking at stars and planets, and it was just awesome.
Kgomotso	when I'm planning my lessons, I use the resource books that we do have, I do have books that are caps orientated. So those books are the ones that I used. So normally when I look at, at what I'm about to teach the topics that I have, the outline of topics, I also check the, that we get from the department so that I know I'm in line with what the department wants. And I also use Google sometimes to add on to what has been yes, yes. To, to actually help me with things that, uh, can make my lessons exciting. So sometimes I download stuff.
Sarah	So if we think about that and your selection of these videos and things, do you think using VR in terms of integrating it into lessons is beneficial? Yes. I think absolutely. I mean, we wouldn't need to visit the transport museum because there is a VR about a transport museum, not necessarily in South Africa, but overseas. So you always want to, for me, I always want to make them look globally and not locally, locally.
Sarah	It was natural science. I used, um, one of those guided VR tours. Yes. Um, but it is never, so, so the way we prep is you create a booklet and I kind of tried to insert the technology into the booklets and our booklets need to be checked obviously. And they told me to put all the experiential learning at the back as extension where, for me, it was part of the process and part of the changing of thinking. So yeah, there, there are lots of possibilities for it.
Siara	Busy with this NS ecosystems research, so we decided to do this for the lessons. This lesson content was taught and conducted last term The subject head develops the lesson, and I teach the lesson.



Tammy	So I use the ipads not not all the time .....we did it for the ecosystem projects, and then I booked out the ipads for three lessons, so they were able to research the organisms and research the things in the ecosystems. There are valuable things in using them
Thandiwe	So I'm just thinking, how will, um, how will I keep those ones engaged while they are doing this and make sure that it all links together, the visual that they're getting also links with what we are doing in class. So maybe, there should be that link. Okay. I need to create that link that they shouldn't be doing something in life skills and then something different in their visual. There should be the link.
Dhriti	Perfectly, absolutely related perfectly because it's, uh, aligned with the san and the whole reason that we said we, um, actually teach them about the san. I feel is to show them how um, how they should learn about respecting the environment, and of being grateful for what we have, things like that.
Mary	So I was having an experiential, but fitting into the norms, I'll still use the curriculum, still follow the guidelines, but expand on it because children know far more than we give them credit. For.

**Table 3: Evidence of correlation between Intermediate Phase Subject topic and the Curriculum Assessment Policy Statements (CAPS) content**

Participant's pseudonym	Subject & Grade	VR resources	Lesson topic	CAPS correlation
Dhriti	English (HL) (Gr 5)	YouTube VR mode: Do These Things To Survive If You Get Stranded On an Island (The Infographics Show, 2018)	Visual literacy - Shipwrecked / Deserted on an island	CAPS IP HL - English Grade 5 Reading & Viewing - Visual Literacy Visual literacy (range of graphics and visual texts, e.g., advertisements, notices, posters, comics, cartoons, photographs, pictures): Creative writing -
Thandiwe	English (HL) (Gr 5)	YouTube VR mode: The ant and the dove (BooBoo,2018)	Listening comprehension	CAPS IP HL - English Grade 5 Listening and Speaking - Listening Comprehension <ul style="list-style-type: none"> <li>• Retell the story</li> <li>• Recall specific detail in a text</li> <li>• Reflect on values and messages in a text</li> <li>• Reflect on stereotyping and other biases</li> <li>• Discuss character, plot and setting</li> <li>• Express opinions</li> <li>• Clarifying questions</li> </ul>

Thandiwe	Life skills (Gr 4)	YouTube VR mode: Know your emotions (RocketKids, 2018)	Emotions	CAPS IP LIFE SKILLS GR 4-6 Development of Self - Emotions: Understanding a range of emotions (p 11) • Dealing with conflict Emotions - Understanding a range of emotions: love, happiness, grief, fear and jealousy
Thandiwe	Life skills (Gr 4)	YouTube: Cyberbullying create no hate (CreateNoHate, 2016)	Bullying	CAPS IP LIFE SKILLS GR 4-6 Development of Self - Bullying: appropriate responses to bullying
Tammy and Siara	NS & Tech (Gr 6)	Google Expeditions App: Ecosystems of Borneo (Google, 2015)	Revision lesson Ecosystems	CAPS IP NS & Tech Grade 6 - Life & Living: Ecosystems and Food webs (p.14) Different ecosystems (p. 49)
Kgomotso	NS & Tech (Gr 6)	YouTube VR mode: Food Groups And Nutrition (ClickView, 2020)	Nutrition	CAPS IP NS & Tech Term 1 Grade 6 Nutrients in food Nutrition (p. 17) Nutrition - balanced diets (p.49)
Bhavna	NS & Tech (Gr 6)	YouTube VR mode: iSimangaliso Wetland Park, South Africa (Drink Tea & Travel, 2020)	Wetlands (ecosystems)	CAPS IP NS & Tech Grade 6 - Life & Living: Ecosystems and Food webs (p.14) Different ecosystems (p. 49)
Sarah	Social Sciences - History (Gr 4)	YouTube VR mode: Roadtrip 2030: Future of Mobility Virtual Reality Experience (Covestro, 2018)	history of transport, looking into the future	CAPS IP SS, History Term 3 Grade 4 - Transport through time (p.17) Transport on land - 6 hours (p.36) - Modern forms of transport
Dhriti (2 classes)	Social Sciences - History (Gr 5 - 1st class & 2nd class)	YouTube VR mode: The Intense 8 Hour Hunt   Attenborough Life of Mammal	San and the hunt.	CAPS IP SS, Term 1 Grade 5 - Hunter-gatherers and herders in Southern Africa (p.17)

		(BBC Earth, 2009)		
Mary	GCD class (global collaborative design) (Gr 6)	InMind 2 app (VR app) (Luden.io, 2017)	The Marvellous Brain (Correlation electric circuits in NST, and 'circuits' in our brains)	CAPS IP NS & Tech, Grade 6 Energy & Change - Electric circuits Electrical conductors and insulators Mains electricity (p.14) Electric circuits - Simple circuit (p.56)

**Table 4: Theme: Planning, Sub-theme: Lesson preparation and planning**

<b>Participant's pseudonym</b>	<b>Comment</b>	<b>Sub-theme</b>
Mary	using the sustainable goals and then being meaningful	Lesson preparation and planning
Sarah	it was natural science. I used, um, one of those guided VR tours. Yes. Um, but it is never, so, so the way we prep is you create a booklet and I kind of tried to insert the technology into the booklets and our booklets need to be checked obviously. And they told me to put all the experiential learning at the back as extension where, for me, it was part of the process and part of the changing of thinking. So yeah, there, there are lots of possibilities for it.	Lesson preparation and planning
Bhavna	VR opportunities were incorporated into the lesson planning, sometimes more than one VR example was added for learners to select and learn and show responsibility in use and observe what learning takes place.	Lesson preparation and planning
Bhavna	it can create or help to create the reality or an understanding of the reality	Lesson preparation and planning
Tammy	Lesson plan including VR and exploring what they saw, asking questions: I think by using Bloom's properly, you are able to cater for all the needs of the children You are able to give the very academic children, give them something that they're really need and they really got to think about, but it's okay. But the you've got enough spread in your lesson to accommodate everybody .	Lesson preparation and planning
Tammy	So I use the ipads not not all the time .....we did it for the ecosystem projects, and then I booked out the ipads for three lessons, so they were able to research the organisms and research the things in the ecosystems. There are valuable things in using them	Lesson preparation and planning
Mary	global collaborative design because there are three teachers and we get ideas and we take	Lesson preparation

		and planning
Kgmotso	<p>How well do you think the VR scenario linked with the content topic of your lesson?</p> <p>Speaker 2:</p> <p>I think it's played a very important role, because from the experience I got from my learners, the feedback was great. Though I gave them return work as well, so the feedback was great. And they actually said they felt as if they were part of what was happening. So it was like part of them. So, they really were engaged in the learning.</p>	Lesson preparation and planning
Kgmotso	Using tech resources and teaching strategies: Yeah. So it also begins to help in different ways	Lesson preparation and planning
Bhavna	Not so much special needs, but we have learning with difficulties with grasping concepts. , but we have a few learners, um, who have some learning needs. But with VR it really helps, as it is visual, and it is practical So some of them, I have to take a little bit more time, going throughout the unit to explain to them such as the science stuff, they would talk about it or create a drawing as opposed to writing down things. So if we do have kids with learning needs, because we do so much of discussion in terms of school and exposing them to outside experience it benefits these kids. So I have these kids, I haven't had to adjust my teaching style drastically as I consider them when I am planning.	Lesson preparation and planning
Saira	<p>How do you decide what is going to be taught in a lesson?</p> <p>We were asked to participate in the research and we were busy with this NS ecosystems research, so we decided to do this for the lessons. This lesson content was taught and conducted last term The subject head develops the lesson, and I teach the lesson.</p>	Lesson preparation and planning
Bhavna	<p>And then if you look at teaching strategies or methods, what kinds of strategies do you use?</p> <p>don't use the chalkboard much. I like to have the discussion with children. Asking questions, getting comments quite often. Could have been done maybe if you had, but I don't really use the, the board. How I teach is I immerse myself within the topic with the students.. I go into my classroom and I discuss. so I have the chat with the kids.</p> <p>So as the teacher you know the content, and what page they are using in the textbook, so what I do is I have them have the textbooks open. We have a general discussion. I link it to the VR and the textbook information. And I find this much better, the kids ask a lot of questions. uh, based on the discussion that we have. And I just find it, um And I just find it, um, that just needs to be more approachable generally, than specifically standing behind the table and saying, okay guys, and we'll draw the board. I prefer the discussion and getting the children engaged and involved.</p> <p>[00:08:30] So that's my teaching styles that I like to be involved</p>	Lesson preparation and planning

	with them in having a discussion. I have, sometimes I'm making them close their eyes and see the pictures and I find that if you make them visualise and see, I see this come back when they are doing assessments. They do really well and recall the information. That is what I do, we have discussions and have a lot of Q and A and they discuss the topic.	
Tammy	We both see grade 6s . . . I have prepped a lesson which allows for small group work. We will have 4 stations (including the virtual reality station). Resource for the VR scenario: Ecosystems of Borneo	Lesson preparation and planning
Bhavna	So as the teacher you know the content, and what page they are using, so what what I do is I have them have the textbooks open [00:08:07] We have a general discussion. I link it to the VR and the textbook information. And I find this much better, the kids ask a lot of questions. uh, based on the discussion that we have. And I just find it, um And I just find it, um, that just needs to be more approachable gene, that we've been having this specifically standing behind the table and say, okay guys, and we'll drive to the board. [00:08:30] So that's my teaching styles that I like to be involved with them in having a discussion. I have, sometimes I'm making close the eyes and see the pictures and I find that you make them visualise and see, I see this come back when they are doing assessments. That is what I do, we have discussions and have a lot of Q and A.	Lesson preparation and planning
Tammy	Ecosystems - revision, VR integrated as part of planning in the lesson. Teacher very engaged, learners enthusiastic Teacher asking questions and discussing the topic with the learners. Learners were asking questions about the experience and what they had seen Some said the experience helped them understand the content better.	Lesson preparation and planning
Sarah	Incorporated VR into lesson preparation as part of planning. Assist children who are easily distracted	Lesson preparation and planning
Dhriti	Planning - discussed topics and what might be included in what she was teaching already Added VR to lesson plan, A discussion as to who the original people of Southern Africa were. A powerpoint highlighting key aspects. A Thinker's Key (Different uses) activity A Red and Green Hat activity Word Scramble game (group work) with the key words. Social Science Textbook page 93—95; 97-8 Printed activity sheets YouTube video in VR mode of an actual San Hunt from the BBC, narrated by Sir Richard Attenborough.	Lesson preparation and planning

	<a href="https://www.youtube.com/watch?v=826HMLoiE_o">https://www.youtube.com/watch?v=826HMLoiE_o</a> VR Goggles provided with cell phones with Wifi connection.	
Mary	Um, so for our children or, um, we've got a lot of kids with dyslexia, not all, but the VR, that's a video now I've gone blank on the actual one, but it's it's, there are YouTube videos that are 3d and they go places and move around. Uh, I have found easier than the ones with the, um, gosh, the explore expeditions. I found that part difficult for the kids to use or to understand. So I think they enjoy being surrounded by the experience immediately and sort of in a live way.	Lesson preparation and planning
Bhavna	Used VR before in lessons, planned before the use. Included in lesson planning. Beneficial using VR for students Enjoyed the experience Built knowledge about the context Where very involved Assisted in achieving the outcomes of understanding the lesson's outcomes better Saw evidence of benefit even in the assessment, and the way they answered the questions related to what they had learnt	Lesson preparation and planning
Dhriti	Perfectly, absolutely related perfectly because it's, uh, aligned with the San and the whole reason that we said we, um, actually teach them about the San. I feel is to show them how um, how they should learn about respecting the environment, and of being grateful for what we have, things like that. So it definitely is very much aligned with not just their knowledge, but also the skills and values that we'd like to teach them as well. So, loved it.	Lesson preparation and planning
Thandiwe	So do you think going forward, you would put the, like these kinds of resources (VR resources in your lesson?)  I think so. I think it helps to really hard a lot. And I'm glad that we did it in different, um, learning areas or subjects. Cause we did one in life skills. So it also works for life skills. Then again, I saw like you could also use it for English as well. So definitely I think it's, um, just now a reflection on myself, me being a teacher in this, what support in the evaluation. I think we as teachers, maybe I'm looking for myself, maybe this kind of schools that I, I, I teach at, we are kind of slow into going best direction. We are very, very slow. I know even that, that the first one was what that revolution, the computer revolution or the third revolution we using in industrial. So we were still slow. We were still slow. We're not catching up with, um, with technology.	Lesson preparation and planning
Dhriti	definitely, obviously it has to be a, a briefing at the beginning, let them watch it and definitely a debriefing just to help them understand what exactly it is.	Lesson preparation and planning

Sarah	I tried with the natural science, um, it was natural science. I used, um, one of those guided VR tours. Yes. Um, but it is never included by all staff, so, so the way we prep is you create a booklet and I kind of tried to insert the technology into the booklets and our booklets need to be checked obviously. And they told me to put all the experiential learning at the back as extension where, for me, it was part of the process and part of the changing of thinking. So yeah, there, there are lots of possibilities for it.	Lesson preparation and planning
Kgomotso	When I'm planning my lessons, I use the resource books that we do have, I do have books that are caps orientated. So those books are the ones that I used. So normally when I look at, at what I'm about to teach the topics that I have, the outline of topics, I also check the, that we get from the department so that I know I'm in line with what the department wants. And I also use Google sometimes to add on to what has been yes, yes. To, to actually help me with things that, uh, can make my lessons exciting. So sometimes I download stuff.	Lesson preparation and planning
Thandiwe	I think it would much be much more effective because we tend to discuss something that others have not yet seen	Lesson preparation and planning
Thandiwe	I think maybe it was as it was something that we were doing for the first time. It was exciting other than what we normally do in class, just teaching the normal way. I think more visual was exciting for them.	Lesson preparation and planning
Thandiwe	I think it would much be much more effective because we tend to discuss something that others have not yet seen	Lesson preparation and planning
Thandiwe	So I'm just thinking, how will, um, how will I keep those ones engaged while they are doing this and make sure that it all links together, the visual that they're getting also links with what we are doing in class. So maybe, there should be that link. Okay. I need to create that link that they shouldn't be doing something in life skills and then something different in their visual. There should be the link.	Lesson preparation and planning
Bhavna	The VR videos take the kids well beyond the topics that we are exploring.. I put a list on the board of the videos they can explore in VR. I use quite a lot of Youtube, as I feel it is accessible. um, and we use expeditions as well, when I first started using Vr. So I put the topics on the board, that I want them to look at, and I say to them choose one of them and go with it. And then I just sit back and watch them. Because they are all over the place. Moving around. I had them, um I had a child doing space. I had a child literally lying on the floor, because they were looking at stars and planets, and it was just awesome. I had lots of really cool videos and photos that I took of them. They had so much fun, and they um, learnt a lot from that VR, and I also see the results in the exam, I based questions on our VR experience, and they really	Lesson preparation and planning

	liked that, and they answered those questions really well, um, I think because it was visual they remembered it better, The kids just love VR. They just think it is the most fun thing ever to do in class.	
Mary	VR (virutal reality) isn't expensive - can take them on a journey without leaving the classroom? And that experience means that they safe, that it isn't expensive, but at the same time, they get that feeling that they are traveling and moving and exploring new places. So the get excited, they engage and participate.	Lesson preparation and planning
Tammy	Teacher describing when using a VR scenario in a lesson - " I think it's important that we actually watch it and see it and understand, and find out how it works"	Lesson preparation and planning
Kgomotso	Planning lessons: so I use the textbooks. [00:05:30] Um, I used Platinum quite a lot and realized some other cases say what I do is I have a, a template that I've just been using since I was in primary school days. We just, for my own sanity, I just popped down, okay, this week I'm doing solids, bases and gases. And then I put everything about what I am going to do about the work, and any experiments, activities and if I am using a VR example. I am going to do during the week., my lessons are guided by that. [00:06:00] Sometimes I might chop and change certain things,, but that was how I put my lessons together,	Lesson preparation and planning
Mary	What resources did you use during this lesson? (Get details on sources of materials and activities.) I worked with the group and there were three other activities and the VR was the fourth activity. Learners rotated through the various activities Did the particular selected VR experience / scenario achieve the result / impact your envisioned? Explain your response, please Yes it did, learners seems very engaged and wanted to use the VR again in a lesson	Lesson preparation and planning



Thandiwe	<p>How, how would, would you add it into the prep?</p> <p>I think it's a good question. How to incorporate it. The one that we did today I did to do, uh, listening and speaking and maybe writing instead of them reading the test themselves. Cause maybe I had a challenge of now copy the story and having to print it when I have it here. So I just said, let me read it to them and then, then do the task later. But um, I think maybe it'll work more on the reading and, and, and speaking, when you read, when I'm sorry, not reading when listening and speaking. Yeah. They actually watch and then answer question questions. We could answer orally and then maybe that will also help learn the, my comprehension instead of just them text all the time they read them, read them. They said maybe just to forget it, then they would have to just watch this and then maybe sometimes we'll speak about it and then maybe answer questions, um, or return questions afterwards. Um, yeah, I think that would be a different kind of comprehension that we'll be doing instead of doing this reading or watching the story and then having a text again, to read, I think maybe the text would be, could be done on a different day or something or a different story altogether result should be just based on what they have seen. And yeah, that's what I think for now. I be doing that For the English, For the English and for life skills or For life skills.</p> <p>I think, well, I'm not sure when to put it, would it be a good thing to start by watching the video first on, on any topic given that, that time we did, uh, bullying, I would watch the video of bullying before I teach was this time. They kind of watched it after I had done the lesson and it kind of hard to clear some of the things that we had already spoken about or watch it before. And then we, I introduced the lesson or something. I think it's something that I have to, to figure out it went well here now, because when I talk about cyberbullying, I thought they understood me. But now when they watch this, now they say, oh, Uhha, this is what cyberbullying is. Yeah. This is what it is. So now it makes me wonder, when is the right time to do it before you introduce a topic or do it after a topic, then like starting up that lesson and saying, this is what we are talking about. So this is what we see.</p> <p>Maybe it's having different, putting it in at different times, depending on the content of the video, the topic of, or the content of the lesson. And maybe it's also nice to vary it from the children's point of view too, To to see what they want.</p>	Lesson preparation and planning
Tammy	Teacher describing when using a VR scenario in a lesson - " I think it's important that we actually watch it and see it and understand, and find out how it works"	Lesson preparation and planning
Mary	inquiry based learning approach	Lesson preparation

		and planning
Thandiwe	Used VR in lesson, as part of lesson plan, felt learners loved the lesson and benefited from it, therefore changing pedagogical	Lesson preparation and planning

**Table 5: Theme: Planning, Sub-theme: Virtual reality linked to lesson content**

<b>Participant's pseudonym</b>	<b>Comment: VR linked to lesson content</b>	<b>Sub-theme</b>
Bharva	I do think integrating VR into lessons is useful. I used VR headsets last year. I haven't used them much now due to COVID, we were online. I used VR headsets a lot, especially in the fourth term every other lesson, when we explored space, which was great.	VR relevant to lesson content
Bhavna	if they're doing a similar content in different ways	VR relevant to lesson content
Dhriti	aligned with the san and the whole reason that we said we, um, actually teach them about the san	VR relevant to lesson content
Kgomotso	reinforcing their knowledge in a different manner	VR relevant to lesson content
Mary	And he insisted he wanted to any absolutely loved it because this was like a real thing for him, you know, he could relate to it. So I just want to go into space again,	VR relevant to lesson content
Mary	Recently um, we had groups and they moved from station to station. VR was one of the stations. We did the weather, and then I had this great little VR of a weather balloon that goes up. And then the child is taken up into the atmosphere of the earth, and they absolutely loved it. It was from grade one, grade, two to grade seven, they just thoroughly enjoyed that experience.	VR relevant to lesson content
Sarah	They loved it. They absolutely loved it. In fact, I started them off on plants. If I remember correctly, adaptations of plants. So the virtual reality of a plant and they saw the different plants and they did the activities. And then they went on and did their own.	VR relevant to lesson content
Tammy	I think we should do [use VR in lessons]. I think specifically in the sciences. I think its effective with SS [Social Sciences] And I think, um, they don't have enough hands-on experience and things, and I think that's a nice substitute [VR] for actually being able to see things	VR relevant to lesson content
Siaba	VR about the ecosystem in Borneo	VR relevant to lesson content

Tammy	The VR lessons are enjoyable for the children, not always just take out your book and do that activity. Asking questions about the content. You, you make them think out of the box, which is quite nice. And again, those VR things provide another opportunity and they are nice for NS, getting them to think, linking it to the thinking hats, I think that's nice getting them to think.	VR relevant to lesson content
Thandiwe	The VR video helped them understand what cyberbullying was Cause with that, I had discussed all the different types of bullying, we had discussed cyber bullying, but, uh, I thought they understood, but clearly or apparently, they didn't really quite understand it because I don't know, maybe for us, the social media things and, and phones and things like that.	VR relevant to lesson content

**Table 6: Evidence of correlation of participants' lesson topics and VR scenario used in lesson**

Participant's pseudonym	Lesson topic	VR scenario
Tammy and Siara	Revision lesson Ecosystems	Google Expeditions: Ecosystems of Borneo (Google, 2015)
Dhriti (2 classes)	San and the hunt.	YouTube VR: The Intense 8 Hour Hunt   Attenborough Life of Mammals (BBC Earth, 2009)
Thandiwe	Emotions	Youtube VR: Know your emotions (Rocketkids, 2018)
Dhriti	Shipwrecked / Deserted on an island	YouTube VR: Do These Things To Survive If You Get Stranded On an Island (The Infographics Show, 2018)
Kgomotso	Nutrition	Youtube VR Food Groups And Nutrition (ClickView, 2020)
Thandiwe	Bullying	Youtube VR Cyber Bullying creates no hate (CreateNoHate, 2016)
Thandiwe	Listening comprehension	Youtube VR The ant and the dove (BooBoo, 2018)
Sarah	History of transport, looking into the future	Youtube VR transport 2030 (Covestro, 2018)
Bhavna	Wetlands (ecosystems)	Youtube VR iSimangaliso Wetland Park, South Africa (Drink Tea & Travel, 2020)
Mary	The Brain and Circuits	InMind 2 VR application (Luden.io. 2017)

**Table 7: Theme: Use of Technology, Sub-theme: Technology Integration**

Participant's pseudonym	Participant Comments	Sub-theme
Sarah	And I suppose that's, um, the practical thing about VR, which makes it different to other tech is because you've got the headsets and you've got the phones, whereas like the newer headsets, you've got the images already in the phone, I mean, in the headsets. So it makes life	technology
Mary	Great tech integration - observation	technology
Tammy	I do, I think this technology can be used in lessons for kids to interact. And I think sometimes it's finding the time to include the technology, the school is talking about getting headsets but nothing as yet. Today the children really enjoyed viewing the VR, and it tied in well with the lesson's revision.	technology
Kgomotso	So do you do any technology integration? Speaker 2 (12:32): Yes, we do. We do have a projector at school, so sometimes we download videos	technology
Tammy	So I use the ipads not not all the time .....we did it for the ecosystem projects, and then I booked out the ipads for three lessons, so they were able to research the organisms and research the things in the ecosystems. There are valuable things in using them	technology
Mary	Yes, but I think I actually want to explore some AR and maybe like, I've got that perfect room where you could put something in that room and really take them into an experience that way.  Yes, definitely. But not too often, because then it won't be, it must be relevant.	technology

**Table 8: Theme: Use of Technology, Sub-theme: Virtual Reality Integration**

Participant's pseudonym		
Dhriti	<p>Absolutely. The learners were so involved and interested. They used it individually, but it reinforced what they were doing in the other activities.</p> <p>Yeah. I suppose we could get through more contents as well then, Because I mean, if the VR and the other things are used in the lesson the learners are involved, I suppose if they're doing the similar content in many different ways, you are almost reinforcing their knowledge in different ways, building their knowledge</p>	Virtual Reality

Bhavna	<p>Absolutely. Absolutely. Um, I don't know. I don't think every subject can probably use a VR. I'm not too sure I could be wrong, but I know like with science maybe like social sciences and stuff, I absolutely recommend it. Um, so far in our school, I know I, I have probably used that VR headset hits more than anybody else has used it.</p> <p>Absolutely. A hundred percent. I agree because it just, it just adds to the lesson.</p>	Virtual Reality
Sarah	<p>Because that's the world of their part. Yeah. That's and if they're not even thinking, you know, even at this level, they can start imagining, you know, and I mean, I think we, we, um, quench imagination with a lot of our, the information that they need to have the content, you know, but yeah, definitely the VR is very helpful. It's also helpful in, in, um, for them it's, you know, they were asking me about various models of VR, so they, some of them have had experience in a gaming world. Um, but yeah, I think it's vital. I really do. I really do in terms of sparking interest and, and looking at bringing real reality, you know, the reality of, of the tech in here</p>	Virtual Reality
Sarah	<p>Changed pedagogy from not using much technology, to exploring how to use VR more, even asked principal to purchase VR goggles and phones</p>	Virtual Reality
Thandiwe	<p>definitely think so. I think so. I, you know, sometimes, um, um, we want to try and see things we want to explore</p> <p>I think so. I think it helps to really helps a lot. And I'm glad that we did it in different, um, learning areas or subjects. Cause we did one in life skills. So it also works for life skills. Then again, I saw like you could also use it for English as well.</p>	Virtual Reality
Mary (tech suggestion)	<p>if you had to think about this technology, is there any advice you would give to somebody who may consider using this technology?</p> <p>Speaker:</p> <p>I would say that, uh, you've gotta get the right devices in order to be successful with that. Um, and don't go for cheap overseas ones because they don't have the necessary, um, internal devices that I made that mistake. I thought, oh, we'll buy someone some from foreign country and it didn't work at all. And then, uh, yeah, it's just looking after or just understanding how the system works and practicing it beforehand. You can't just think, oh, I'll give them this, um, this thing because it says something about, uh, mountains, cuz you don't know what it'll show them.</p>	Virtual Reality

Mary (VR devices)	<p>So how did the management of using the VR as a group activity practically work for this lesson?</p> <p>Speaker:</p> <p>I think it was fine because luckily I had space and because I had four activities, I think if it had been, even if they'd been, I've got five devices, but if I had five children at a time, I think I'd get noisy. And also with COVID just the way it is. I think three was three or four were better.</p>	Virtual Reality
Bhavna	<p>So I do. I try to do more learner centered teaching where I, so what I do in a lesson is I teach a topic and I see how the kids are reacting to that particular topic. And if I see, you know, some of them drifting off and up in, I, I try and change it to engage them. And then that's where my VR lessons come into play. And I've noticed that they thoroughly, thoroughly enjoy it. You know, they, they absolutely enjoy it. And then when I teach something like, for example, I did, I used the VR headset predominantly with space when I did, um, tele four work because I found there was much more that I could, I could, um, get, uh, for VR videos and how I teach. I don't teach trauma text. Well, the textbook is out. Obviously we have to go through the content, but, um, I give them more visuals.</p>	Virtual Reality
Sarah	<p>So, you know, I love that the VR as well, and in grade four, they I've done it with my class and I've used the VR headset which learning , but it's not across the board not all teachers use it. Oh. And, and you know, so it's not part of the actual learning, which for me is important that you, we make a common learning, you know, about this headset, which just, yeah, you don't need a booklet.</p>	Virtual Reality
Tammy	<p>Teacher describing when using a VR scenario in a lesson -</p> <p>" I think it's important that we actually watch it and see it and understand, and find out how it works"</p>	Virtual Reality
Dhriti	<p>Thank you for assisting with the setting up, and helping the technology to work. The children really loved it, I see great value in using it, and want to incorporate it into my lessons.</p>	Virtual Reality
Mary	<p>Um, well I, the choice of the VR was because it was the internal part of the grade and I struggled to find something that was suitable. So that was in mind. One was very nice. Um, and in terms of learning, I also teach something called in instrumental enrichment, which is tools that develop critical thinking. So we always mindful of mentoring that because if you tell the child how they, they will just learn to just listen to what you say instead of think for themselves. So through that process, I wanted them to think for themselves. And I, and I think that that game actually did, like when they started off and even if they couldn't find the little circle and even if we guided them at first, once they got going, they understood it because children do, we all</p>	Virtual Reality

	understand the game? Like you want those, you wanna tick those boxes. You know? So I think the feeling of, um, competence helps us a lot. Well, which we actually, um, sorry, we are explicit about, and we do say to them, this is challenging, but we are gonna overcome it.	
Kgomotso	Yes, I thought about it. The only challenges I actually thought, if I can have phones that I can occupy half the class at one moment, then the other half will be doing something, then I just swap. I also look at the time factor. Yes, because I have got limited time. If my lesson is one hour and I've got something that I want to cover, then I have to strategically think around that on how my lesson is going to work. So, I think it would be better for me if I can have after class, I can divide them into two groups instead of splitting them into five.	Virtual Reality
Saira	How do you feel about how the lesson played out with the inclusion of VR in the lesson? Children related positively where engaged Children very excited. Keen to go through the content, learners were in groups but view VR individually	Virtual Reality

From the observations of the lessons, each participant demonstrated aspects of the TPACK (Technological Pedagogical and Content Knowledge) framework (Mishra & Koehler, 2006) as well as a stage of the SAMR (substitution, augmentation, modification and redefinition) model (Puentedura, 2006).

**Table 9: Indicates the participants' affiliation to a stage of the SAMR model**

SAMR Model Stages	VR Usage	Participants pseudonyms
Substitution	0	
Augmentation	5	Siara, Tammy, Bharna, Thandiwe, Kgomotso
Modification	3	Mary, Dhriti, Sarah
Redefinition	0	

**Table 10: Indicates the participants' affiliation to the TPACK framework descriptors**

TPACK framework descriptors	Number of participants
Content Knowledge (CK)	8
Pedagogical Knowledge (PK)	8
Technological Knowledge (TK)	8
Technological Content Knowledge (TCK)	8
Technological Pedagogical Knowledge (TPK)	8

**Table 11: Indicates the participants' lesson topic, VR resource used, the subject and grade taught.**

<b>Participant pseudonym</b>	<b>Subject</b>	<b>Grade</b>	<b>Lesson topic</b>	<b>VR</b>
Tammy	Natural Sciences	Grade 6	Revision lesson Ecosystems	Google Expeditions: Ecosystems of Borneo
Saira	Natural Sciences	Grade 6	Revision lesson Ecosystems	Google Expeditions: Ecosystems of Borneo
Dhriti	Social Sciences	Grade 5 (5G)	San and the hunt.	YouTube VR The Intense 8 Hour Hunt   Attenborough Life of Mammals   BBC Earth
Dhriti	Social Sciences	Grade 5 (second class)	San and the hunt.	YouTube VR The Intense 8 Hour Hunt   Attenborough Life of Mammals   BBC Earth
Thandiwe	Life skills	Grade 4	Emotions	Youtube VR Know your emotions by Rocketkids
Dhriti	English	Grade 5 (5G)	Shipwrecked / Deserted on an island	YouTube VR: Do These Things To Survive If You Get Stranded On an Island
Kgomotso	Natural Sciences	Grade 6	Nutrition	Youtube VR Healthy Eating for kids
Thandiwe	Life skills	Grade 4	Bullying	Youtube VR Cyberbullying create no hate
Thandiwe	English	Grade 5	Listening comprehension	Youtube VR The ant and the dove
Sarah	SS - History	Grade 4	history of transport, looking into the future	Youtube VR transport 2030
Bhavna	Natural Sciences	Grade 6	Wetlands (ecosystems)	Youtube VR iSimangaliso Wetland Park, South Africa
Mary	GBL class (global collaborative design) related to Natural Sciences	Grade 6	The Brain and Circuits	InMind 2 VR application



**Table 12: Theme: Use of Technology, Sub-theme: Technology and Virtual Reality Integration**

<b>Participant's pseudonym</b>	<b>Participant Comments</b>	<b>Sub-theme</b>
Tammy	"Now, we are focusing on these skills, focusing on those skills and then in our lessons we have to incorporate those skills. [00:07:30] So using VR to assist with the skills and the lesson content is useful, another resource." "	Virtual Reality & technology
Sarah	absolutely. The difficulty though, as a teacher is, is you bound by the curriculum. And the difficulty is to innovate in within the curriculum. And if you're teaching a grade with a team for the team to buy into that, so you can, I could run with it on my own, but because of the, the way the school is managed or whatever I have to include everybody. So the, yes, I would, I think the difficulty is, is that, and, and finding, finding the material, finding that little nugget, that creative nugget, and then running with that and not being afraid to run with it	Virtual Reality & technology
Saira	I would be keen to use the technology in lessons, use of ipads	Virtual Reality & technology
Kgomotso	Looking at our learners, because most of them are so used to technology these days, and they can operate phones. So, I think it is a great tool to try and use in schools, because it's linked to their everyday life. In their everyday life, it's not about the teacher narrating every time like you know it, and remember what I explained and if it is explained from another point of view. Certain learners may understand the other person better than they understand you, because it is now bringing variety. I would say it is a great tool for teachers to try and use, of course, I would like to use something like that. Because they're certain and learners who learn, if they're excited, number one. Number one, they're excited. Number two, they're in their own environment, there are no disturbances, they learn even better. So I think it's something that given a chance, I would like to try it.	Virtual Reality & technology
Bhavna	Yes. I use VR and other technology, the kids use their iPads and things also in class to do research when we discuss topics. So I do make use of those [00:07:00] sorts of things, projector, VR, I found helpful.	Virtual Reality & technology
Saira	What technology have the learners experienced in class prior to today's lesson? Tablets, data projector, IT room, much technology at home, some have VR at home	Virtual Reality & technology

Thandiwe	<p>I think so. I think it helps to really helps a lot. And I'm glad that we did it in different, um, learning areas or subjects. Cause we did one in life skills. So it also works for life skills. Then again, I saw like you could also use it for English as well.</p> <p>So definitely I think it's, um, just now a reflection on myself, me being a teacher in this, fourth industrial revolution and leadership, the self evaluation.</p> <p>I think we as teachers, maybe I'm looking for myself, maybe this kind of schools that I, I, I teach at, we are kind of slow into going into that direction. We are very, very slow. I know even that, that the first one was what that revolution, the computer revolution or the third revolution we using in industrial. So we were still slow. We were still slow. We're not catching up with, um, with technology.</p>	Virtual Reality & technology
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Explore the learners' safety when using virtual reality during the lessons, and steps teachers took to ensure their safety.

**Table 13: Theme: Use of Technology, Sub-theme: Learner Safety**

Participant's pseudonym	Participant Comments	Sub-theme
Bhavna	fortunately enough I have a very big classroom. So we utilized almost the entire classroom when we did the VR	classroom use - cleared desks and learners could walk around the room with headsets on
Bhavna	generally they had a very big open space because I moved all the desks right out of the way	classroom use - cleared desks and learners could walk around the room with headsets on
Bhavna	I walked around a lot because I had to like, you know, redirect kids like away from a wall away from the door	classroom use - cleared desks and learners could walk around the room with headsets on
Kgomotso	Can take them on a journey without leaving the classroom? And that experience means that they safe, that it isn't expensive, but at the same time, they get that feeling that they are traveling and moving and exploring new places.	experience in safe environment

Mary	And that VR experience means that they safe, that it isn't expensive, but at the same time, they get that feeling that they are traveling and moving and exploring new places	experience in safe environment
Mary	I think that you need something to motivate children to excite them, and it will, the virtual experience in this day and age actually can assist or can supplement when you can't go out. If I just take COVID for example, does that mean we can take them on a journey without leaving the classroom? And that experience means that they safe, that it isn't expensive, but at the same time, they get that feeling that they are traveling and moving and exploring new places. So	experience in safe environment
Mary	While viewing one child spoke about feeling a little dizzy, but wanted continue playing	Safety considerations
Sarah	Observe and record any safety concerns, or effective layout where safety has been considered Children informed of how to use Children sat at their chairs and viewed the VR - discussed safety and moving around with the VR One child spoke about feeling dizzy.	Safety considerations