

“FLIPPED COMMUNITIES BEFORE FLIPPED CLASSROOMS”: CONTEXT AND CONTENT AS BARRIERS OF FLIPPED CLASSROOM APPROACHES IN SOUTH AFRICAN UNIVERSITIES

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Abstract

The development of educational technology resulted in a shift in pedagogical methods and approaches to accommodate these technological advances in education. There are rapid changes in knowledge and technology, driving the development of education whilst considering innovative learning approaches (Akdemir, Bicer & Parmaksız, 2015; Ugras & Cil, 2014; Schaal, 2010). One such pedagogical method is that of the Flipped classroom approach which advocates that direct instruction is not the most effective use of class time. Instead, students encounter information before class, freeing class time for activities that involve higher-order thinking (Strayer, 2012) to allow for a more active learning environment in the classroom. While this is a productive initiative in addressing the time factor in the classroom, it takes little account of the context of the communities that students come from and the cognitive demand of content of modules, especially in the complex and diverse South African situation. This qualitative study aims at exploring the difficulty of implementing a Flipped classroom approach in the South African Higher Education environment. The case study design employs interviews and questionnaires to generate data on students in a South African university to establish the context of their communities. It further employs textual analysis on module content, together with semi-structured interviews with academics, to establish the cognitive demand and support required for a flipped classroom approach. The study showed that the contextual background of the communities situated around the university and the cognitive demand of the modules did not allow for an effective application of a flipped classroom approach. It recommended that Higher Education institutions in South Africa focus on community engagement projects that create conducive communal learning environments as well as university residence that have academic support structures and infrastructure.

Keywords: *Flipped classrooms, community, context, content.*

1. Introduction

The learning experience in higher education is a critically engaging process that involves several factors to produce student success. Student motivation and engagement is one of those factors that has been seen to play an important role in academic success (Barkley, 2010). It therefore became important for the academy to find pedagogical methods to keep students motivated and engaged. To achieve this, scholars in the late 19th century proposed the use of technology to motivate and engage student participation in academic success (see; Clark, 1983. Chickering & Ehrmann, 1996. Bates, 2000). The idea was that students born in the ever-changing technological era required active and stimulating digital education for success in the digital world. This evolution in technology therefore required pedagogical approaches to suite the shift. Such approaches included multimodal learning theory, connectivism, cognitive load theory, and most noticeably the Flipped Classroom approach. What distinguishes this approach is its ability to blend traditional teaching methods with the use of technology-based tools (Naidoo, 2020), while flipping the setting of where the learning takes place. The approach advocates for readjusting and rescheduling time spent on both in and out classroom activities to shift the ownership of the learning experience from the teacher to the student (Kashada & Li, 2017).

2. A Flipped Classroom Approach: Theoretical underpinnings

As a pedagogical tool, the flipped classroom approach has its roots in the late 1990's when teachers were attempting to provide supplementary content for learners who were absent in the classroom.

The approach later developed in Higher Education institutions around Northern Europe in an attempt to maximize contact lecture time. Its early proponents, Bergmann & Sams (2012) found that students who engaged with content at home could spend class time engaging in more meaningful activities, such as experiments and group work. This type of learning is active in nature and more student-centred than the traditional lecture system. Knowledge is constructed actively as learners prepare for class (Sohrabi & Iraj, 2016). Bergman and Sams (2012) propose the following four pillars for a Flipped classroom approach:

2.1. Flexible environment

As opposed to traditional classrooms that are non-conducive to learning, flipped classrooms require students to work collaboratively and in very flexible environments. Students are able to choose when and where to learn and the lecturer accepts these circumstances. Naidoo (2020) agrees with this as he describes flexible environments as constructive and conducive places outside the classroom where learners can engage with content in the comfort of a flexible setting.

2.2. A change in the learning culture

This pillar advocates that lecturers should assist students learn topics in greater depth by the use of pedagogies that are student-centred. Unlike traditional approaches that identified the lecturer as the solitary knowledge holder and provider, flipped classrooms identify the student as taking ownership in the knowledge making process.

2.3. Intentional content

This pillar requires the lecturer to be conscious and calculated with the way in which content is created and consumed by the students (Naidoo, 2020). The main objective in this case matching content with suitable instructional delivery modes. More so, the lecturer must be flexible enough to adjust from traditional instructional methods.

2.4. Professional educator

For success in the flipped classroom approach, experienced lecturers are best suited as the lecturer must capitalize on the learning opportunities existing and must observe the students keenly to guide them (Kashada & Li, 2017). The investigation of this study analyses these four pillars to explore how context and content can be a barrier to the application of a Flipped classroom approach in a South African University.

3. The South African university: Context and content

Any contextual discussion of South Africa will almost always revolve around its painful past. This is an important departure point as it explains many of the issues that the country still suffers from. The establishment of a higher education system dates back to 1873 with the first degree conferring institution known as the University of the Cape of Good Hope (Boucher, 1975). Administered under the University Incorporation Act 16 of 1873, this colonial university was only reserved for English speaking white European settlers. Post colonization, the Apartheid administration would redirect its focus to Afrikaaner universities in the former Transvaal and Orange Free State. Although these were exclusively reserved for white South Africans only under the Separate Amenities Act of 1953, the need for a skilled labour force arose with the development of the state. It is only under the Extension of Universities Act of 1959 that attention would be paid to colleges for Non white South Africans (Mdepa & Tshiwula, 2012). Black universities only started receiving state attention and support decades after former white universities. In the course of its 45-year rule, building upon 350 years of colonialism, the apartheid government institutionalized a higher education landscape consisting of 36 universities, 15 Technikons and approximately 140 single-discipline vocational colleges (nursing, education and agriculture). All of these institutions were structured along racial lines in terms of both admission and tuition (Mdepa & Tshiwula, 2012). This gruesome history of South African universities is similar to that of its communities who suffered irreversible socio-economic impacts from segregation. It is against this backdrop that this study explores the difficulty of implementing a flipped classroom approach in South African universities that accommodate majority students from these communities

4. Methodological procedures

The aim of this study was to explore context and content as barriers of implementing a flipped classroom approach in South African Universities. This qualitative study employed a case study design to do this. Babbie (2001) describes case studies as an in-depth description of a case or bounded system such

as a process, activity, event, programme or multiple individuals. A case study was suitable to the aims of the research because it allowed the researcher to explore in detail the case context and content in South African Universities. Purposive sampling was used to select one South African University based in a township in Kwa-Zulu Natal. One class of first year Engineering students were selected to partake in the study. First year students were selected on the bases that their inexperience in the university system that would be a source of rich data in understanding context and content. Data was primarily generated using semi-structured questionnaires. A combination of open-ended and close-ended questions were administered to the sampled students to explore the context of their communities. One-on-One interviews were also conducted with the Engineering lecturer to collect data on the content of the module and its suitability to flipped classroom approaches. This data was analysed using thematic analysis by examining the following four themes: flexible environment, a change in learning culture, intentional content and professional teachers (Bergmann & Sams, 2012).

5. Results and discussions of findings

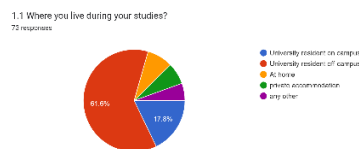
A total of 72 first year Engineering students responded to the questionnaire which aimed to explore how their context and content affected the implementation of a flipped classroom approach. The first 2 principal components of this approach, flexible environments and professional educator (Bergmann & Sam, 2012) explored context barriers while the latter 2 principal components, A change in learning culture and intentional content (Bergmann & Sam, 2012) explored content barriers.

5.1. Context

Flexible environment

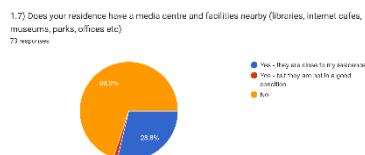
For a flipped classroom to work, the alternative flexible environment needs to be both conducive and constructive. Majority of South African Universities were built during the Apartheid administration that did not envision high enrolment for previously disadvantaged groups. This means that many of them have very little student accommodation on campus (Mzileni & Mkhize, 2019). Graph 1 depicts that 62.5% of the 72 respondents live in off-campus accommodations. This is however the case in many other South African universities because of historic Apartheid spatial planning (Mzileni & Mkhize, 2019).

Graph 1. Student residency during studies.



Flexible environments should have resource centres to assist students which learning using a flipped classroom approach. The approach advocates for completing and consuming module content outside the classroom to allow lecture time to be used for application, experimenting and exploring (Berrett, 2012). In addition to 62.5% of the respondents residing in off-campus residence, their residence lacks the media centres and resources required to assist them. Graph 2 displays how almost 70% of the respondents do not have access to media centres near their residence. 65% of respondents reported to sharing a room with more than one person, making it extremely difficult to utilize the space as a conducive study area. The lack of individualised space, as seen in graph 3, show the difficult of implementing a flipped classroom approach as students do not have conducive spaces to create the flexible environment required for the implementation of a flipped classroom approach.

Graph 2. Access to media centres and resources.



Graph 3. Number of occupants in room.



Professional educator

This core principal of the flipped classroom approach requires that lecturers are experienced and suited to capitalize on the learning opportunities provided by the methodology (Kadasha & Li, 2017). To

explore this principal, the study interviewed the Electrical Engineering lecturer who teaches the 1st year Engineering students. The lecturer stated that they have 7 years teaching experience and holds an MSc in Engineering. The lecturer responded that they have not been to any formal training or capacity building that deals with the flipped classroom approach. Alexander & Masoabi (2017) note that while South African Engineering academics have expert knowledge on content, they struggle to pedagogically relay this knowledge due to lack of teacher training. When the flipped classroom approach was explained to the lecturer, they stated that their institution may not have the required technical support and resources needed in a flipped classroom approach.

5.2. Content implications

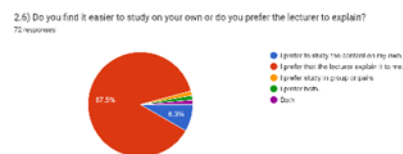
A change in learning culture

What was encouraging in this study is that more than 50% of the respondents have been taught using different multimedia, as depicted in graph 4. This is hopeful for South Africa's flipped classroom approach aspirations since students are somewhat familiar with tools used in the approach. However, more needs to be done to familiarise them with student-centred pedagogies as an overwhelmingly 87% of respondents preferred that the lecturer explains the content to them. The current learning culture in South African universities could pose a barrier in successfully implementing a flipped classroom approach.

Graph 4. Using multimedia.



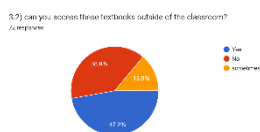
Graph 5. Student-centred pedagogies.



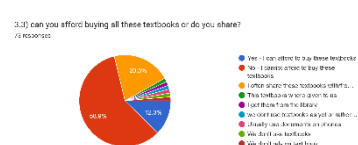
Intentional content

In investigating this principal, the study sought to find out the type and content that respondents were accustomed to, as well as how much access they had to this content to facilitate a flipped classroom approach. Most respondents used textbooks as the primary form of content consumption. What was somewhat encouraging about this is that 47% of respondents said that they can access these textbooks outside of the classroom. This means that the lecturer can attempt to direct students to engage content outside of the classroom and avail class time for other practical activities. Nonetheless, close to 60% of respondents cannot afford these textbooks. This is a major barrier to implementing a flipped classroom approach because many South African Students in underprivileged universities often struggle with affording textbooks and other educational resources (Goodier, 2019).

Graph 6. Access to content resources.



Graph 7. Affordability of content resources.



6. Conclusion and recommendations

The study found that the historic inequalities and state of South African communities and universities were a barrier to effectively implementing a flipped classroom approach. The study recommends a collaborative effort by the Department of Higher Education and Social services to 'flip communities' first before flipping classrooms. The role of the university in this regard is to focus its community engagement efforts at creating conducive communities where students can reside and study effectively. Furthermore, an additional core responsibility of the university is to ensure that students residing in off-campus residence have suitable resource centres and educational facilities to complete their studies. South African universities cannot afford to be left behind in innovative 21st century pedagogies because of its context and its barriers to content.

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