

7. Theme, sub-themes & comments: The influence of virtual reality resources in relation to the value of Virtual Reality in primary school lessons

The thematic analysis of the theme, sub-themes and comments of 'influence of VR resources', when addressing the question 'what are teachers' beliefs and attitudes about the use of VR as a learning tool for teaching', during the study of the influence of VR as an educational tool on teachers' pedagogy.

Pseudonyms were used instead of participants' names

Table 1 is a summary of the theme, the 'interaction within lessons', indicating the sub-themes, the number of participants who commented and the number of comments identified for each of the sub-themes, which are demonstrated in Tables 2 to 6 below.

Table 1: Indicates the sub-themes number of comments and participants which refer to the influence of VR as a teaching resource.

Theme	Subthemes	Participants	Comments
Influence of VR resource	Learners' excitement & enjoyment	8	15
	Cognitive thinking	4	12
	Achieving outcomes & Impact on assessment	3	4
	Memory retention	3	4

Table 2: Explores the comments of participants related to the sub-theme: learners' excitement and enjoyment

All eight participants, with fifteen comments identified.

Participant pseudonym	Comments
Bhavna	Well, some of them have never had never, ever done a VR experience. So it was, it was so nice and heartwarming to see some of them they're like totally, totally fascinated. Like they actually felt that they were on that particular planet. You know, when we are doing that or even the moonwalk when we are doing they're like, this is really, I feel like I'm on the moon of, I guess that is the VR experience. You feel that you are actually in that specific place.
Bhavna	I think you said it already, but do you see these kinds of technologies, like VR, as beneficial? Speaker 1: 03:50 Absolutely. A hundred percent. I agree because it just adds to the lesson. I know not every subject you add, if you can do it, but with science, I, I love it, but there's so much you can do with it. Mm. And the kids, um, did, I mean, they really enjoy it. And I just find that, um, instead, like I said, just reading from a textbook version, the more boring stuff, just adds that little extra excitement, but it helps with the learning process.
Bhavna	They, I mean, whenever I get the headset, they'll see it. They're ahh , oh, are we going to do VR? They get so excited.

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>
Dhriti	I think the kids thoroughly enjoyed it. They definitely, obviously it has to be a briefing at the beginning, let them watch it and definitely a debriefing just to help them understand what exactly it is. So, um, but they loved it.
Mary	And he insisted he 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,
Mary	Um, 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 are 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 they get excited, they engage and participate.
Mary	But, recently um, we used VR, the way we've used them so far has been as a station when we've done a theme's work. Recently, 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.
Saira	<p>How do you feel about how the lesson played out with the inclusion of VR in the lesson?</p> <p>Children related positively where engaged</p> <p>Children very excited.</p> <p>Keen to go through the content, learners were in groups but view VR individually</p> <p>Many children spoke about how the VR made them feel as if they were in the place, in Borneo, spoke about how beautiful it looked - helped them understand ecosystems</p> <p>One child was restless and easily distracted,</p> <p>Others very focused and spoke a lot about the content after the lesson</p>
Sarah	<p>So if we, if we look at, with sourcing like the VR kind of stuff, did it, did it as a teacher in your prep? Was it, was it useful or was it beneficial to do something like that for yourself? Do you, did you see that as, as value when found those within the news?</p> <p>Absolutely. Absolutely. I think, you know, I was excited. I was excited to see how, um, the kids would react. I was excited when I found the VR video about the tyre. So it sparks creativity in me. And that, that is essential for me, you know, otherwise I become demotivated and if I had to do talk and chalk, I very quickly lose interest and, you know, yeah, yeah. I'll go downhill. Um, yeah, but it was, it was very beneficial. It was, it was also beneficial to turn it, turn the topic, black, see it from the flip side, from the innovation, you know, and I think for next year, looking at people who innovated in the, in the world of transport rather than the history of</p> <p>The view. Yeah. So it's just the semantics that are different, but they, you, the whole feeling coming across is different because I mean, teaching is an emotionally driven profession. So if you're not excited, you may not be excited.</p>

Tammy	And another little voice, because they're thinking. He's usually quiet in the classroom. He had a lot to say after putting on the goggles and seeing all the different things, he's excited and bubbly at the lesson, which is nice
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.
Kgomotso	How did you feel about the lesson? How did you feel it played out with the inclusion of the VR in the lesson? Speaker 2: Okay. I noticed that my learners were excited and they were motivated, and they were focused. So I really loved it.
Kgomotso	They were excited about it, so they participated even better.
Thandiwe	Yeah, there was, there was so much excitement. There was so much excitement and, um, because we were doing it in turns. So the others in class were also looking forward to doing it, having their turn off, as we were rotating them doing that.

Table 3: Explores the comments of participants related to the sub-theme: cognitive thinking

Four participants, with twelve comments identified.

Participant pseudonym	Comments
Bhavna	It's reinforcing that it helps with memory retention and all those kinds of things, which is really great.
Bhavna	Yes, it really helps the learning. So it was nice in that sense where kids who were totally new to VR were experiencing something new. And like I said, again, I saw it in the answers in the exam where some of them even wrote in our VR lesson, I remembered, this about the moon or this about Saturn or whatever it was. So it was, it was nice to know that this little thing as a VR headset actually made the world of difference to their learning.
Bhavna	<p>And then if you look at teaching strategies or methods, what kinds of strategies do you use? 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 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 [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 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. [00:08:30] So that's my teaching style. 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>

Dhriti	I think the kids thoroughly enjoyed it. They definitely, obviously it has to be a briefing at the beginning, let them watch it and definitely a debriefing just to help them understand what exactly it is. So, um, but they loved it. And I think it was very immersive and they were able to come up with questions and make comments about it. So it was brilliant, it got them thinking, so ja it was good,
Dhriti	And that's exactly what they were doing outside during the same activity in different ways, with VR as one of the resources. They had to work in different ways, especially because, um, the thinker's keys, 21st century skills, we used the de Bono's hats. So they, some thinkers' keys that they work individually, they investigate. I gave him the thinkers keys and they work individually, but they[00:03:00]work as a group with the word scrabble and have a lot of fun doing it. It was trying to get around the world. But when it comes to thinker keys, I like for them to individually work, but because they are in a group. They can share their ideas and understand and expands their own thinking, information, and even use their imagination
Mary	global collaborative design because there are three teachers and we get ideas and we take
Mary	Why use VR: thinking cognitive thinking a So at any opportunity, I like to, um, take the children on an adventure, take them outside of their own space, make them excited about learning, and I'm given the freedom to try new things. So, um, in my, in my qualifications, I have done, um, I E which is a thinking cognitive thinking and enrichment tool set of tools.
Mary	The lesson came at a time when I was a bit frustrated because their models were all so same, same. And I just thought, they're not thinking outside the box. They're not because there's only so much you can guide before you tell them what to do. And what was nice is I didn't have to tell them what to do for that exercise. And subsequently in another group, the one person she's got good ideas, but she can't always manifest them. And using a different material. She took a whole lot of Scooby wire sort of stuff and created the cervical cortex, just the central part. So, and said, I need some elastic bands. And she had figured out that it is. Extension. So that was interesting.
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 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.
Tammy	We do quite a lot of De Bono's thinking hats, thinking skills, Thinking skills - incorporated into 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 you've got enough spread in your lesson to accommodate everybody .
Tammy	And another little voice, because they're thinking. He's usually quiet in the classroom. He had a lot to say after putting on the goggles and seeing all the different things, he's excited and bubbly at the lesson, which is nice

Table 4: Explores the comments of participants related to the sub-theme: Achieving outcomes and Impact on assessment

Three participants, with four comments identified.

Participant pseudonym	Comments	Descriptor
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, loved it.	outcomes achieved with VR experience
Bhavna	Yes, it really helps the learning. So it was nice in that sense where kids who were totally new to VR were experiencing something new. And like I said, again, I saw it in the answers in the exam where some of them even wrote in our VR lesson, I remembered, this about the moon or this about Saturn or whatever it was. So it was, it was nice to know that this little thing as a VR headset actually made the world of difference to their learning.	impact on assessment
Bhavna	We did exams, we finished last week and I was marking their exams because of my questions, some of them are based on what we've discussed in the class. It's still based on the work that we've done, but it's based on what we've seen, like the VR, and things. And they remember it when I do like VR or I do, um, videos or like silly things, like taking them outside to look at the tree. They remember that. Whereas I'm not just sitting here verbally just talking. They don't remember all of those things	achieving outcomes impact on assessment
Mary	How do you think that this inclusion impacted the learner's participation? Well, they were because they were relaxed and thought they were just having fun and playing a game. When you're in that C mode, you actually take on more information. So if you're relaxed and happy, you will remember that because you are in the amygdala and the central part of your brain. That is, if you are relaxed there, you're gonna remember more things. So it definitely, um, affects the children that way.	

Table 4: Explores the comments of participants related to the sub-theme: Memory retention

Three participants, with four comments identified.

Participant pseudonym	Comments
Bhavna	It's reinforcing that, that it helps with memory retention and all those kinds of things, which is really great.
Bhavna	A It's reinforcing that, that it helps with memory retention and all those kinds of things, which is really great. Remember / memory retention learner focus & teaching strategy how influence teaching practice affordances for changes pedagogical practices Learning/Teaching Cognitive Development cognitive development "Effective pedagogies focus on developing higher order thinking and metacognition, and make good use of dialogue and questioning in order to do so."

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 remembering what I explained and if it is explained from another point of view.
Mary	Cause initially they said, oh, we are going on another parachute. Right. Because they had been in one when they were learning about air and pollution and everything so that, so they did remember, but it sort of broadens their outlook as well. That there's different experiences maybe going to the origin museum instead, you know,