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CONVERTING LEARNERS INTO ACTIVE STAKEHOLDERS, LEADERS AND MANAGERS OF CLIMATE CHANGE

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Abstract:

The purpose of the paper is to capacitate learners with knowledge and tools for mitigating climate change for economic sustainability and prosperity in schooling activities. The paper is conceptual and empirical in nature within the qualitative research paradigm. The question guiding this paper is: how can a sense of agency and accountability be triggered in learners to lead and manage the process of climate change for the economic sustainability and prosperity of their studies? Narrative enquiry and interviewing techniques were applied to generate data. Out of the population of 11 public secondary schools in Mopani South District, in Limpopo Province, South Africa, six were conveniently sampled. In each of the six sampled secondary school, a principal and a Chairperson of Learner Representative Council (LRC) became research participants. Findings revealed that a battle against climate change requires climate education. Secondly, holistic greening of the schooling curriculum needs to be prioritised. Thirdly, transforming the manner of the delivery content inside the classrooms is indispensable. Fourthly, encouragement of individual behavioural change to mitigate climate change is essential. Lastly, avoidance of climate change curriculum which is tokenistic in content has to be a pre-requisite. The researcher recommends for the encouragement of the climate-resilient generation within the youths. Furthermore, the researcher recommends for the embracing of inclusivity in climate change management

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1.0 INTRODUCTION AND BACKGROUND

Learners have a future to build, a future to salvage and brighten amid the disturbing climate change.[1] One of the solutions to mitigate against the adverse effects of climate change on learners is the capacitation of learners with knowledge and tools for coping with climate change disruptions to schooling. Hence, the title of the paper centres around active involvement of learners as stakeholders, leaders and managers in that regard. In recent years, climate change has become a major global concern.[2] Climate change could be explained in meteorological connotations and contexts. This suggests that the climate of a place could be described as its rainfall, temperature during a specified period, including a day, a week, a month, a year, as the case may be. In all fairness, the concept of climate change is, in most instances, associated with negativity as regards climate. Upon hearing its pronouncement, a negative feeling instantly develops about the imminent or the current unpleasant climate.[3] Any endeavour sidelining the involvement and participation of youth in it is not likely to garner adequate support for its success. Contributing to mitigating the adverse effects of climate change for economic sustainability, requires the large-scale involvement of learners. This could be done through the promotion of climate change literacy. Involvement of every stakeholder, inclusive of youths, in the quest to bring climate change under control is part of meeting the demands of the rapidly changing world. There is an argument that making the management of climate change an inclusive process is part of challenging an outdated practices and replacing them with new ideas represented in youth participation. By implication, confronting the colossal challenge of climate change requires that no one has to be left behind, be they the elderly, the youth, the women or people with disability. Equally, since the management of climate change leads to economic sustainability, it directly affects the upliftment and prosperity of everyone. This signifies that involvement in climate change always requires humility, courage and vision of the participants or practitioners. Building a vibrant and resilient community of learners could assist

[1] N S Modiba, 'Lecture notes' (2025) Polokwane: University of Limpopo

[2] M L V Shammah and B M Diale, 'The profession of psychology: A systematic review of its uses and implications for African sustainable development' (2020) (18) 3 Gender & Behaviour Journal 181, 194

[3] F E Clement and W E Shelford, 'Bi-ecology' (1939) New York: John Wiley & Sons, Inc

immensely in the battle for the challenge of putting climate change under control.[4] When left unmanaged and unchallenged, climate change has the potential to hinder community development and growth through economic sustainability.

Evidently, grappling with climate change by every resident of this planet becomes a moral imperative. This is the case because on the one side, succeeding to put under control climate change is about putting one eye on the future. Involving everyone, inclusive of youths or learners, in the battle against climate change is about disabusing the communities from the mind-set that dealing with climate change is the sole prerogative of the government alone and unaided. There has always been a need to include everyone, particularly learners in the management of climate change to mitigate its adverse effects.[5] Such a plan has always been part of the school realization of year 2025 government objective. The strategy of improving learner performances by overcoming the weaknesses in the educational system needs to incorporate contributing to the management of climate change. Among others this could be done through improving access to education, providing safe buildings, providing learning and teaching materials promptly and by improving educator quality.[6]

When victims of climate change- related inconvenience are being enumerated, learners are likely to be in their midst. On that basis it makes absolute sense to ascertain that learners remain part and parcel of managing climate change for economic sustainability and prosperity purposes. This is the context within which this paper has to be comprehended. This signifies that when being ignored, climate change could threaten the national stability and prosperity of the citizenry. Climate change education has to be embedded in the education system, the reality that could be addressed by medium-term expenditure framework in the contexts of budget –cuts. For instance,[7] South Africa spent R227 billion which was about 19.7 per cent of total government expenditure on education, equivalent to 6.5 per cent of GDP. Also, the components of South African education and their allocated shares of funding for the period 2010/11 to 2016/17 was illustrated.[8]

[4] M Waldinger and S Frankhauser, 'Climate change and migration in developing countries: Evidence and Implications for PRISE countries' (2015) London: United Kingdom

vice versa schooling outcomes does not always compare favourably with other developing countries. The same goes for the incorporation of climate education in the schooling syllabi to capacitate learners to acquire knowledge and tools of confronting the effects of climate change without endangering themselves and others. Apart from the introduction, this paper comprises six sections which are literature review, problem statement, research design, discussions of the gaps, required area of law and policy reform and recommendation and conclusion. The section on literature review seeks to reveal what has already been done as regards climate change and sustainable development. That of problem statement unveils the nucleus or heart of this paper. The section on research design covers the methodological aspect of the paper. The section on the discussion of the gaps reveals the findings accessed from the research participants. The section on required area of law and policy reform shares how laws and policies are underutilised to curb unsustainable development. The last section on recommendation and conclusion winds up the paper through offering suggestions as regards the way forward on the colossal dilemma of climate change.

2.0 THE CONCEPT OF CLIMATE CHANGE: A REVIEW OF LITERATURE

Converting learners into active stakeholders, leaders and managers of climate change can yield better results when being informed by the review of appropriate and relevant literature. Literature study unambiguously reveals that climate conditions do affect behavioural changes and interpersonal relations of human beings. This is likely to be common and observable with learners, the bulk of whom are either at the teenage or adolescent stage of growth. The message gleaned from the shared statement is that inclusive management of climate change of everyone, for economic sustainability and prosperity of the nation, is essential, considering that it could fracture the personalities of the citizenry. The question to pose is: whose personalities are fragile and vulnerable? The answer is the youth or learners. On that basis, their inclusion in the management of climate change is not a displaced intention or ambition. The review of literature unveils that owing to climate change, there could be human casualties and the displacement of communities. That is automatically likely to affect learners' schooling

activities. The aftermath of that is likely to be the reintegration into normal communal life which has to occur as part of the rehabilitation process. Literature review emphasises that one of the reasons why youths or learners have to be made an integral part of managing climate change for economic sustainability is as a result of climate being a critical factor in the schooling activities of learners for instance much as the change of climatic conditions is having a potential of affecting behavioural conduct of learners, it could bring about a conflict-ridden engagement between learners and their teachers.[9]

This in itself underscores the need to convert learners into active stakeholders, leaders and managers of climate change so that its occurrence should not destabilise their schooling activities. Failure to contain the adverse effects of climate change on schooling could lead to the disruption of producing brilliant academic learner performance by scholars. The study of literature highlights that climate change poses serious existential challenges to human beings of diverse ilk, inclusive of learners. Flooding could be part of climate change, and its impact on learners could become visible as learners lose schooling time due to their failure to access the education sites.[10] This suggests that the term climate change could be inclusive of the connected system of the sun, earth, oceans, wind, rain, snow, forests, deserts and savannah together with everything people do. In addition, the climate of a place incorporates the rainfall and temperatures during a specified period, including during the day, during the week, during the month and during the year as the case may be. Clearly, climate change could be explained in meteorological contexts. For example, flooding could be part of climate change and could disrupt schooling for learners unless they are adequately capacitated to respond to its occurrence. Literature review is not mute to the point that the destruction of schooling infrastructure as a result of climate change cannot be ignored. The study of literature identifies some aspects of climate change that are too serious to ignore due to their potential of disrupting the education of learners especially where pupils are not sufficiently capacitated to deal with it. Those aspects of climate change include floods, heat waves, desertification, violent winds, outbreak of diseases, and food insecurity. Each of the identified aspect of

[10] Department of Education (DoE), 'Guide for Parents: School Fees in Public Schools' (2012) Pretoria: Government Printers

climate change impacts on learning in a unique way, either individually or collectively. The study of literature reminds of other environmental consequences of climate change that have a potential to harm learning to be inclusive of the cyclones and the rise of sea levels that trigger floods. The learning process could equally suffer as a result of extreme temperatures, drought, wild fire, extreme heat as well as any other form of extreme weather. This is inclusive of oceans that could become extremely hotter than normal, where there will be consequences of that condition. Among others that could to the destruction of human life and property, apart from being a major threat to agriculture.

Those unpleasant weather conditions could increase warmer temperatures, create a warmer atmosphere and can as well pollute the atmospheric air. The question to pose is what has this to do with learners/ The answer is that any form of climate change will always have something to do with learners, considering that they have a future to protect and to brighten for the economic sustainability of the country.[11] That climate change affects behavioural patterns of learners signifies that it is ever essential to pay attention to it for the sake of impressive and sustainable learner performance with regard to their schooling activities.[12] That is why a strong argument is needed about converting learners into active stakeholders, leaders and managers of climate change for economic sustainability purposes.

The review of literature emphasises that the ideal schooling system has to take place in a well-equipped building, with a well-thought-out curriculum in terms of scope and sequence, a set platform for the culture of teaching and learning, provide adequate material inputs and provide highly qualified and well-paid educators. However, it was found that,[13] where there is an emergence of climate change, be it in the form of the outbreak of diseases like the outbreak of the recent Covid-I9 pandemic academic learner performance is likely to be compromised. One of the survivalist strategies is the capacitation of learners with knowledge and

[11] Department of Education (DoE), 'P4 Circuits Performances 2009 -2015' (2015) Pretoria: Government Printers

[12] Department of Education (DoE), 'Recognition and Evaluation of Qualifications for Employment in Education' (2000) Pretoria: Government Printers

[13] S Masondo, 'Education in South Africa: A system in crisis' City Press (31 August 2016)

tools of mitigating climate change for economic sustainability. In view of the diversity of the schooling conditions, in South Africa, there are learners staying far away from their schools. Some of them require scholar transport to access their learning institutions. The challenge erupts after there was a climate change which ends up distorting the transportation and infrastructure and thus disrupt schooling. On the basis of that, there should be a way forward of addressing climate change in line with the economic sustainability of the nation. The review of literature stresses that climate change related issues deserve to be addressed including the destruction of human life and property. Disturbance of schooling activities of learners falls within this category.

There is a strong need to counteract the effects of climate change-related issues like the violent behaviours of both learners and their teachers. Countenancing the effects of climate change-related issues and allowing them to co-exist with schooling stability and harmony is likely to jeopardise the delivery of quality education to learners,[14] which immensely contributes to the economic sustainability of the country.[15]

Literature study stresses that climatologists could help in understanding the climate and getting ready for the worst climatic conditions that end up disrupting schooling. Such unpleasant climatic conditions require the immediate involvement of learners in their mitigation as active stakeholders, leaders and managers of climate change. Among others, climatologists could suggest the conduct of interdisciplinary research on climate change-related issues as a way of better equipping learners to protect their future against the ruin of climate change.[16] Most critically, climatological information is necessary to understand the change of behavioural patterns of people as triggered by the change of climate. Literature study is emphatic on the value of researching what is behind the experienced climate change as a way of bridging the gap between

[14] M Makgato and A Mji, 'Factors associated with high school learners' poor performance: a spotlight on mathematics and physical science' (2006) 26 (2) South African Journal of Education 253, 266

[15] Department of Education (DoE), 'School Realities 2013: Special Needs Education' (2013) SNAP Surveys, Pretoria: Government Printers

[16] E A Hanushek, 'Education production functions' (2008) The New Palgrave Dictionary of Economics (2nd edn, Palgrave Macmillan)

what scientists already know the change of climate change and what the general public believes. An up-to-date knowledge of the state of affairs regarding climate change of climate better assists in capacitating learners with the knowledge and tools of mitigating the experienced and the witnessed climate change. For instance, there could be an increase in interpersonal violence within learners themselves, learners and teachers and learners and other incumbents of the learning institution. All these could result from climate change. A scientific knowledge of research as conducted by climatologists could become very handy in clarifying these strange behavioural patterns by institutional incumbents, which is traceable from climate change. Schooling and violent behaviour, whether by whom, do not go together. As already indicated, in this context, it will be violent behaviour owing its origin to the change of climate, which is said to impact the interpersonal relations of people violently. Research contained in the literature reviewed indicates that a rapidly warming climate could lead to a high level of violence.

This has adequate implications regarding the need to convert learners to be active stakeholders, leaders and managers of climate change. Literature study accentuates the fact that failure to involve learners in the challenge of climate change could make it difficult for schools to equip learners with knowledge and tools for managing climate change for economic sustainability. What is worse is that, when learners are in a violent mood, they are unlikely to be sufficiently teachable. The review of literature stresses the need for more studies to be conducted on the linkage between climate change and the violent behaviours of learners. Literature study reveals that learner performance results could be greatly affected by climate change.[17]

Since 1994, there has been a disappointing schooling outcome, referring to matric pass rates in South Africa. This problem has been witnessed at the national level and is also true in the diverse provinces of the country. programmes and propositions have been documented and deployed in the past, which were intended to improve the devastating schooling outcomes, some of which were triggered by the change of climate. There has been a massive budget allocated to the Department of Education with

[17] T Ncanywa, 'The state of the Eastern Cape schools in a period almost the second decade of democracy' (2014) ERSA working paper 486

no positive results yielded up to far, especially in subjects such as Mathematics, Accounting and Physical Sciences, compared to a small budget of other developing countries. The steep improvement in South African test scores observed for the uppermost quantiles is not particularly impressive in a regional context. In conclusion, learners in Tanzania and the Seychelles achieve better results compared to South Africans.[18] One of the likely causative factors could be how those learners are made to be an integral part of managing climate change for economic sustainability, especially where the change of climate has a share in the poor results produced by schools.

For instance, in the 2003 Trends in International Mathematics and Science Study (TIMMS), the Grade 8 Mathematics scores for both former black and former white schools were below the international average. The review of literature depicts that in fact, South Africa's score was the lowest of all 53 participating countries; even the other five much poorer African countries in the study outscored South.[19] policy attention in South Africa has been increasingly focusing on what is by now clear evidence of unacceptably low levels of learner performance across the bulk of myriad African schools as and when the change of climate that affects schooling occurs.[20] This paper aimed at capacitating learners with knowledge and tools of mitigating climate change for economic sustainability.[21] In an event where the adverse effects of climate change are put under control, learner outcomes are likely to rise. The reason could be that the change of climate which has the potential of disrupting schooling, would have been dealt with appropriately.[22] by virtue of the change of climate affecting the behaviour of learners in an educational system, it remains logical to attempt to convert learners to be active

[18]S Van der Berg and M Low, 'Unravelling the mystery: Understanding the South African outcomes in the regional context' (2006) Stellenbosch: University of Stellenbosch.

[19] N Taylor, J Muller and P Vinjevold, 'Getting schools working' (2003) Cape Town: Pearson Education

[20]M Gustaffson, 'Using the Hierarchical Linear Model to understand school production in South Africa' (2007) Working paper of the Department of Economics and the Bureau for Economic Research at the University of Stellenbosch 01/07.

[21] Department of Education (DoE), 'Report on the Annual National Assessments of 2013' (2017) Pretoria: Government Printers

[22] R W Shephard, 'Theory of Cost and Production Functions' (1970) Princeton, NJ: Princeton University Press

stakeholders, leaders and managers of climate change for economic sustainability and prosperity of those pupils.

The study of literature persistently stresses that nothing about learners without learners. This is to signify that, much as pupils are affected by the change of climate, it makes sense to involve them in any process of mitigating the change of climate to their schooling activities.[23] The shared reasoning contains the message that as long as it takes a village to raise a child, or a learner, it is equally expected that it takes a learner to allow himself or herself to be made an active role player of mitigating the disruptive nature of climate change to the schooling future of learners. The study of literature is vocal on how learner accountability is of the essence to successful management of climate change for schooling sustainability and prosperity of every learner, especially this century.[24]

As emphatically stated by scholars, the involvement of ordinary people, inclusive of learners,[25] in managing climate change for the economic sustainability of the nation is of the essence because climate change affects everyone, although in different ways and at different degrees.[25][26]

Since human beings cannot stop the occurrence of climate change other influence its occurrence, they have a weapon in being proactive through management and leadership of climate change in the form of an active stakeholder role.[27] Climate change management and leadership have to be made to transcend the climate-focused platforms,[28] some of which have the tendency of excluding the core stakeholders, namely, learners, without which efforts to contain the climate change adverse effects could be less impactful and less meaningful.[29]

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[23] E A Hanushek, 'The failure of input-based schooling policies' (2003) 113 (5) The Economic Journal 85, 97

[24] J Dewey, T A Husted and L W Kenny, 'The ineffectiveness of school inputs: A product of misspecification?' (2000) 19 (1) Economics of Education Review 27, 45

[25] J S Coleman and others, 'Equality of Educational Opportunity' (1966) Washington, DC: US Government Printing Office.

[26] ibid

[27] E A Hanushek, 'Conceptual and empirical issues in the estimation of educational production functions' (1979) 14 Journal of Human Resources 351, 388

[28] A B Krueger, 'Experimental estimates of education production functions' (1999) 114 Quarterly Journal of Economics 497, 532

[29] ibid

3.0 PROBLEM STATEMENT

Converting learners into active stakeholders, leaders, and managers of climate change is an arduous task to execute with success.[30] Considering the undeniable and the natural diversity of learners in education institutions and the different schooling conditions defining their learning sites,[31] then the problem of capacitating those learners with knowledge and tools for mitigating climate change for economic sustainability and prosperity of their studies can no longer be taken for granted. In a nutshell, this summarises the statement of the problem of this paper. To put the statement of the problem more succinctly, the question guiding this paper follows. The question guiding this paper is: how can a sense of agency and accountability be triggered in learners to lead and manage the process of climate change for the economic sustainability and prosperity of their studies? It was stressed that learners with a functional and proactive spirit of agency and accountability in relation to mitigating the adverse effects of climate change as affecting their schooling activities stand to make an immense contribution to salvaging their future against being ruined by the change of the climate.[32]

3.1 Research Design

This qualitative paper employs the case study design. Where there is climate change, which is known to be affecting the behaviour of learners, pupils could struggle with performance in their everyday schooling activities. As part of the methodology, out of the population of 11 public secondary schools in Mopani South district in Limpopo Province, South Africa, six were conveniently sampled. It deserves to be justified that the

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[30] H Bhorat and M Oosthuizen, 'Determinants of grade 12 pass rates in the post- apartheid South African schooling system' (2006) ASGISA 18-20 October 2006 Conference

[31] E M Kimani and H Bhorat, 'The effects of pupil-teacher ratio and expenditure per pupil on educational attainment in South Africa' (2014) unpublished paper http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/AEC_2014 accessed 2 September 2025

[32] S D Ghazvinia and M Khajehpoura, 'Gender differences in factors affecting academic performance of high school students' (2011) 15 Procedia Social and Behavioral Sciences 1040, 1045

case study nature of the paper necessitated that at least half of the population be sampled for studying. This is exactly what the researcher has done in this paper.[33] In each of the sampled secondary schools, a principal and a Chairperson of the Learner Representative Council (LRC) became research participants. A narrative enquiry and the interviewing technique were applied as data collection tools.[34] Research participants were offered an opportunity to narrate their experiences on the involvement of pupils as pivotal stakeholders, learners and managers of climate change to mitigate its effects in disrupting their schooling activities. Apart from sourcing the narration of research participants as regards climate change and its adverse effects on behavioural change of learners in secondary schooling, research participants were exposed to face-to-face interviews to share their views regarding active stakeholder, leader and manager roles in climate action and responsibility issues as affecting schooling. Only Chairpersons of the Representative Council of Learners were interviewed on mitigating climate change to blunt its severity against schooling and the bright future of learners.[35]

The choice of Chairpersons of the Representative Council of Learners for interviewing was based on being legitimate representatives of learners in schools, and also due to being on the ground and therefore, likely to be up to date as regards what prohibits or facilitates good learning by pupils in relation to climate change.[36] In the six sampled secondary schools, the gender of research participants was three female and three male school principals, as well as three female and three male Chairpersons of the Representative Council of Learners.[37]

This was decided upon as a measure of ascertaining that there was equitable distribution of all genders around the issue under discussion,

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[33] D Clark and A L Ramsay, 'Problems of Retention in Tertiary Education' (1990) 17 (2) Education Research and perspectives 47, 59

[34] E Eddy, 'The Involvement of Cognitive Process in the Acquisition of English Grammar by Slovak Learners' (2011) University of Slovakia

[35] P M Lightbown and N Spada, 'How Languages are learned' (1993) United States of America: Oxford University Press

[36] H Holmlund and K Sund, 'Is the Gender Gap in School Performance Affected by the Sex of the Teacher?' (2005) Swedish Institute for Social Research (SOFI)

[37] E M Aucejo and T F Romano, 'Assessing the Effect of School Days and Absences on Test Score Performance' (2014) CEP Discussion Paper No 1302

namely, climate change and behavioural change of learners at schools. An interview schedule was prepared in advance, where each category of research participants faced similar interview questions. This is to signify that all school principals responded to similar research questions. This was also the case with all Chairpersons of the Representative Council of Learners.[38] They all faced similar research questions irrespective of being sourced from diverse schooling backgrounds and contexts. The schedule was piloted with other secondary schools to determine its weaknesses and to remedy them timely. An audiotape was employed to record the voices of research participants when narrating and being interviewed. As regards how the collected data were analyzed, the researcher employed two methods of data analysis. Those qualitative data analysis methods are the thematic content analysis and the constant comparative methods. It has to be noted that the selected qualitative data analysis methods create a better synergy with how the data for this paper were generated. Analysis of data commenced when data collection started, and it was concluded immediately that there were indications of saturation with the generated data.[39]

3.2 Discussions of Gaps

Findings arrived at in this paper are in relation to the research topic, whose focus is capacitating learners with knowledge and tools of mitigating climate change for economic sustainability and prosperity in schooling activities. Climate change affects almost everyone, which, on the part of pupils, it tends to influence their behavioural change.[40] The basis of the findings is the analyzed data, which were generated through the narrative enquiry and the interviewing technique.[41] Narration secured from the 12 research participants who were in the form of six school principals and six Chairpersons of the Representative Council of Learners, sourced from the six public secondary schools in one of the

[38] P Walla, 'Effect of age and gender on children's reading performance: The possible neural underpinnings' (2015) University of Thessaly, Argonafton and Filellinon. 38221 Volos. Greece

[39] Ghazvinia and Khajehpoura (n 32)

[40] G Gaete-Romeoy, 'Follow the Leader: Student Strikes, School Absenteeism and Long-Term Implications for Education Outcomes' (2017) Job Market Paper

[41] M Balkis, D Erdinc and G Arslan, 'The School Absenteeism among High School Students: Contributing Factors' (2016) Research-gate 307088341

districts in Limpopo Province, South Africa, were analyzed in relation to mitigating climate change towards secondary schooling.[42]

As part of discussing the findings clearly, the researcher clustered them into four themes. The choice of the six secondary schools was on the basis of them currently experiencing behavioural change of learners, which is attributable to the change of climate.[43] Research participants in the sampled schools are being referred to as School Principals A to F and RCL Chairperson A to F. A to F denotes schools 1 to 6 for each category of research participants.[44] The researcher familiarized himself with issues of behavioural change by learners ascribed to climate change by learners during the interaction with participants when he was carrying out other research projects there. In some of the research projects, the very same research participants were active research respondents.[45] On the basis of the intimacy between the researcher and those research participants, it was easy for the researcher to know research participants who were likely to have adequate information about climate action and responsibility in relation to secondary schooling.[46] The Complexity Leadership Theory and the qualitative research approach have been very instrumental in assisting in the analysis of data,[47] to ultimately emerge with these findings.[48] Findings and discussion for this paper are the following: the battle against climate change requires climate education, holistic greening of school curriculum needs to be prioritized, transforming the manner of

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[42] S Khoza, 'Socio-economic rights in South Africa' (2007) Bellville: Community Law Centre

[43]L V Hedges and R Greenwald, 'The Relation between School Resources and Student Performance: The Effect of School Resources on Student Achievement and Adult Success' (1996) Washington, D.C: Brookings Institution Press

[44] S Van der Berg, 'Apartheid's enduring legacy: Inequalities in education' (2007) 16 Journal of African Economies 849, 880

[45] M C Ndlovu, 'University-school partnerships for social justice in mathematics and science education: the case of the SMILES project at IMSTUS' (2011) 31 South African Journal of Education 419, 433

[46] M Van der Walt and others, 'A mathematics vocabulary questionnaire for use in the intermediate phase' (2008) 28 South African Journal of Education 489, 504

[47] R Baker and A Jones, 'How can international studies such as the International Mathematics and Science Study and the Programme for International Student Assessment be used to inform practice, policy and future research in science education in New Zealand?' (2005) 27 International Journal of Science Education 145, 157

[48] N Khumalo, 'Some Implications of the Quintile School Funding in South Africa' (2014) Stellenbosch: University of Stellenbosch

the delivery of content inside the classroom,[49] encouragement of individual behavioural change to mitigate climate change and avoidance of climate change curriculum which is tokenistic in content.[50]

3.2.1 The Need for Climate Education

The involvement of learners in the project of mitigating climate change against their schooling activities is more than indispensable.[51] These results from the reality that it is learners themselves who could, with much ease, become the victims of climate change. On that basis, their involvement in mitigating the disruptive character and nature of climate change is indeed never far-fetched. School Principal D of School 4 contends that "*the best way to successfully promote awareness in climate change on the part of learners is to expose them to climate change education so that those learners could taste the value of being an integral part of mitigating climate change in relation to their schooling enterprise*". RCL Chairperson B of School 2 remarks hat "*knowledge is always power referring to the need to avail climate education to every learner so that the business of mitigating climate change in relation to schooling activities is truthfully owned by every learner*". The researcher completely endorses the viewpoints of the research participants, considering that the literature reviewed for the sake of this paper is as well in alignment with those responses. The utterances of the research participants point out to the evident fact that climate education is more than necessary for every learner at school.[52]

3.2.2 Holistic Greening of School Curriculum

It is essential to get the 21st-century schooling curriculum re-worked to be aligned to the current epoch, which demands the minimal burning of fossil fuel to avert severe catastrophe orchestrated by climate change.[53] By implication, the type of schooling curriculum being rolled out in South African schooling and globally deserves to be intensively and

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[49] Baker and Jones (n 47)

[50]N Spaull, 'Equity and Efficiency in South African Primary Schools: A preliminary analysis of SACMEQ III South Africa' (2012) Stellenbosch Economic Working Papers No. 11)11.

[51]Bhorat and Oosthuizen (n 30).

[52] Ibid

[53] Ghazvinia and Khajehpoura (n 32)

extensively revised to incorporate a recently surfaced dilemma of climate change, which affects almost every facet of human life, including behavior, especially of learners. On the stated matter, School Principal E of School 5 captures the above point succinctly when maintaining that "*the era of proceeding with the previous year's curriculum, which is totally and completely detached from climate action and responsibility, is not now in this 21st century*".

The very same idea although articulated in different words is being shared by RCL Chairperson C of School 3 when indicating that "*the greening of the present schooling curriculum is practically speaking hugely belated considering the havoc which climate change has started wreaking especially in provinces such as Kwazulu-Natal where even His Majesty, the King there is calling for the climate change summit to collectively emerge with a durable solution to the problem of climate change to communities".* The researcher is fully in support of the position of research participants who are pushing for the holistic greening of the school curriculum.[54] The views of the research participants demonstrate plainly the absolute need for schools to roll out the holistic greening of the school curriculum, which is better in line with the 21st century. It has to be emphasized that this is the kind of schooling curriculum likely to succeed in capacitating learners with knowledge and tools of mitigating climate change for economic sustainability and prosperity of their schooling activities in the 21st century.[55]

3.2.3 Encouragement of Individual Behavioural Change

As opined by scholars, no contradictions as climate change leads to the behavioural change of learners, and when a call is being made, directed to learners to be amenable to change triggered by the change of climate.[56] By implication, any form of positive behavioural change by learners is most welcome because such changes are likely to facilitate learning inside a classroom. The challenge emerges as learners display counterproductive behavioural changes inside a classroom that are ascribed to the change of climate. On this matter, School Principal A of

[54] Lightbown and Spada (n 35)
[55] Walla (n 38)
[56] Balkis and others (n 41)

School 1 avers that *"any form of behavioural change by learners that makes them more teachable than in the past, as a result of the alterations brought about by the change of the climate have to be greatly encouraged and supported for such positive learner changes could advance them other than retarding their individual scholastic development"* On the very same issue, RCL Chairperson F of School 6 affirms that *"where changes of bebaviour visible from learners are future-oriented instead of being backward in nature, learner progress in terms of their studies could be anticipated and in that context, the change of climate would be said to have had a positive and forward influence on learners".*

The views of the two research participants are unanimous in expressing appreciation for positive individual learner changes that are known to trigger teachability and a meaningful attitude on the part of learners inside and outside a classroom.[57] The researcher, as an advocate of the scholastic progress of every learner, takes pride in climate change influencing every learner to display impressive behavioural change that facilitates optimal learning inside and outside the classroom.

3.3.4 Avoidance of a Tokenistic Climate Change Curriculum

Tokenistic climate change school curriculum deserves to be frowned upon, considering that it delays rather than fast-tracks the capacitation of learners with knowledge and tools of mitigating climate change for economic sustainability and prosperity in their schooling activities.[58] The very same point is immaculately captured by the School Principal A of School 1 when reckoning that ""*there is a great likelihood of some education systems taking a short cut of emerging with the non-holistic greening curriculum that will be tokenistic as regards preparing learners to confidently face the challenges of the change of the climate head-on and boldly overcome them to allow prosperous schooling to thrive*". RCL Chairperson B of School 2 resonates with what has already been uttered in stating that "*tokenistic climate change curriculum is as bad as no climate change curriculum due to underpreparing learners to successfully cope with the dynamics and complexities of the change of climate that stand to wreak a havoc in disrupting the schooling activities of learners".*

[57] Spaull (n 50)
[58] ibid.

The researcher admits that it is through the curriculum rolled out in schools that worse lives by some learners could be transformed into the best lives, as long as no amount of tokenistic curriculum is entertained in schooling. As attested by the presented views of the two research participants, the complexity of the change of climate requires that any form of tokenistic climate change curriculum be put in abeyance due to its inability to equip learners with knowledge and tools for mitigating disruptive climate change in the schooling activities of learners.[50][59] To sum up, climate change has the potential of being disruptive as long as adequate attention is not paid to it.

4.0 REQUIRED AREA OF LAW AND POLICY REFORM

Unsustainable development deserves to be curbed. One of the ways of dealing with it is through the good application of the sustainable development laws and policies that address themselves to climate change. For instance, climate change laws and policies have to clarify how the different fields and sources of law merge in the quest to find long- term solutions for the causes and impacts of unsustainable development, the ecological crisis and the related persistent injustices experienced in the Global North and South. Considering that overcoming climate change is a mammoth task requiring the involvement of every actor inclusive of learners, an area of law and policy requiring reform has to be where adequate emphasis is placed on cooperation, accountability and commitment of multiple actors from both the Global North and South for sustainable development purposes. Sustainable development laws and policies need to stress the intersection between climate change and the 17 sustainable development goals against the background of evolving legal concepts such as environmental constitutionalism, earth systems law and climate justice.

5.0 RECOMMENDATION AND CONCLUSION

As demonstrated in the article, sustainable development measures in relation to climate change require the involvement of every category of stakeholders, including secondary school learners who have to be transformed into real active stakeholders. On that basis it is

[59] ibid.

recommended that secondary school learners in Mopani district and beyond Limpopo Province and South Africa deserve to be capacitated with knowledge and tools of mitigating climate change for economic sustainability and prosperity through their schooling activities. This stems from the reality that climate change affects everyone, particularly these learners, in terms of leading to behavioural change on their part. The review of literature and the findings have abundantly demonstrated that the change of climate could be very disruptive to schooling and, as such, requires learners who can respond as required to mitigate its adverse effects on the schooling project. Only learners who were successfully converted into active stakeholders, leaders and managers of climate change, are likely to contribute to the mitigation process so that the schooling project is not disturbed by the natural or human activities triggering the change of climate. In addition, the researcher recommends the need to prioritise climate change curriculum in schooling so that all learners are made aware of the destructive nature of the climate change in their lives and schooling activities. Moreover, there is a dire need to subject the current schooling curriculum to holistic greening so that in its entirety, the curriculum could contain adequate parts of the change of climate to capacitate learners for the future. Furthermore, tokenistic climate change curriculum within the current schooling has to be discouraged as it may not sufficiently equip and empower learners to be proactive during the tough climate change periods. Finally, there is a need to encourage the climate-resilient generation within the youth, as they are the future of this planet. The need to keep the process of mitigating against climate change very inclusive cannot be overemphasised enough. This is the original contribution which this paper seeks to make to the debate of economic sustainable development through schooling. In conclusion, considering that this paper focused only on one education district in Limpopo Province, South Africa, it is vital and vey essential that similar studies be carried out in other education districts of the province and beyond, to explore the impact of capacitating learners with knowledge and tools against mitigating the adverse effects of the climate change for economic sustainability and the prosperity of schooling activities of learners.