



# The Effect of Virtual Learning Environments in an ESL Classroom: A case study

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The use of technology in education has become a critical part of teaching in our ever-changing world where technology has found a way to infiltrate our everyday lives. The use of 21st century teaching methods has become a vessel to help schools strive towards moulding and shaping our children to become informed and responsible citizens in a global community. This action research project explored the use of a Virtual Learning Environment (VLE) as a tool to enhance learning in my Grade 4 class. A VLE was created and used as a tool for collaborative learning, flipped teaching and as a communication network for students. Students were interviewed and asked to complete questionnaires about their learning experience while using the VLE. Assessment scores for tests in Science and Math, reading assessments and project rubrics were analysed. Comments and posts from students were revised and included in my research evidence. The results indicated an increase in engagement in learning and social skills. Students showed more confidence in their language application and most students improved their test scores. Some challenges were managing students' use of their devices and motivating them to access at home.



## Introduction

*The teacher walks into the Science classroom, settles the students and starts the lecture. “Grade fours. Open your Science text books on page 32. Today we will learn about different forces, Let’s read the information, I will explain as we go. Quietly, on your own, complete the activity in your copy books.”*

This is how I recall most of my classes in school. However, the days of teacher standing in front of the classroom and lecturing a group of very bored, very uninterested students are long over (Madden, 2017; Lynch, et al 2015; Madden 2012) . Thanks to ever-changing development of technology, new innovative models of teaching have emerged, giving educators a fresh approach to teaching. Today, technology infiltrates classes around the world and teachers face new challenges as they teach a very “wired” generation of students using technology that is changing every day. Teachers have adapted their teaching models to a more student-centered and engaged learning experience (Maddem et al 2002; Lynch, 2002; 2004;2006;2011).

They have also incorporated new ways of teaching by using technology as a tool to learn and teach. At Al Yasat Private School our vision reads “Al Yasat is an inspirational, leading-edge international school dedicated to nurturing outstanding role models, responsible global citizens and informed leaders of the future.” As a teacher, how can I aspire to help students become role models, global citizens and informed leaders of the future? Using 21st century teaching methods, helping them to acquire English skills and developing their social skills surely seemed like a good place to start. This chapter reports on an ongoing action research project undertaken in my Grade 4 class to study and document the effect of using a Virtual Learning Environment (VLE) as a tool to improve English language acquisition and communication skills as well as motivate students to engage in their own learning.

Guiding the action research are two key questions:

1. Could VLE’s be a tool to develop better acquisition in English as a written and spoken language?; and
2. If students benefit from Collaborative learning, how could using a VLE as a cooperative structure effect ESL students’ development socially and academically?

## Pedagogy of Technology Integration

It is the aim of Al Yasat Private School to be able to engage students in an exploratory learning experiences designed to stimulate thinking. Technology has allowed us to access millions of resources and tools to enhance our teaching and make the learning experience more beneficial for our students. However, it is acknowledged that the degree of success teachers have in using technology for instruction depends, in part, on their ability to explore the relationship between teaching strategies (ie the pedagogy) and technology itself. Through the course of this action research the concept of a number of key pedagogical practices were identified as a vehicle to enhance both teaching practice and also student learning. They include:

### 1. Virtual Learning Environments (VLE)

A VLE defined as an online space that is set up by the teacher to provide students access to learning materials (Dillenbourg, Schneider, & Synteta, 2002). Students are able to access and correspond with other members of the class. Teachers can upload information, pose questions, create assignments, assess and post comments on submitted work , make announcements and



more. Students are also able to comment and post, as the teacher allows them, making them active members in a virtual world.

As education institutions engage with the blossoming array of software opportunities for teachers, to be identified as a VLE, there are some key features including:

- A virtual learning environment is a designed information space.
- A virtual learning environment is a social space: educational interactions occur in the environment, turning spaces into places.
- The virtual space is explicitly represented: the representation of this information/social space can vary from text to 3D immersive worlds.
- Students are not only active, but also actors: they co-construct the virtual space.
- Virtual learning environments are not restricted to distance education: they also enrich classroom activities.
- Virtual learning environments integrate heterogeneous technologies and multiple pedagogical approaches.
- Most virtual environments overlap with physical environments. (Dillenbourg, et. al, 2007, pp.3-4)

Creating VLE's opens up a whole new world for teaching models to develop, learners to be actively involved in the learning process, while building on language and socio-emotional skills.

## **2. Flipped classroom**

Making 21st century skills part of the classroom and learning experience has enabled teachers to come up with creative and innovative ideas for using technology in their teaching approaches. One of these teaching models being flipped classroom, a tool used to build prior knowledge, create discussion forums and making contact time in lessons an active learning experience (Bishop & Verleger, 2013). By setting up a VLE, this model can come to life. This enables students to work with the content during the lesson other than just acquiring the knowledge and having to practice application outside of the classroom. Finkle (2012) in his article, Flipping the Script, states:

“Rather than stand up in front of the classroom, teachers sent their respective students home with videos of themselves lecturing. And rather than assigning traditional homework, work that most students could get tripped up on if they are not sure about a certain topic, the teachers gave students time in class, with their close supervision and help, to put their learning into practice.” (Finkle, 2012).

Students find this approach to learning much more enjoyable. In a study conducted by Love, Hodge, Grandgennet & Swift (2014) two teaching models were compared: flipped classroom and traditional lecturing. Their focus was on a sophomore- level linear algebra course which mathematics, computer science and engineering majors. They reported that the average score in the exam for the flipped classroom students was significantly greater than that of the traditional lecture students. They go on to say that the majority of flipped classroom students showed to have a positive experience with this model as it creates the opportunity for contact time to consist of group discussions and hands-on activities rather than just taking in information. These students also had more confidence to share ideas in the classroom as they



have had previous discussions with peers online. Only 21% of the traditional lecture students said that they had an enjoyable learning experience. They found that students from the the flipped classroom section, contributed significantly towards the development of a social network for students, making their learning much more enjoyable.

Spending more time on practicing skills in our lessons is the aim, where teachers can give immediate feedback while learning is taking place. The U.S. Department of Education conducted its own meta-analysis of distance learning, and found there was no difference in being lectured at in a classroom versus through a computer screen at home (Freeman, Eddy, McDonough, Smith, Okoroafor, Jordt, & Wenderoth, 2014). So, Freeman et al. (2014) says: "If you're going to get lectured at, you might as well be at home in bunny slippers."

The flipped classroom method is only one of the ways in which virtual learning environments can be used to conquer the barriers of time and space.

### **3. Time Place and Space**

"Who of you would like to climb into a portal and be anywhere you'd like to be in an instant? Who of you would like to be a time traveller?" These questions were asked to my students when I introduced our own Virtual Home to them. Creating a VLE affords for time, place and space no longer to be a barrier to learning as it opens up endless possibilities. Azuma (1997) identifies three characteristics that are integral to an augmented reality interface. Firstly, it combines the real and the virtual. Secondly, it is interactive in real time. Third, it is registered in three dimensions.

In their article, Pan, Cheok, Yang, Zhu & Shi (2006) explored the educational uses of a VLE. Based on virtual reality techniques, learning may take place as follows: History students can learn about ancient Rome by walking its streets, visiting its buildings, and interacting with its people. Biology students can learn about anatomy of the human heart through adventures inside the human body. "The range of worlds that people can explore and experience is unlimited, ranging from factual to fantasy, set in the past, present, or future. In the virtual community, learners can model, act and express anything they want as long as the system provides the tool." (Pan et al, 2006, p.22). They go on to say that precision of knowledge visualization for learning materials and realistic social interaction among learners are two critical technical factors for building VLE's.

### **4. Socio-Emotional Advantages**

A great amount of research has been done on Collaborative Learning (CL), highlighting the social and emotional benefits it brings. Gokhale (1995) defines CL as follows, "The term 'collaborative learning' refers to an instruction method in which students at various performance levels work together in small groups toward a common goal. The students are responsible for one another's learning as well as their own. Thus, the success of one student helps other students to be successful." Gokhale's research on the advantages of CL revealed not only better understanding but also social and emotional benefits. He stated that students' open-ended responses revealed that a more relaxed atmosphere made problem-solving easy, that learning was fun, that there was greater responsibility for them and the group and that they were able to make new friends (Gokhale, 1995). This lead me to believe that VLE's can share the social and emotional benefits of CL as it allows for social interaction among students. They



can work collaboratively, share goals, support peers, give feedback and motivate each other. And when students work together in such a supportive, relaxed and fun learning environment, then surely it should help them gain confidence in their ESL practice.

### **5. The ESL Student**

Researchers have explored the benefits of cooperative learning in the English as a Second Language (ESL) classroom. Zibelius defines CL within the language classroom. “For language learning contexts, CL is within-class grouping of students, usually of differing levels of language proficiency, who learn to work together on specific tasks or projects in such a way that all students in the group benefit from the interactive experience.” (Zibelius, 2014, p.45) VLE’s can share the benefits of cooperative learning as it allows for these practices to take place. This allows ESL learners to gain more confidence while practicing their language skills, learn from and support peers and apply thinking skills in a collaborative manner.

Furthermore, in a study on technology integration it was concluded that “From the examples we can see VLE for education meet the common demands. And VLE supported by virtual reality, as an effective means to update teaching material and innovate teaching methods, will reflect the newest achievement in education field.” (Pan et al. 2005, p.27)

### **Why a focus on VLE in my Classroom?**

Given the research highlighted above the opportunity to take the research and trial it within the confines of my own classroom has enhanced my understanding of student learning.

Integrating technology with all subjects through the use of a VLE sounded promising to the learning experience of my 26 English as a Second Language (ESL) students. Our school consists mostly of ESL learners as it is situated in the UAE, where Arabic is the official spoken language and I believed that giving them an opportunity to use and practice English would be to their advantage. Could VLE’s be a tool to develop better acquisition in English as a written and spoken language? This question arose as I realised that my students might not get enough practice applying their language skills as they seldomly use English other than at school. The VLE lended the opportunity of not just being accessed in school, but also anywhere they found themselves.

I realised that I would have to do some learning of my own if I wanted to set up an effective VLE for my students. From the articles that I read, staff development courses that I had attended as well as examples set by my colleagues, I realised that there was a gap in my own computer literacy skills and that this was an area that needed some attention. If I wanted to integrate technology effectively in my teaching practice, I had to ask colleagues for advice, get support from the school’s IT team and explore, try and practice using these tools before introducing it to my students.

Al Yasat catered for all technological needs, having a wide range of online resources as well as in-school internet access. Our IT team was very supportive, giving me a few tutorials on how to use the programs. I learned from colleagues, who suggested I use Google Classroom. I tried, failed and tried again. I was determined to succeed in my aim to enrich my students’ learning experience through fun and engaging learning, develop their language and communication skills and help them to take responsibility and think about their own learning.



How would I create an effective VLE for my students to cater for all of these aims? With my knowledge about the success I have had with the application of Collaborative Learning (CL) in my class, I asked myself the following: If students benefit from CL, how could using a VLE as a cooperative structure effect ESL students' development socially and academically? Consequently, I decided to trial my beliefs by setting up a VLE for my class, using it as a CL tool and study the effects it had on the development of my students' language application, communication skills and engagement in their own learning practices.

My study was conducted throughout the third term of school, April and May 2017, focusing on Google Classroom as a VLE for my Grade 4 students. Other digital spaces were also used: Kahoot, for quizzes and puzzles, Everyday Mathematics, Raz Kids (an online reading program), Skype, Class Dojo (a class management system), Youtube and Espresso (used for online tutorials and activities in all subjects).

I have 26 students in my class, of which 12 boys and 14 girls. Although they are ESL learners, these learners are all at different levels of language acquisition. I have identified three levels based on their language skills: More Capable, Capable and Less Capable. My research was based on how well these students would respond to a VLE focusing on their development of language skills, interaction with peers, building confidence to use English and their willingness to learn. After six weeks, I sent out a questionnaire where students had to answer yes/no questions as well as write open responses. Some of these were conducted orally where I asked students questions face to face. Data was also collected within the six weeks of the study. Students were given short online quizzes to show their understanding. I reviewed a number of questions and assignments that were posted on our VLE as well as comments and responses they received. Assessment scores were later analysed from project assessment rubrics, reading and writing assessments and compared to that of previous terms to gain insight in academic performance.

I selected and interviewed six students about their personal experiences of Google Classroom specifically. The responses collected through these interviews would give me a clear insight to their attitude towards learning, the use of VLE's and some personal experiences they might have had.

I interviewed three other teachers in our school as they have been using Google Classroom with their students for a longer period of time. I asked them to write down any interesting experiences that they might have had with students using their VLE.

Mostly, the experience was very positive and I had various opportunities to explore and adapt practice as I continued my action research. However, not all students were confident in their use of technology, creating some barriers in their online responses. I realised that it would be difficult to credit VLE's for all progress made in learning as this was not the only teaching method taking place in my class, which is why I decided to compare results from previous terms, where VLE's were not used, with that of this term. I also found that I had to monitor their "homework" every day as not all the students accessed the VLE when at home. However, it has been a very enriching learning experience for me and I will continue to share and work towards our school's vision.



### **My VLE Story**

Motivated to work towards our school's vision, my goal was to create a virtual home, where class members could explore resources, share ideas and take part in discussions within a virtual, but safe learning community. I had to think carefully and creatively of how I would introduce this new learning space to my students.

“Who of you would like to climb into a portal and be anywhere you'd like to be in an instant? Who of you would like to be a time traveller?” These questions were asked to my students when I introduced our own virtual home to them. Students were equally excited and confused with our new Google Classroom. It took a whole school week to get parents' approval, students logged in and the first assignment to be accessed by all students. I started off with simple activities where they could comment and respond to questions like; What is your favorite food?; If you could visit any place in the world, where would it be and why? and what makes our class a fun class to be in? Students responded slowly at first. I modeled examples in class, showing them what other members see on their computer screens and what a good comment or response looked like. As a class, we formulated criteria for comments and responsible use of technology. I rewarded them for participation on class Dojo and shared some of what we learned with parents. This caused all of the students to write some response, even if grammatically incorrect. It was amazing to see how some more capable students supported less capable students with their comments, giving extra hope for a successful outcome to my study.

Now that students were on board, I could start with my flipped classroom teaching approach. I posted videos from Youtube and links to Espresso videos to help them access and understand calculation of area and perimeter even before we started this model in Mathematics. I posted links for online Math games and activities on Everyday Mathematics as well as editable homework worksheets through Google Documents. By the time I had to explain these terms and calculations in class, 6 students were already able and willing to act as Math tutors for my lesson. For Science, I posted a video about forces and motion from Science Fusion, which explained key terms and vocabulary. I also added links to interactive activities and video tutorials on Espresso and reading material on Raz Kids, which included comprehension quizzes. When students were asked to comment and write about their observations in class, 12 students were able to apply these terms and coach a partner during a class activity, meaning that 24 of the 26 students could apply the knowledge without teacher's help, leaving me to support 2 students instead of lecturing the whole class. I continued to upload questions and resources and I realised that students' comments changed from comments like “Ms. I watched the video,” to “That is amazing! I want to try that experiment in class. Can we, Miss. Alberti?” Overall, students had a better picture of what they were learning, before topics were even started. They were also more willing to engage in activities as class activities could now be more hands-on and they appeared to be more confident while doing so. I also noted some students, watching videos again, referring to worksheets they have completed and commenting on other students' work while they were busy with the activities in class.

Where in the previous terms I had to spend one or two lessons on background knowledge, vocabulary and terminology, I was now able to utilise those periods for engaging activities. Where in previous terms, most students struggled to use scientific terms correctly, I had students who could recall and apply those terms in class activities. Some more capable students



were also able to comment on why we were learning these concepts, boosting their critical thinking and language skills alike. A colleague states, “I think the students who use the site regularly have learned to communicate better. They are engaged in their own learning and proud of their achievements.”

In the questionnaire, students were asked whether they liked learning through videos. 35% of them said yes. 35% of them said that they liked when the teacher explained the steps in the classroom and 30% said that they liked the combination. Although most of them preferred me showing them the steps, I noted that they were able to understand steps in math much quicker than before. “I like watching colorful videos because it helps me to understand the work when teacher shows us,” one student commented. Another answered, “I like learning on Google Classroom. I like reading the comments and watching the videos. It is fun.” They were also asked if they liked learning through videos and activities before they were introduced to the topics in class. 68% answered that they fully agree, where only 7% said that they don’t agree and that topics should be introduced in class for the first time.

The obstacles of physical time and space were overcome. In our themed unit, *Children Around the World*, our class had the privilege of studying my home country, South Africa. I wanted them to experience what South Africa really is and not just what the media makes it out to be. Apart from posting a research project where students could share information on Google Classroom, I arranged with some South African teachers to help me with setting up an interview with my class and some of their students. Their school did not have internet access, so we recorded videos of our questions and sent it to them. They replied with their own video responses. These were all uploaded on our VLE and students were able to comment on what they have learned from these students. I arranged for a Skype interview with a few kids from the block in my old home town. My students could experience what their school uniforms looked like, what their home looks like and even meet their dog. They could talk and ask questions, and even ask to clarify some answers, by asking more questions like, “What is biltong?” 100% of the students answered that this learning experience made South Africa more real to them. “It was nice speaking to children from South Africa. I want to visit that country now,” answered one of my students. Even though my students were not physically in South Africa, in their minds and imaginations they were.

Google Classroom allowed students to access information at school and at home. They were able to share ideas, videos, websites and pictures with each other, whether they were at home, at school or visiting family over the weekend. 98% of students responded that they liked the fact that they could access the “classroom” anywhere and made doing homework a lot easier. One student mentioned that his sister, who is in grade 5, enjoyed doing the activities with him. I allowed her access to our class and everyone welcomed her to our virtual community. Parents joined in by sending me extra videos and online games that I could share with the class. Now learning was not only taking place in my class, but I had the family learning and talking about what we were learning about in class!

Cooperative learning was made easy through the use of Google Classroom as a structure. In our integrated unit about forces and motion, students explored buoyancy and gravity as forces. This was integrated with Social Studies by doing a research project about traditional historic Emirati boats, what they were made of, used for and how their design affected their speed and



ability to float. In groups, students were asked to create a presentation on powerpoint to present their ideas to the class. It was clear what was expected of students as the criteria was posted on Google Classroom as a reminder throughout the duration of the project. Each member had a specific responsibility that only that member was allowed to complete, giving the group a sense of interdependence. They completed the powerpoints and shared it on google classroom. Other teams could then comment and make suggestions before the team would present. These comments contained very positive feedback and it was a pleasure to see how teams were supporting each other. Peer assessments were done within the group through a rubric posted on Google Classroom, where again the feedback given was extremely positive. Many reasons were given throughout the class for students to be proud of their work and themselves.

On the first day of school in term one, two very shy girls walked into my classroom, hardly being able to answer when I asked their names. When I asked questions in class, they would shy away. Using cooperative learning strategies, increased their confidence, and with the help of our VLE, these students gained even more. The one girl commented on every single question that was posted, doing so in sentences and using terms she had learned in the unit. She even motivated others by commenting, "Good job," or "Well done." The other girl asked me questions while completing activities at home. In some cases, I replied by telling her I would help her the next day. I knew exactly what to support her with, targeting my instruction to her needs. Both of these girls had their hands high up when I asked questions around our essential question closer to the end of the term, delivering their responses with confidence and using vocabulary learned in the unit. "We need to do experiments to see if our hypotheses was right," the one girl responded These are two examples of how our VLE helped students gain confidence in their own language use and social skills out of many. I was not surprised to learn after analysis of formative assessments that remarkable progress was made by most students during the third term.

The analysis of end of unit results in English and Maths was affirming. In English reading, diagnostic tests were compiled at the beginning of the school year. At the beginning of the second term, another assessment was done assessing reading fluency and comprehension. 61% of the students showed progress in their reading. At the end of term 3 they were tested once again and 73% of the students showed significant progress, 22% more than in the previous term. Unsupported writing assessments showed that students improved in language conventions, ideas and structure, with an overall progress of 23% opposed to the 17% in term 2. In the two Math units that were completed during this term, pre and post unit tests were conducted and performance compared. In both these units students showed greater progress than in previous terms. An average progress of 38% was made in term 1 and 2, where an average of 49% progress was made in term 3.

I do realise that the use of VLE alone cannot be credited for all the progress that was made, but I believe firmly that it played a significant role.

Some challenges that my colleagues and I agreed on was that all the students in our class were not equally motivated to log in to Google Classroom at home. "Some of our students only used class time, which meant they could not benefit from it as much as we would have liked. It took quite a lot of management to get students logged in regularly, but once they were, they showed great participation while interacting with the content and other members of the class,"



commented one colleague. Another colleague added, “We need to get parents more involved in their children’s learning at home, even if it just means checking if they log in to Google Classroom.” Some also mentioned that for some students, having their devices with them, turned out to be a distraction and firm rules about the use of the device had to be put in place.

To answer the key questions as stated earlier; Could VLE’s be a tool to develop better acquisition in English as a written and spoken language? Yes, evidence of progress made in language skills in my classroom surely proves that it can. If students benefit from Collaborative learning, how could using a VLE as a cooperative structure effect ESL students socially and academically? The evidence collected certainly lead me to believe the following: 1) Most students benefited from the use of a VLE as it broke the barriers of time and space; 2) Students gained confidence in communication skills and social interaction; 3) Most students improved their language skills as well as language application in other subjects; Students enjoyed the virtual community that created a sense of belonging and interdependence; 5) Most students were engaged in the learning process in all subjects and had fun while learning.

The outcome proved to deliver positive results, helping me to understand just a little more about how my students learn.

### **Reflecting On My Journey.**

It has been a challenging yet satisfying journey for me and I once again realised that children are smarter than we think and remarkable at adapting to new things. Ian Jukes (2005) shares my belief, “They use digital technology transparently, without thinking about it, without marveling at it, without wondering how it works.” I believe that for most of my students, using our VLE made them a little more open-minded to the world out there, helped them to accept and understand not only other cultures, but also their classmates, helped them to think about and talk about what they were learning while developing their communication and language skills. The co-founder of Apple Inc., Steve Jobs, once said, “If you are working on something exciting that you really care about, you don't have to be pushed. The vision pulls you.” Reading our school’s vision once again, “Al Yasat is an inspirational, leading-edge international school dedicated to nurturing outstanding role models, responsible global citizens and informed leaders of the future.” I can say that in my class, this is truth.

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