Psycho-social factors are the key contributory elements toward the academic performance of grade 12 physical sciences learners in the Mandeni circuit in KZN

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**ABSTRACT**

This study investigated the implications of psychosocial factors (PSFs), a significant determinant of academic achievement, on learners studying physical sciences in grade 12 at Mandeni Kwa-Zulu Natal. In the physical sciences, South African learners are doing poorly. Low socioeconomic status tends to be experienced by the majority of learners pursuing physical sciences, and this has been associated with poor educational achievement in high school. Participants selected using a purposive sampling technique from the accessible population, 105 grade 12 physical sciences from eight targeted schools in the Mandeni circuit of the Ilembe district made up the sample. The study used a mixed approach and a triangulation research design. The questionnaires and interviews were used to collect data. Quantitative data collected were analyzed using SPSS version 20 and thematic analysis was used for interviews. The findings revealed that learners studying physical sciences in grade 12 encountered major obstacles due to psycho-social variables, which negatively impacted their academic performance. The findings of this study are diagnostic, and they assist the Department of Basic Education establish a policy that outlines the requirements or guidelines for selecting Physical Sciences as a subject for a particular field of study. To inspire learners and encourage them to share their ideas with influential people in the science area, the department should collaborate with industries. In Secondary schools, school management teams (SMTs) should establish and put into practice effective policies that work closely with parents and other stakeholders to support the creation of a conducive learning environment at all times. This will improve the academic achievement of learners studying the physical sciences.

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**Introduction**

In South Africa, results in the Physical Sciences section of the National Senior Certificate have been gradually dropping in the past few years. Poor learner performance in physical sciences is a national concern. As per the research findings of Makgato and Mji (2006), South Africa took part in an international survey on Mathematics and Physical Sciences from 2001 to 2003, which was conducted to assess the performance of learners, the lowest performing learners were from South Africa.

Research on how well learners succeed in the Physical Sciences has been done (Makgato & Mji, 2006); these studies showed that a variety of factors influence learners’ success, for example: shortage and unqualified Physical Science educators, shortage of resources, gender differences, parental involvement and language barrier, peer-pressure, cultural issues and learning environment. Psychosocial factors (PSFs) like motivation, social control, and self-regulation also have a big impact on the classroom learning environment (Lim, Gemici, & Karmel, 2014).
In order to improve academic performance, identify and take advantage of social supports that could aid in learning, and maintain emotional and behavioral control, learners must possess an intense drive to learn. Psychosocial factors (PSFs) that are often recognized as being crucial for academic performance include motivation, social skills, and environmental support (Clouder, 2008; Lee & Shute, 2010).

Additionally, learners' risk of failing their classes can be evaluated using PSFs. I have noticed that learners pursuing Physical Sciences, particularly those in the Mandeni circuit within the ILembe district, persist in demonstrating poor performance.

This study aims to evaluate the consequences of psychosocial factors (PSFs), which are a significant determinant of academic achievement, on students who were receiving their secondary education at Mandeni Kwa-Zulu Natal and were studying physical sciences.

South African students are not performing well in the academic field of physical sciences. The majority of students who are pursuing a degree in physical sciences are likely to come from families with low socioeconomic standing, and this has been linked to low levels of academic accomplishment in high school. Participants were chosen from the accessible population using a technique called purposive sampling.

The sample consisted of 105 students in grade 12 who were studying physical sciences. These students came from eight schools that were targeted in the Mandeni circuit of the ILembe district. The research design utilized a triangulation technique, and the study utilized a mixed approach. For the purpose of data collection, we utilized both questionnaires and interviews.

For the purpose of analyzing the quantitative data that was gathered, SPSS version 20 was utilized, while thematic analysis was utilized for the interviews.

Collaboration between the department and various companies is something that should be done in order to motivate students and encourage them to discuss their ideas with significant individuals in the field of science. In secondary schools, school management teams (SMTs) should be responsible for establishing and implementing effective policies that collaborate closely with parents and other stakeholders to promote the formation of an environment that is favorable to learning at all times. Students who are studying the physical sciences will see an improvement in their academic performance as a result of this.

**Literature Review**

Since I am a science educator and am concerned about learner performance, my school’s percentage results in Physical Sciences have been declining with time. I was passionate about learning how psycho-social factors affected the performance of grade 12 Physical Sciences learners since this has a detrimental impact on their interest in studying in the Mathematics and Science department because they achieved poor marks at higher institutions as a result of thinking about bridging courses.

The table below show the gradual percentage in the pass rate of Physical Sciences as follows:

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Taking into account the statistics performance of physical sciences final examination results from the years 2013-2017, half of the nine schools that make up the Mandeni Circuit in the ILembe district of KwaZulu-Natal display a worrisome decline in academic performance.

Two schools received 100% in 2013; three years later, they indicated an alarming decline, with one school received 62.2% and the other 45.0%. There has not been any noticeable progress for the last three schools in the table, which confirms that there are crucial elements influencing the academic performance of the physical sciences learners.

According to the DoE 2017 National Senior Certificate Schools subject report, ILembe had the lowest achievement performance of 55.2% (Department of Basic Education, 2017) in Physical Sciences compared to other districts in KwaZulu-Natal province.
Grade 12 Physical Science learners’ performance

In the Physical Sciences, South African learners are not doing well compared to international standards. Due to the low socioeconomic history of the learners, poor high school performance is a global issue (Lim, Gemici, & Karmel, 2014), identified elements, such as a lack of learning resources and a language barrier, poor parental involvement and educational setting that led to learners performing poorly in Physical Sciences classes. South Africa participated in the Trends in Mathematics and Science Study (TIMSS), which was carried out globally in 2001 and 2003 (Howie, 2003). South African learners performed worst in both of the study’s 38 countries that participated in 2001 and 2003 in order to assess learner performance in the sciences (Makgato & Mji, 2006). Admission to science-focused university programs was negatively affected by the steady decline in the number of upper-grade learners who took and passed the Senior Certificate Examination in Physical Sciences between 2005 and 2007 (Kriek & Grayson, 2009). Kriek and Grayson (2009) state that in 2005 there were 29,965 learners who passed Physical Sciences; in 2006, there were 29,781 learners; and in 2007, there were an unsettling 27,122 learners who passed Physical Sciences. It is evident that South African learners have dropped low in the science field. South Africa’s poor performance in the Physical Sciences can be seen both nationally and internationally. (Heeralal & Dhurumraj, 2016).

In 2011, only 22.4% of Grade 12 learners who passed Physical Sciences managed to be accepted into institutions of higher learning (Department of Education, 2012a). The Department of Basic Education (2011b) in South Africa discovered a rise in school dropout rates across grade levels, with 6.5% of learners dropping in grade 9 but 11.5% and 11.8% in grades 10 and 11, respectively. This trend is also noticeable in the number of Physical Sciences learners dropping in grade 10. According to estimations from Lamb and Markussen (2011), of 100 learners who start school in Grade 1, half will drop out, 40 will pass the NSC examination, and only 12 will be qualified to continue their education. According to the Department of Basic Education, Republic of South Africa (2015), dropout rates are alarmingly high in the country: only 52% of learners continue their education further the grade 12, with almost 60% of first graders choosing not to pursue. According to contend that the inclusion of problem solving in Physical Science has been noted by many researchers as a barrier for the majority of learners, as they are unable to create connections between the meanings of the statements because they are unable to construct meanings of the problem statements (Mudau, 2014). The majority of learners lack the necessary understanding of structural construction in Physical Sciences as a subject.

According to Heeralal and Dhurumraj (2016), in the 2009 Senior Certificate results, the national pass rate for Physical Sciences dropped from fifty-five percent in the previous year to thirty-seven percent. In 2009, all nine provinces across South Africa recorded a decline in Physical Sciences performance. The most alarming decline was in KwaZulu-Natal, where the pass rate in Physical Sciences halved compared to the previous year (Keeton, 2010). Only 25.6% of the learners who wrote Physical Science in 2013 passed with 50% or more. (Van der Merwe & Masondo, 2014), this was the lowest percentage of all the national senior certificate examination subjects. A number of possible factors contribute to the poor performance of learners in the Physical Sciences. Learner performance in science subjects, especially Physical Sciences, is cause for concern in South Africa since learners perform poorly in both internal and external examinations and assessment tests. The low performance of secondary school learners in international assessments like the Trends in International Mathematics and Science Study has repeatedly demonstrated that science achievement in South Africa is poor (Ogunleye, 2009).

Consequently, science education in South Africa is a national concern for industrial leaders and the educational community, furthermore the majority of learners still perform at lower levels in Physical Sciences. Most learners that perform poorly are from backgrounds with low socioeconomic status. Several factors, including socioeconomic status (SES), do have a role in the learner’s inadequate academic achievement. The children from low-income households have less access to resources and are less cognitively competent due to ineffective early education, which lowers their vocabulary, IQ, and social skills (Lim, Gemici, & Karmel, 2014). Examining the learner's environment and family history has a significant influence on their future. The educational background of a learner directly affects their academic performance.

Even though there are factors that affect learners' performance, some learners also contribute to poor performance. Lack of time management affects learners’ academic achievement (Sprietsma, 2015). Exploring psychological factors of learners found that time management has an impact on a learners’ performance because learners do not give themselves enough time to do their school work. Some learners neglect Physical Science lessons, fail to finish their tasks on time, fail to adhere to their teachers' instructions and lack discipline and dedication, all of which have a negative impact on their performance (Van der Westhuizen, 2002), Additionally, some studies have discovered a negative correlation between learners' academic achievement and alcohol consumption.

Learners of all ages, which demonstrated that sleeping habits and sleep quality are also connected with learners' ability to study and have a negative effect on academic achievement. Some learners struggle academically because they fail to get enough sleep, which affects other learners' performance. Some learners give up their sleep in order to finish homework and projects for school a minimum of six to eight hours of sleep per day. Sleeping is a natural remedy that promotes rest for the body and mind. It is also essential for both physical and mental well-being (Kamdar, Kamdar, & Needham, 2014). Psychosocial factors (PSFs) are important in classroom instruction because they include motivation, social control, and self-regulation (Velayutham & Aldridge, 2012). In order to achieve academic success, learners need to have a strong motivation to learn Physical Sciences, be adept at utilizing the social supports available to them to enhance their learning, and be able to control their emotions and behaviour’s. A person's health throughout life and academic achievement are impacted by their socioeconomic status (Bohat, 2015).
Researchers indicated that the employment of learners is a negative factor in their academic achievement (Sprietsma, 2015). Some learners are employed as casual workers in different shops. They work on weekends after school hours and holidays to get income to support their siblings, because some of them do not have parents, others their parents are not working, which leads to a decline in learner performance because those learners do not get enough time to focus on their school work. Families play a very important role in the education of their children. Okoye (2002) found that learners from a higher socio-economic status family are more motivated and show better performance in their studies.

**Learning environments**

Some community's learning environments are not conducive to learning, which is a contextual factor related to learner's education that results in poor academic performance in the Physical Sciences. The daily noise from taverns and nightclubs prevents learners from copying their studies. The majority of quantitative results showed that learners are interested in Physical Science, but they do not receive any support from their communities. Lack of support from the community should be a factor that affects the performance of learners. During the interview, most participants were worried about noise and strikes in their community; it affected them because they could not concentrate when they were studying at home. Conducive learning environments are required to challenge and stimulate learners to act as active and self-directed learners (Bonk & Lee, 2017). In order to increase their academic performance, learners must take charge of their own learning paths and make sure that their learning surroundings complement their studies.

Since the elderly are seen as their role models, the community should be crucial to the academic success of the learners. If the community fails to support the learners, it will be terrible and will result in a future demand for academics in our nation. It is a social issue that learning environments in black communities are insufficient for future national leaders. Participation in school activities is another psychosocial predictor of success in schools. The absence of extra-mural activities like athletics in our schools may have an impact on learners' performance because these activities help learners to unwind and recharge their thoughts while also encouraging participation in class. Learners have time to socialize and get to know another better during school activities. Extracurricular activities assist learners in developing self-esteem because, although they may not be brilliant academically, some learners may have an exceptional talent for a certain sport and perform really well in it. Learners participation in extra-mural activities is the amount of mental and physical energy where learners devotes into their studies (Asio, Francisco, & Nuqui, 2021). Academic success can be influenced by social support, which includes a wide range of elements not directly related to classroom activities. Examples of these elements include financial assistance, support from family, community, and church, as well as support from peers and friends.

**Language barriers**

Language is a barrier to the learners, especially in public schools. As English is not their mother tongue, it is puzzling for them to cope academically. Language has four macro skills, which include listening, speaking, reading, and writing. Learners experience problems expressing themselves in class. Thasmai (2003) found that Physical Sciences is more challenging for African learners who are English second language speakers. When learning physical sciences in a language other than their mother tongue, learners encounter greater difficulty (Dhurumraj, 2013). Sometimes learners fail to answer questions correctly, not because they do not know the answer but because they do not understand the question and instructions. As such, the learner is not going to respond correctly to the question, which may affect their performance. Sometimes the problem is how to express it in the correct manner. As learners are English second language speakers, there is a lot of Physical Science terminology that is difficult for them to understand. This affects the learner’s performance in the Physical Sciences because language plays an important role in the understanding of technical terms in a subject (Dhurumraj, 2013). When content must be learned in a second language, learners must deal with the issue of content literacy (Dhurumraj, 2013). Furthermore, the practical aspects of Physical Science become crucial for learners who are not taught in their home tongue. Because they are second-language learners, this makes them less confident in the subject and less able to communicate themselves.

**Peer Influence**

A peer group consists of a few individuals who are almost the same age and share common interests (Ding, Bhattacharya, & Phan, 2019). Peer pressure has a significant impact on learners' academic achievement. Even if it is unethical, it is simple for a child to alter their behavior in order to please friends. There's a strong chance that if just a few percent of the group use drugs, the group as a whole will be heavily influenced and end up using drugs. The influence a peer group has to persuade an individual to alter their beliefs and attitudes in order to fit in with the group's standards (Lockwood, Jordan, & Kunda, 2002). These models can serve as a source of inspiration or demotivation; in interviews, some learners claimed that peer pressure had negative effects on them, as proven by the fact that some of them repeated grades. Lockwood, Jordan and Kunda, (2002) classify role models into two categories: positive role models and negative role models. If the group chooses negative role models, they will not succeed in the future. Risky behaviors such as substance abuse and sexual activities have been shown to negatively affect school performance in a negative way (Gerbi et al., 2010). Peer groups are an important socialization agent because they allow the child to learn many skills: group interaction, conflict resolution, and trust building. Peer rejection during adolescence is a good predictor of social and academic problems (Buhmester & Furman, 1990). You can choose a friend, but not family; it is an individual choice to make a wise decision to choose good friends that may improve and make a commitment to do well in their academic performance. Educators and parents should be aware that peer groups provide a variety of positive and negative experiences for adolescents.
Time management

Being constantly late is ingrained in the culture of the Black community. From generation to generation, time management is a problem that keeps coming up. High rates of late arrival and persistent misses from the first period dominate in black schools. This implies that learners are not receiving adequate education and knowledge, which will negatively impact their performance in school. There is a link between psychosocial factors and the poor academic performance of Physical Sciences learners. Learners from different social and cultural backgrounds, with different experiences and different levels of education, bring with them different needs and academic potential (Gaxhiqi, 2023). Time management is also one of the major problems for learners. Most learners lack the ability to manage their time during their journey. Learners should balance study time and socializing time, as both are important in their lives. Some learners spend a lot of time on social networks instead of doing school work and studying. Learners should balance study time and socializing time, as both are important in their lives. Some learners spend a lot of time on social networks instead of doing school work and studying. Even during teaching and learning, learners chat with their friends.

A number of learners who attended school between 2000 and 2003 reported that spending too much time on social media had a negative impact on their academic performance (Dey, Tandon, & Soni, 2022). Most of secondary learners indicates their obsession with Facebook and social networking leads them to do poorly in school. The learners need to schedule their time well so they remain focused on their academic work. A learners' success depends on how much time they spend studying compared to time management. Research shows that learners who spend more time studying perform academically better than those who spend less or none at all. They can also use the internet and library to find up-to-date information. Time management, the absence of a study group, financial difficulties, attention issues, not asking teachers for assistance, and not knowing why they are struggling are some of the variables influencing learners' performance.

Parental Involvement

In a person's existence, parents are the primary socializers. Resilient Parental Networks, the educational success of children is influenced by the social networks of their parents. The transmission of learning is directly correlated with a helpful environment. The learner's family background has an impact on their performance, because parents usually encourage and help their children with their homework, the educational backgrounds of the parents have an effect on the performance of the learners. According to published research findings, parents with low levels of education often fail to provide their kids with adequate academic support, primarily because of their own inadequate educational background (“The Influence of Family Background and Parents’ Education Level on the Income of Their Children,” 2021).

A working parent may select the best schools to ensure that their children receive a high-quality education. Learners' academic performance may suffer as a result of obstacles to learning, engagement, and achievement brought about by the division between their home and school lives (Schulzes, 2017). Based on the history of the Republic of South Africa, most parents at some stage of their schooling years, as well as grandparents, would have been affected and disadvantaged by the previous government system. A pleasant atmosphere, collaboration and communication between educators, parents, learners, and the community at large are necessary for a productive learning environment. Sari and Munadi, 2017 revealed that inadequate learners’ performance is a result of a number of problems, including inconsiderate teachers, unstable households, and teenage pregnancies. A learner may perform poorly if they behave badly, fail to complete their assignments, and spend a lot of time outside of the classroom. In order to make it simpler to track and assess the learner's development and assess performance on a daily basis, parents should make every effort to maintain open channels of contact with both the school and the learners.

Fostering family communication and emphasizing both physical and mental support are two strategies to help adolescents' psychological health (Park, 2004). Approximately 80% of learners could not acquire help in the Physical Sciences from their parents (Dhurumraj, 2013). The majority of learners are not living with their biological parents; instead, they are staying with grandparents or parents who have never taken a Physical sciences subject in school (Mji & Makgato, 2006). This affects them psychologically. It is also difficult to establish who monitors their school progress. Learners coming from poor family backgrounds are not performing well because they lack home resources like books at home, educational study aids at home, a study desk, a dictionary, and a computer (Dhurumraj, 2013).

Researchers have discovered that learners who have more educated parents do better in school than those whose parents have less education (Bonk & Lee, 2017), because of time constraints, several parents who work in farms and other industries are unable to assist their children as much as they would like to. Although some parents find it difficult to attend school meetings and all school-related events due to time constraints, others may not perceive the value or necessity of doing so. Children are mentally impacted when they witness other learners whose parents attend meetings and some parents choose not to attend. The agreement emphasizes the necessity for families and schools to collaborate in order to achieve shared objectives and the shared accountability for each learner's academic progress (Dhurumraj, 2013). One of the major problems that SMTs are facing is the poor attendance of parents during meetings. Most parents do not attend school meetings (Rankoana, 2021). Furthermore, parents must know each and every development at school and achievements made by school, and they must also check the progress of their children to see if there are any challenges that must be resolved. If the parents are part and parcel of the school, they will also enjoy coming to the meetings, which will make a big contribution to the performance of their children.
Theoretical framework

The influence of psychosocial issues concerned with lack of involvement of parents, peer influence, language barriers, environment for learning and time management among grade 12 Physical sciences learners is viewed as a detrimental signal towards learners’ academic achievement. The positionality theoretical framework, which is the basis for this conceptual framework, provided guidance for this study. The positionality framework gives learners a foundation for how they categorize themselves in relation to choosing to major in science or not. Fear of failing is a reason why some learners choose not to register in science courses (Hamou-Lhadj & Lethbridge, 2010). Positionality is the intersection of individual and group positions where social and psychological phenomena work together to build individuals who are thought to be complex social, cultural, and psychological entities (Leander, 2004). In an attempt to locate them, the newcomers label themselves as either welcomed or rejected, positive or negative. (Holland et al., 1998). A classroom is such a situation where there is a healthy interaction between learners’ and teachers’ positionality with the construction and reformation of identities. Interactions display the identifiable type of placement, learners who have negative attitudes toward Physical Sciences do worse in math and science classes. Teachers also take into account how learners are positioned toward the subject. A deficiency of resources in classrooms has been shown to have a negative impact on both teaching and learning (Pringle & Martin, 2005). Teachers that are committed, industrious, and knowledgeable about their subject matter have a lot to offer all learners. In science and math classrooms, negative positioning can have a negative impact on learners’ identities as learners as well as classroom discourses. It is appropriate to take into account how teachers position their learners in science and math classes due to the nature of these relationships and the way identities are constructed, mediated, and framed through the preparation and execution of curriculum activities by teachers.

Research and Methodology

According to Mouton (1996), a research design is a collection of guidelines and rules that must be adhered to when solving a research problem. This research adopted a mixed-methods approach, utilizing triangulation design and combining quantitative and qualitative procedures. Researcher employ a one-phase strategy with equal weight between the dates that integrates the quantitative and qualitative methodologies (Barton, 2020). This triangulation of the psycho-social aspects as the primary contributing factors to the academic performance of grade 12 physical sciences learners strengthened the study. The purpose of this design is to use different data collection methods and integrate their data analysis to compliment on each other on the same topic in order to best understand the research problem (Whiting, Petty, Littlechild, & Rogers, 2022).

Sampling

According to De Vos et al. (2011), a sample is a subset of measurements taken from a population that the researcher is interested in, or it can be defined as parts or subsets of the population that are really considered for inclusion in the study. According to McMillan & Schumacher (2006), a purposive sampling method was used to choose the schools. Based on their performance in the Grade 12 Physical Science final results data during the preceding five years, the nine targeted schools were selected. The schools that had underperformed were identified by the ILembe district through a review of the Physical Sciences Senior Certificate examination results from 2013 to 2017. All schools that had received this designation were selected.

Method of data analysis

The completed questionnaires were submitted to a statistician for data to be captured and coded. Quantitative results were analysed using the Statistical Package for Social Sciences version 25 (SPSS). Analysis through frequencies and frequency percentages was done and expressed in tables and bar graphs. These were supported by statements collected from the respective participants about psycho-social factors affecting Grade 12 learners’ performance in physical sciences in the Mandeni circuit. The relationship between the psycho-social factors that affect performance was established. Under each theme, conclusions were drawn from the findings. (Maree & Pietersen, 2010). Qualitative data from interviews was tape recorded and transcribed. All the recorded audio files were transcribed verbatim and analysed using thematic analysis. Triangulation was then achieved by matching interview transcript responses with pre- and post-test written responses (Alabdullah, Whiting, Littlechild, & Liu, 2022), suggested that the interview transcript shed light on the sequencing and evolution of educators’ ideas.

Ethical and safety issues

Any research that is conducted must follow strict ethical and legal guidelines. Honesty and upholding respect for people's rights are two universal moral principles that must be followed. (“Humanity Without Dignity: Moral Equality, Respect, and Human Rights,” 2018). Since this study was carried out in public schools, all applicable ethical guidelines were followed. Permission to consider and pursue the following was requested: The KwaZulu-Natal provincial head of the department of basic education received a letter requesting for permission to conduct research in the chosen schools in the Mandeni circuit under the ILembe District. In order to obtain permission to conduct research in high schools within the FET band in the district, a letter was also submitted to the target schools’ principals, circuit manager, and district director. Participants were told about the procedure and informed of their ability to leave at any point in time if they were uncomfortable before being asked to sign a consent form. According to the principle of beneficence, the research project must benefit the participants and the community and cannot result in financial gain for the participants (Resnik, 2016).
Limitations of the study

Nine schools in the Mandeni Circuit of the ILembe District were the subjects of the research study, and while this was done on purpose, it is not possible to generalize the results to all of the schools in the KwaZulu-Natal province. The study was only applicable to Grade 12 Physical Sciences learners. Due to time constraints and the scope of the study, only 100 participants took part in the quantitative and 5 in the qualitative method on psycho-social factors as the key contributory elements toward the academic performance of grade 12 physical sciences learners in the Mandeni circuit under the ILembe District in KwaZulu-Natal.

Discussion

The high percentage for the learners that not sure about that most of Physical Science learners not further their studies (41.38%). These results indicate that learners do not border themselves thinking about further their studies, they just learn. Most Physical Sciences and Mathematics learners do not further their studies because they fail Physical Science and Mathematics in their final results that disadvantaged them, but the higher institutions implement bridging courses to accommodate Mathematics and Physical Sciences failures so that they can further their studies. Learners are performing poorly in Physical Sciences both in high schools and higher institutions. The majority (41.38%) of learners are not sure of what they are doing because they do not know whether they may qualify or not for higher learning. The schools are situated where considerable number of parents are illiterate to advice their children on which careers to follow. That can be a negative factor to the learners just learning Physical Sciences. The location of the school may not conducive for learners as many learners indicated from the interview that there is a lot of night clubs, they cannot concentrate on their studies because of too much noise to the surroundings and lot of strikes.

Figure 1: Most of physical sciences learners not further their studies

The quantitative findings compliment qualitative findings on how poor performance will contribute negatively on their Science journey. Some indicate that many learners end up dropping out of school. One of the learners interviewed remarked in the following manner:

“In my community there is a lot of dropout, asking me money to buy drugs also telling me that I think I am better than them, that affects me positively because I am working hard in my studies, so that I will be a better person compare to them. Improving me a lot, if I look at them their conditions that pushing me to do well, not taking any drugs but only my studies, I am happy that I did well in term 1, I will put more effort in term 2”.

Table 2: Interest in Physical sciences

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The quantitative results in table 1 indicate that 62% of learners are interested in physical sciences. Learners studying physical sciences need to demonstrate by their positive outcomes that they enjoy the subject; there needs to be a connection between their performance and their interest for the subject. The fact that 38% of learners selected physical sciences even though they dislike it is concerning. One element that may have an impact on their performance is their dislike of physical sciences during their studies. For learners to
be motivated to learn, interest is crucial. According to recent studies, learners' interest in physical science is declining ("Declining Interest in Science and Engineering Threaten Japanese Companies," 2008).

Interviews Responses

The following question was posed to grade 12 Physical Sciences learners: What is it about your community that affects your schoolwork or your progress?

Participants complain about strikes and noise in their community, which they say has an effect on their academic performance. They cannot concentrate. The following are some of the responses from those who took part in the interview:

P1: “In my community, there are a lot of strikes, people burning ties, blocking cars and buses, and also violent people; they are always fighting after they get drunk because there are a lot of taverns in my community. If there is a strike, I am not going to school and will miss some lessons. I am failing to concentrate if there is too much noise; people shout when they are drunk, and I think that can contribute to my poor results”.

P2: “The behavior of my community is not good; most people are on drugs, and there is a lot of noise in my community. People are shouting and moving up and down even at night. That increases the number of criminals. The behavior of my community goes a long way toward influencing learners to do the same, just as community is doing ends up changing others because you are surrounded by people with bad behavior. It is not improving me, and I am not happy about my results. But I do get support from some members my community; they ask me during report time whether I passed or not, always encouraging me to study and telling me that I must learn because this is the only thing I am left with and it will help me for the whole of my life as I was involved in the car accident and lost my arm. Now I am using one arm”.

P5: “I can’t study at home; I can’t concentrate because my neighbor always plays music from the morning until the sun sets. It’s so loud that you can’t even ignore it. It is affecting me very badly, and looking at my term 1 result is not good at all. No support from my community”.

One participant receives support from the community by being encouraged to study, but the community still faces issues: there is a lot of noise, some residents use drugs, and there is a high rate of crime, all of which can have a negative impact on a learner's performance and make the community not appropriate for studying. Because his neighbours makes a lot of noise every day, participant five finds it extremely difficult to focus when studying. This unpleasant environment is directly related to the learner's poor performance. Perhaps his home's location is unfavourable because it is not helping him with his schoolwork, despite the fact that he receives support from some members of his community while performing poorly. As their communities have a detrimental effect on their academic achievement, the majority of communities do not support learners in their studies that demonstrate that psycho-social elements affect learners’ performance. Community has a major impact on a child's education. A supportive atmosphere and a good home background typically help youngsters perform better academically (Jensen, Rouquier, Kreimer, & Croissant, 2008).

The following question was posed to Grade 12 Physical Science learners: How does your church affect you in your studies if you are a churchgoer?

These are some of their responses:

P5: “My church takes a lot of my study time. Every Tuesday and Saturday we meet to go door-to-door preaching on Saturday issuing (Phaphama), which makes me tired, and I can’t attend Saturday classes for mathematics and physical science. I always miss those lessons every Saturday that affect my school progress. I am sure that my performance will be better than this in physical science and mathematics. My church is against physical science; they say it opposes the Bible. So there is no support from my church; instead, they discourage me. They tell me that God is first and education is for the world, so I must put church things first”.

P2: “In my church, sometimes we attend teenager studies to learn about the Bible; they encourage us to do right things and focus on our schoolwork; I do get support from my church”.

P4: “There is a class I have to take to church to be a full member of the church, but the problem is that those classes take place every Wednesday afternoon and Sunday after the church. Every Wednesday afternoon I learn mathematics classes (Phenduka), so I decided to postpone the church thing because of time. I will attend it as I am about to finish my matriculation. No support from my church”.

He teaches door to door on Saturdays (Phaphama) every Tuesday and Saturday; nevertheless, he is unable to attend the Physical Sciences and Mathematics classes on Saturdays, which could have an impact on his academic achievement. If the learner needs a lot of study time, the religion seems to be a contributing factor to their poor academic performance. A child's growth is greatly influenced by their church attendance. Should the church fail to provide support, children will seek assistance from strangers and perhaps false information when they go out and look for it. The child will not achieve in any area of life, including school, if they are out of control due to psycho-social disorders; this is the root reason of dropouts. One participant indicated that there is no support from the church; instead, there are outstanding activities of the church that need to be done by the learner, as the learner doing Grade 12 does not have enough time to do those activities, which could be a factor in the learner knowing that he is left behind, which could be a factor in affecting him spiritually or psychologically.
The following question was posed to Grade 12 Physical Sciences learners: How do your friends affect you in your studies?

Some of the answers from the interviewees are listed below.

P1: Some of my friends do encourage me in my studies; some are discouraging; we have a very close relationship with my friends. I am happy with their behavior because we are able to discipline each other if someone in the group is doing the wrong thing.

P2: Some of my friends were left in grade 10, and some of my friends do encourage me because we are studying together. The relationship is very good with my friends, but sometimes I am not happy with their behavior.

P3: My friends affect me negatively; we play a lot with my friends, and even in the class we keep on laughing, which disturbs our concentration in the lessons. The relationship is very good with my friends, even though sometimes we do some mistakes, but we quickly resolve the problem. I am happy with my friend’s behavior.

P4: My friends do support me; we have competition to pass all the terms, but I am not happy with my friends’ behavior, especially in class when they make noise during teaching and learning.

The majority of participants complaining about the noise in their classrooms during lessons, which implies they are missing out on a lot of knowledge for their studies. There are several factors that could contribute to noise in the classroom. For example, learners may lack self-discipline, ignore Teacher instructions, or teachers may be unable to maintain control over and discipline in class during the teaching and learning process. This might have negative impacts on their poor academic achievement. Friends do offer assistance to certain participants. Although they share a nice relationship, the majority of them admit that they lack discipline and that they play a lot, even during class when the teacher is trying to educate. Lack of discipline in schools results in a lower standard of education (Okonkwo, 2010). This implies that their friendship is not helping them, which could be a factor in their subpar academic achievement because friendship is crucial to a teen’s life and they are easily impacted by others’ positive or negative actions. One of the participants says that they are unable to even have a conversation about physical science in their free time; instead, they chat about cell phones and new model cars. Because there is little interest in the subject, one would wonder why they selected physical sciences. If learners did not discuss their expectations as Physical Sciences learners and instead focus more on the other things, it can negatively impact their academic success. It goes without saying that their performance will be unsatisfactory regardless of how hard they try. Based on quantitative data, learners are indeed interested in physical sciences.

Conclusions

A number of underlying factors have been identified as psycho-social factors affecting Grade 12 Physical Sciences learners’ performance in Mandeni circuit under Ilembe district. The research conducted revealed that physical sciences learners need more attention from their parents, churches community, and school. The Department of Basic Education should establish programs to help Physical Sciences learners. Learners choose Physical Sciences for their status without considering their performance or the responsibilities that come with being a Physical Science learner. There is also a lack of discipline, especially in classrooms. Most learners indicated that there is a lot of noise in their physical science classes.

Recommendations

The Department of Basic Education should establish a policy that outlines the requirements or guidelines for selecting physical sciences as a subject for a particular field of study. In order to motivate learners and encourage them to present their ideas to influential people in the world of science, the Department of Basic Education should start campaigns and initiatives partnering with big companies and industries. The learners ought to visit the industries on a regular basis to see what goes on, gain exposure, and become acquainted with their careers. Companies and industry ought to award bursaries to high achievers in the physical sciences. This will encourage learners to work harder and raise their academic performance. Programs such as Science Expo should be launched to motivate learners studying the physical sciences to complete science projects, carry out research, and then present their findings. The winning group shall receive incentives to boost their motivation and cultivate a positive attitude toward the physical sciences, which will enhance their academic performance. The school management team (SMT) of secondary schools should collaborate closely with the stakeholders, primarily parents, in order to support creating a conducive learning environment at all times, which will raise the academic achievement of learners studying physical sciences.

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