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Toward an innovative cooperative learning framework to counterbalance the effects of overcrowded classrooms

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Abstract

The detrimental impact of overcrowded classrooms on the effective implementation of cooperative learning necessitates an extensive discussion on this topic. Interconnected issues of inadequate infrastructure, insufficient schools, and a shortage of teachers, exacerbates the problem of overcrowding. The high rate of learner enrolments further aggravates the issue. This conceptual paper aims to address these challenges by means of the cooperative learning theory and thematic analysis of an educational policy. The objective is to propose an innovative cooperative learning framework to mitigate the dire consequences of large classes in schools. Through an examination of the “National Policy for an Equitable Provision of an Enabling School Physical Teaching and Learning Environment (1996)”, this analysis highlights the importance of school infrastructure for ensuring an optimal learning environment, adequate classrooms that provide safe spaces for learning, creating constructive teaching and learning environments, curricula and pedagogical

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reform and communities as critical contributors to schools as a transformative instructional pedagogy to mitigate the detrimental effects associated with overcrowded classrooms. By adopting an innovative cooperative learning framework, schools and teachers would have a fresh perspective on overcrowded classrooms, with the hope of promoting effective teaching and learning practices throughout educational institutions.

Keywords: *cooperative learning, inadequate infrastructure, insufficient schools, overcrowded classrooms, transformative pedagogy, cooperative learning framework*

5.1 Introduction

Children have a right to education, as outlined in the South African Constitution Section 29 (RSA, 1996a); a notion that is supported by the Sustainable Development Goal (SDG) 4 which refers to ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all. As education transforms lives and is at the heart of Educational, Scientific, and Cultural Organisation's mission *to build peace, eradicate poverty and drive sustainable development*, good and unbiased delivery of instruction and working towards means for learning and beyond by 2030 is vital (UNESCO, 2017). This notion is all very well, but education in South Africa faces a myriad of challenges that contribute to overcrowding. These factors encompass a range of interconnected issues, such as insufficient schools, inadequate infrastructure, a shortage of suitably qualified teachers, lack of subject specialists, inadequate infrastructure within schools and increasing learner enrolment. Overcrowded classrooms have led to poor performance of learners, as evidenced in national and

international assessments such as the Annual National Assessment (ANAs), The Southern and Eastern Africa Consortium for Monitoring Educational Quality, Progress in International Reading Literacy Study (PIRLS) and Trends in Mathematics and Science Study (TIMSS). According to Amnesty International (2020), disintegrating infrastructure, overcrowded classrooms and poor educational outcomes have failed every school-going child and exacerbated the inequality.

5.2 A Background to overcrowded classrooms

Classrooms that are overcrowded are not only prominent features locally but are also a global phenomenon (Hachem & Mayor, 2019). Schools in developed countries such as the United States of America (USA) are also affected by overcrowding. Hachem and Mayor (2019) report that a crucial challenge is the exponential increase in learner numbers, a scarcity of specialist teachers, and not enough funding which negatively impacts what is being called ‘the ideal class size’ of about fifteen to twenty students per class. The Zhoukou District, in the densely populated Henan Province, China, reported 100 learners and above in their middle-school classrooms, with teachers across China being used to teaching classes with an average of forty-five learners and more (China, 2016). The phenomenon of overcrowded classrooms is also being experienced in countries in Africa. Nigeria and Kenya have remarkably high learner enrolments – far higher than the acceptable teacher-learner ratio of 40:1 as suggested by the United Nations (Mutisya, 2020; Onwu & Stoffels, 2005). A clear tendency to accommodate a large number of learners per class has been identified in many countries.

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In contrast, Northern Ireland, maintains class sizes on average of twenty-five learners (Donnelly, 2019), compared to 21 in other developed countries. Countries with much more developed economies retain a learner-teacher ratio (LER) of 25 to 30 learners for every teacher, which they consider to be large classes. Research has indicated that small classes are preferable to teach, as there is more individualised teaching, fewer administrative tasks and effective delivery of instruction (Asodike & Onyeike, 2015). UNESCO suggests there should not be more than twenty-five learners per class to ensure that educational activities can take place (UNESCO, 2017).

Furthermore, the Indonesian government policies suggest that the number of students in every class should be 28 students for elementary school and no more than 32 in secondary or high schools. Unfortunately, many classrooms still go beyond thirty students and has become a common practice when they are more than forty per class (Ayu, 2018). The ministry of education in Columbia recommends that classrooms should not have more than 32 learners per classroom (Jiménez, 2020).

Teachers in public schools in South Africa have raised concerns about the stark contrast between the number of students in overcrowded classrooms and the availability of teachers (DBE, 2013). Reports indicate that certain schools have classrooms with over 50 learners or even higher (DBE, 2014). Schools in the Eastern Cape have enrolments of 1 300 learners with only 24 teachers employed (John, 2013) and as stated by Marais (2016), overcrowded classrooms are not things that will disappear in the nearby future. In the South African context, the ideal LER is considered to be 25:1 – a viewpoint supported by National Early

Childhood Development (Meier & Marais, 2012). However, an alternative perspective suggests that education in the country (DBE, 2020) advocates for a ratio of forty learners per educator as the model, taking into account the multifaceted crises that encompass the lack of specialist teachers and infrastructural weaknesses. These circumstances illustrate that the current state of schools in South Africa surpasses the recommended LER.

Access to quality education is not only a fundamental human right; it is also a key driver of social progress and development. Overcrowded classrooms hinder the realisation of this right for countless learners and represents a violation of basic human rights, with far-reaching political, social, and economic implications (Transparency International, 2009). The South Africa Schools Act 84 of 1996 (RSA, 1996b) reinforces government's responsibility to provide sufficient, adequate and easily accessible schools where learning can take place, and mandates compulsory general education for children aged seven to fifteen years or referred to as grades one to nine, where every learner has the right to attend school without any hindrance. However, class size has a direct impact on learner outcomes. Research indicates that classrooms in the Early Childhood Development phase (ECD) have no more than fifty learners, as captured by the learner reading strategy initiative (van der Berg et al., 2016). Smaller class sizes offer several advantages, including improved learning opportunities, enhanced teacher-learner relationships and morale (Hattie, 2005; Chingos, 2013).

5.3 Issues affecting education

The South African Schools Act (RSA, 1996b) highlights that every learner in South African schools should be admitted to equal educational opportunities. The South African schooling context exerts a direct influence on the roles of teachers and the quality of education available to learners. However, overcrowding of schools and classrooms has a decidedly negative effect on education quality due to insufficient infrastructure such as schools and classrooms, insufficient resources, poor school initiatives, lack of suitably qualified and experience teachers, the exponential growth of class sizes and escalating rate of learner enrolment as well as socio-economic status of parents and their involvement, which impacts the effectiveness of sound instructional delivery negatively (Amnesty International, 2020).

Insufficient infrastructure in schools, defined as “‘physical resources’ or ‘school facilities’ which constitute school assets” (RSA, 1996b) has emerged as a significant challenge in the education system, impeding the provision of a conducive teaching and learning environment. The aim of the National Education Policy for Equitable Provision of an Enabling Physical Teaching and Learning Environment published in terms of section 3(4) of the National Education Policy Act, 1996a (Act 27 of 1996) is to regulate and formalise the provision of school infrastructure and provide guidelines toward an equitable provision of an enabling physical teaching and learning environment for all learners in South Africa. This indicates clear roles and responsibilities of all role players and unifies accountability in the provision of school infrastructure. Infrastructure in schools comprises school buildings, special teaching rooms, co-curricular facilities, libraries,

equipment, furniture, grounds, fencing, and services that are essential for the effective functioning of a school (DBE, 2010).

Quality education, in the South African school context, has been associated with a 'child-friendly' school environment where teaching and learning can be delivered (UNICEF, 2007). The intention of the National Policy on Equitable Provision of an Enabling School Physical Teaching and Learning Environment policy sought to restore the inequalities of the past and to ensure that every learner has access to schools, facilities and resources in an environment where effective teaching and learning can take place (DBE, 2010). The provision of an enabling physical teaching and learning environment and desirable quality conditions are all assured if the critical infrastructure is availed through the Department of Basic Education. However, inadequate provision of infrastructure will affect the quality instruction of learners negatively and not ensure equal opportunities (RSA, 1996).

Insufficient resources in the classroom can cause extreme distress to both the students and teachers as they are unable to learn to their fullest potential. Msila (2010) identified the differences between historically disadvantaged schools and affluent schools in South Africa with the gap widening through the lack of sufficient funding. The South African Schools Act states that "The State must fund public schools from public revenue on an equitable basis in order to ensure the proper exercise of the rights of learners to education and the redress of past inequalities in education provision" (RSA, 1996b:17). Even though the government has made enormous strides in providing access to education in the country (USAID, n.d), insufficient resources make it difficult to effect educational change.

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Public schools in rural communities are in many instances challenged in their bid of providing quality education. Rural areas are generally remote and underdeveloped. Schools in such remote spaces lack the necessary physical resources and basic infrastructure for sanitation, water, road transport, electricity, as well as relevant resources and access to information and communication technology.

Poor school initiatives have an effect on education provision. The South African Schools Act advises that School Governing Bodies (SGBs) should ensure that learners are provided with quality education through effective and sufficient governance. This also relates to managing the school environment so that it accommodates the requisite admission of learners. However, management has been challenged to cope with intensified enrolment in schools. The Head of the Department (HoD) is responsible for and must coordinate the provision of schools and the administration of the admission of learners to ordinary public schools. The admission policy of a public school is determined by the governing body of the school in terms of the South African Schools Act and the Constitution of the Republic of South Africa (RSA, 1996a). Therefore the HOD and the school governing bodies must ensure that all eligible learners are suitably accommodated. Furthermore, it is particularly important that all eligible learners of compulsory school-going age are accommodated in public schools. However, the school should encourage parents to apply for the admission of their children before the end of the preceding school year.

Lack of suitably qualified and experienced teachers has a major impact on quality education provision. A high-quality education

system can be achieved if it has a core of good teachers. However, indicators of teacher quality must be considered. Staff shortages harm students, teachers and the public education system as a whole. Factors such as lack of sufficient, qualified teachers and staff instability threaten student ability to learn and reduce teacher effectiveness. These factors make it more difficult to professionalise teaching and build a solid reputation, which further contributes to perpetuating the shortage. To address the working conditions that prompt teachers to leave and dissuade people from entering the profession makes it more difficult for school districts to retain and attract well-qualified teachers (Garcia & Weiss, 2019).

The exponential growth of class sizes and escalating rate of learner enrolment has already been noted in this chapter, along with the South African Constitution's right to education, parents and guardians should ensure that all learners of this age are registered to go to school and that their children attend school regularly.

Multi-grade teaching practices are prevalent in many South African schools (Van Wyk, 2019b). Teachers in multi-grade settings are teaching multiple subjects and grades in one class. From the literature, teachers in rural schools and multigrade classrooms face severe curtailment such as a lack of qualifications, inadequate infrastructure, and resources (Ramrathan & Mzimela, 2016; Taole 2014). In overcrowded schools, multigrade classrooms have become a prominent feature (Ramrathan & Mzimela, 2016).

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Socio-economic status (SES) has numerous definitions with many interwoven indicators, such as financial and social resources which are linked to people-well-being. According to The American Psychological Association's (APA) Dictionary of Psychology (APA, 2007:871), the definition of SES includes all types of capital stating that:

Socio-economic status is the position of an individual or group on the socioeconomic scale, which is informed by a combination or interaction of social and economic factors, such as income, amount and type of education, kind of prestige and occupation, place of residence and in some societies even ethnic origin and religious background.

Financial status has an influence on children's IQ and academic performance. Parent-children interaction, children-environment interaction, and obtained quality-education, all of which have an influence on learner performance in general. In addition, parents are often unable to provide their children with the necessary stationery and resources needed in schools (Du Plessis & Mestry, 2019).

5.4 Impact of overcrowded classrooms

Overcrowded classrooms are a national and international phenomenon that serves as obstacle for effective teaching and learning (Hachem & Mayor, 2019). Many scholars are of the view that in overcrowded classrooms, teachers find it difficult to create a quality teaching and learning environment for learners (Hattie, 2005; Pedder, 2006). Teaching in overcrowded classrooms is a challenge to many teachers (Marais, 2016) and with the limited physical space and large class size, they encounter various

obstacles such as instructional delivery and discipline (Igbal & Khan, 2012). This is supported by van Wyk (2008) who found that overcrowded classrooms are contributors to conditions that are not conducive to learning due to inadequate space, ventilated areas, and noisiness, which all have a major effect on learners and consequences for learner performance and progress.

Inadequate infrastructure is a major contributing factor with the physical space of the classroom being one of the limiting factors. Teachers are restricted to the front of the class since space is limited. The limited space prevents the teacher from using innovative teaching techniques and strategies that focus on students and their needs, such as group work, project-based learning, cooperative learning, or creating a flipped classroom³ to ensure effective learning. As a result, teachers are compelled to use a teacher-centred pedagogy which could affect the quality of teaching and learning. Pedder (2009) indicates that teachers tend to perceive class size as exerting a major effect on what they do and on the effectiveness of what they do. However, the relationship teachers have with their learners, the time they spend on individualisation, guidance, and assessment with learners, and how they can use resources and enrichment materials, should be the focus rather than teachers treating class sizes as only one of several factors shaping their teaching.

³ A flipped classroom refers to inverting the traditional educational model (Van Wyk, 2019a)

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In addition, the personal connection between teacher and learner is often lost, and most importantly many learners fail, and often serious disciplinary problems arise (West & Meier, 2020). This means that overcrowded classrooms are seen as an impediment to effective teaching and learning, which hampers effective instruction and does not cater for all the educational needs of learners (Cortes, Mousa & Weinstein, 2012; Marais, 2016; Van Wyk, 2008). Moreover, when teachers are able to give more attention to individual learners and spend less time on sorting out disruptions and discipline, it will lead to palpable improvement in academic performance (OECD, 2011).

This research argues that teachers are more concerned about class size than factors such as inadequate teaching resources or ill-disciplined learners. This is evident in the South African context, where teaching-and-learning in classes with large enrolments, in other words, is affected. A large class not only adversely affects the pedagogical process, but also the environment (Imtiaz, 2014) resulting in a classroom not being conducive to learning. West and Meier (2020) maintain that overcrowded classrooms play an instrumental role in underperformance, leading to learners needing to repeat their grades, an aspect that is exacerbated by inadequate teacher provision and a lack of school infrastructure in under-resourced no-fee-paying (quintile 1-3) schools.

Hence, to highlight the issue, consequences of overcrowded classrooms are discussed in the subsequent section:

Individual attention: With high enrolments and limited time for tuition, teachers find it difficult to pay individual attention to learners. Large class sizes make it difficult to attend to the

individual needs of learners and give every student a chance to speak and participate; thus limiting teacher-student interaction where it is most needed. Imtiaz (2014) found that teachers cannot pay individual attention to learners as they cannot move easily around the classroom. Mtika (2010) suggests that individualisation is more attainable in smaller class sizes.

Disciplinary problems: Large class sizes with a high enrolment of learners is an impediment to classroom management in general, but specifically classroom discipline. In large classes, there tends to be increased incidences of disruptive behaviour, misconduct and ill-discipline such as increased noise with learners pushing, crowding, and hitting, due to lack of effective class management, all of which influence the learning activities. This poor behaviour has an impact on the achievement of learners (Cortes et al., 2012). Large class sizes have a negative impact on the teaching and learning process (Mustafa et al., 2014). Ill-disciplined learners in the classroom make management difficult, as valuable teaching time is wasted on controlling learners and maintaining a culture of teaching and learning (Imtiaz, 2014). In favourable situations, learners achieve higher marks, learn more as classes are better managed with discipline in place.

Time management: In addition, to ensuring the provision of quality education, teachers are challenged with a massive administrative load (Imtiaz, 2014; Mustafa et al., 2014). To mark schoolwork and assessments to ensure effective feedback, teachers take these assessments and school work home to be marked (Marais, 2016). Xu (2001) found that the problems of monitoring attendance and checking assignments are of constant concern to many teachers involved in large classes as they struggle to get through the

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evaluation and grading; thus maintaining standards and ensuring learner outcomes.

Discomfort: Teachers and learners alike find themselves in uncomfortable teaching circumstances in overcrowded classrooms. Xu, in his study, found that psychologically some teachers feel it intimidating to face a large crowd of students (Xu, 2001). Some may feel threatened by such hostile situations (Van Wyk, 2008). In some cases, teachers suffer from anxiety and fatigue being concerned with overload of administrative tasks, learners' poor academic performance, ill-discipline, and their inability to complete their tasks in time.

5.5 Objectives of this study

This research aimed at proposing an innovative cooperative learning framework that could be implemented to counterbalance the negative effects of overcrowded classrooms in schools. This chapter seeks to answer the following sub-research question: *What practical strategies could be proposed for an innovative cooperative learning framework to be implemented to counterbalance the negative effects of overcrowded classrooms in schools?*

5.6 Conceptual-Theoretical Framework

This section takes into account transformative learning theory and cooperative learning theory as a conceptual-theoretical framework for this research.

5.6.1 Transformative learning theory

Transformative learning theory (TLT) suggests that learners can adjust their thinking based on new information. It uses an objective frame of reference with perceptions and values as a focal point. People are actively involved in designing and employing strategies that contribute to different forms of dialogue in their life experiences (Mezirow, 1997). These types of dialogues influence people's social, economic and financial lives. Mezirow contends that students who understand their own viewpoints are in a better position and much more willing to make a mind-shift or take action for change. Transformative learning theory has emerged whereby learners meaningfully participate, justify, and reformulate their lived experiences. Mezirow (1998) emphasises that deeper thinking processes concerning experiences open the possibility of changing the perspectives of certain experiences.

A key feature of a transformative basic and higher education system should reflect an element of change that can be depicted in South African society with strong norms and values of the new democracy. Transformation in educational spheres was intended to redress past inequalities and to provide meaningful opportunities for effective participation. Furthermore, the ultimate purpose was to ensure high-quality and skills-based, but smart teaching and learning strategies which have to be evaluated against set standards for progression. This notion then leads to innovation such as cooperative learning.

5.6.2 Cooperative learning theory

In Cooperative learning learners work in small groups toward a common goal and take responsibility for their own and others'

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learning (Johnson & Johnson, 2014). They work cooperatively in a team where the focus is on asking questions to encourage critical thinking, inquiry, and reasoning. The opportunity to communicate and work collaboratively assists in developing the most important learning skills and social skills, which are needed to succeed in today's workplace. This means that by being cooperative learners, they become active participants, taking responsibility for their learning, communicating meaningfully in groups, and becoming critical and analytical thinkers (Johnson & Johnson, 2018).

Cooperative learning is referred to as:

... a relationship in a group of students that requires positive interdependence (a sense of we sink or swim), individual accountability (each of us has to contribute and learn), interpersonal skills (communication, trust, leadership, decision-making, and conflict resolution), and face-to-face promotive interaction and processing (reflecting on how well the team is functioning and how to function even better (Johnson & Johnson, 2014:845).

Five key elements, which intercede the efficacy of cooperation, comprise positive interdependence, face-to-face promotive interaction, individual and group accountability, the appropriate use of social skills, and group processing. The key topographies of cooperative learning as a teaching and learning approach are presented in the following figure and elaborated on in the section below:

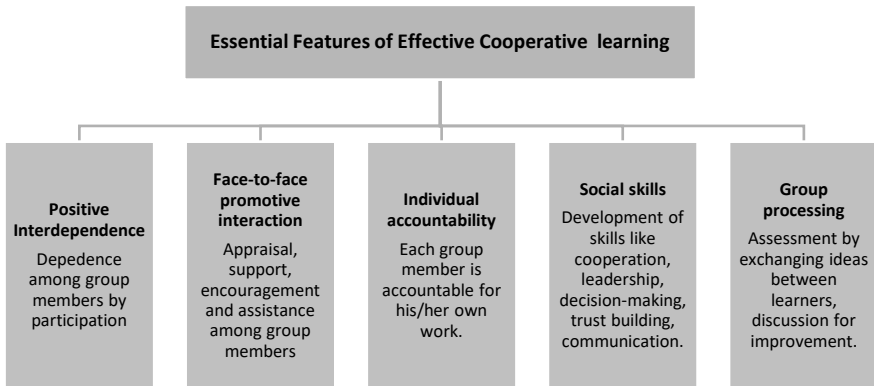


Figure 5-1 Essential elements of cooperative learning

Source: Johnson & Johnson, 2014

Positive interdependence: Johnson and Johnson (2018:8) define positive interdependence as “the discernment that one is associated with others so that one can only be successful if others do (and vice versa)”; therefore group work and individual work benefits one another.

Face-to-face promotive interaction: Students help each other towards success by helping, supporting, inspiring, and celebrating each other's efforts to learn. Promotive interaction changes the self-worth of group members to joint effectiveness (Johnson & Johnson, 2018).

Individual and group accountability: Individual accountability exists when the performance of each group member is assessed, and the results are given back to the group and the individual.

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Each group member has a personal responsibility for completing one's share of the work and facilitating the work of other group members.

Appropriate use of social skills: Social skills are essential for the success of a mutual effort as they help learners to communicate more effectively and efficiently and, as a result, build, maintain and grow relationships within the group.

Group processing: Group members need to focus regularly on the endless improvement of the quality of the processes they are using to achieve their goals.

5.7 Research design and methodology

This chapter [conceptual paper] employed a qualitative methodology to create new knowledge by building on carefully selected sources of information (Jaakkola, 2020). When drafting conceptual papers, arguments are not derived from data in the traditional sense but involve the assimilation and combination of evidence that form of previously developed concepts and theories (Hirschheim, 2008). In the light of the above, conceptual papers are not without empirical insights ; they rather build on theories and concepts that are developed and tested through empirical research (Jaakkola, 2020).

The researcher regarded a conceptual research design (CRD) as applicable because it is referred to as research related to concepts and ideas about a phenomenon under study with the aim to solve real-world problems (Hirschheim, 2008). With regard to policy studies, an application of CRD may assist researchers in analysing policy content, enabling them to excavate possible

policy solutions to address particular issues (Farrel & Coburn, 2016). In this study, a CRD was useful because it enabled us to explore how stipulations in education policy can provide innovative cooperative learning strategies to be implemented to counterbalance the negative effects of overcrowded classrooms in schools.

5.8 Data collection and analysis

Document analysis is usually used to complement other data sources, but could be used as a stand-alone method, as in this paper (Bowen, 2009), as it offered a powerful tool for analysing textual data. Document analysis, in this case, interpretive policy analysis (IPA), which is viewed as the interaction of resources, values, and interests through organisations and facilitated by the government (Brown, Coffey, Cook, Meiklejohn & Palermo, 2018), focused on interpretation for understanding and scrutiny (Peters, 2015). Any conversation on policy needs a form of analysis, and that analysing education policy calls for a deeper interpretation (Olssen, Codd & O'Neill, 2004).

In this research, the National Policy for an Equitable Provision of an Enabling School Physical Teaching and Learning Environment of 1996 (Act No 27 of 1996) (DBE, 2010), which describes the provision of enabling physical teaching and learning environments to ensure equitable and quality education for all learners in South Africa, was analysed. The policy intended to transform and recompense past imbalances, serve a new social order, meet national needs, and respond to new realities and opportunities. Although this policy could be regarded as 'old', it is still pertinent

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to provision of resources for equitable and quality education in 2023.

Qualitative data, as in the policy document, are analysed in various ways, and thereby no method can be regarded as the most single correct one (Coffey & Atkinson, 1996), and this assertion necessitates the importance of different approaches on how to apply data (Snyder, 2019). Lochmiller and Lester (2017) suggest that qualitative data analysis is in many instances associated with methods, theory, and field of research. For this chapter, thematic analysis (Lester, Cho & Lochmiller, 2020) was employed to analyse specific stipulations from the above-mentioned policy.

The process of thematic analysis involves a careful, more focused re-reading and review of the data (Bowen, 2009). Step 1 of the data analysis involved the preparation and organisation the data for thematic analysis and becoming familiar with the policy content. Step 2 involved generating memos for reflection and interpretation. In Step 3 data were coded and additionally coded in the fourth step for a higher level of inference and reflection. Step 5 involved the development of categories to determine relations and contrasts among codes to recognise similarities, differences, and relationships. Three major themes emerged from the document analysis and comprised physical teaching and learning environments, curricula and pedagogical reform, and strengthening school-community relationships.

5.9 The findings

This study aimed at extending the debates on cooperative learning as an innovative transformative strategy in school education, taking into consideration how interpretation of policy texts can raise critical awareness of education (O'Connor, 2005; Freire, 1970). In reporting the findings, an interpretivist perspective, which underpins an understanding of worldviews, and appreciating the social world of own experience (O'Connor, 2005), was applied.

5.9.1 Innovative transformative cooperative learning strategies

The transformative cooperative learning framework, comprising physical teaching and learning environments, curricula and pedagogical reform, and strengthening school-community relationships, was designed to support Cooperative Learning (CL) as an innovative strategy in schools. From the findings of this conceptual paper, this chapter put forward recommendations, such as the physical teaching-learning environment, implications for the teaching and learning environment, curricula and pedagogical reforms such as the initial move to OBE and the NCS and latterly, the transition to a learner-centred approach and the National Curriculum Policy Statement (CAPS) (DBE, 2011), strengthening school community relationships for inclusion in an innovative strategic framework for the use of cooperative learning to counterbalance the effect of overcrowded classrooms.

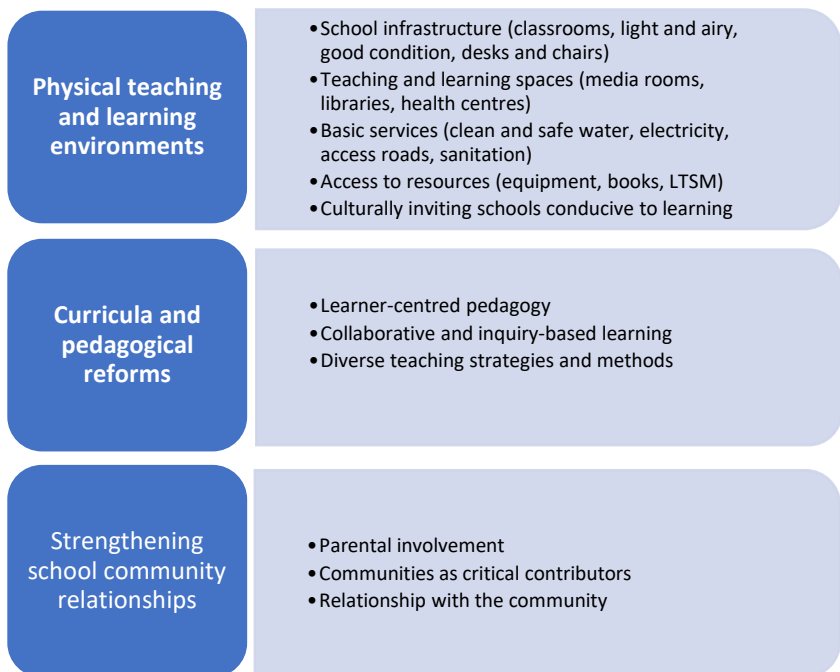


Figure 5-2: Innovative cooperative learning strategy framework

5.9.2 Establishing favourable physical teaching and learning environments

Physical teaching and learning environments are the broader concepts that refer to the physical school infrastructure which includes the structural buildings. The main purpose of the National Policy for Equitable Provision of an Enabling School Physical Teaching and Learning Environment of 1996 (Act No 27 of 1996) (DBE, 2010) was to address and redress all unequal provisioning of resources to schools. The above policy indicates that there should be fair and equal distribution of adequate school infrastructure to all schools in the country.

... the physical teaching and learning environment is broadly conceived as comprising school infrastructure; basic services; furniture; equipment; books, teaching and learning materials, and co-curricular facilities and equipment. School infrastructure is broadly conceived to include physical teaching and learning spaces (classrooms, laboratories, computer laboratories... spaces that support teaching and learning; sports facilities; school administrative facilities; school nutrition and feeding programmes and teacher housing, etc. Basic services include clean and safe water, electricity, access roads, sanitation, telephone and/or other communication systems (RSA, 1996, p 18).

Words such as “infrastructure”, “teaching and learning spaces”, and “basic services” highlight the importance and urgency of ensuring equitable provision of an enabling physical teaching and learning environment. Infrastructure is commonly known as ‘physical resources’ or ‘school facilities’ which constitute school assets to ensure quality education to ensure transformation and social justice (Marishane, 2013; 2014).

Space, which includes natural and built environments, has an impact on social relationships and practice. Learning spaces mediate the correlation and shared practices of teaching and learning and inform learning outcomes (Oblinger, 2006). The importance of learning spaces is that they can generate environments and mediate relationships that can improve student learning alongside physical and mental well-being (Blackmore, Bateman, O'Mara & Loughlin, 2011). Thus governments are accountable for the investment in quality spaces for learning due to their important role in cumulative entrance and equity for all in

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education and promoting the acquisition of key competencies such as critical thinking, innovation and creativity, self-directed learning, and collaboration (OECD, 2005).

The right to *free basic services* is entrenched in the South African Constitution (Act 108 of 1996). This commitment of the government was born from numerous discourses to address the needs of disadvantaged citizens as well as the delivery of free basic water, sanitation, and free basic electricity to economically deprived communities. On the contrary, communities, and in particular school communities, particularly in rural areas, are deprived of such basic services, while the right to quality education emphasises that schools must be a safe place for learning with good infrastructure and resources. Another key infrastructural issue is poor sanitation which impacts learners' health, solitude, and dignity. Amnesty International (2020) confirmed that schools lacking adequate water supply and a working sanitation infrastructure result from a lack of funds. Lack of sufficient transport also puts learner safety at risk.

5.9.3 Curricula and pedagogical reform

The introduction of Outcomes-Based Education (OBE) and learner-centred pedagogy was a deliberate attempt to change the education system to serve the changing social and economic situations in South Africa for the better.

This implies the need for more generous classroom spaces, better-equipped classrooms and special teaching areas, and furniture that allows for flexible seating arrangements. Effective implementation of these reforms suggests dramatic changes to the physical teaching and learning environment ...

more than a half quarter of classrooms are overcrowded, there is a shortage of laboratories and other relevant equipment, and library stocks remain scarce, even in schools without library buildings ...there is a clear risk of failure to attain the intended benefits of such curricula and reforms” (RSA, 1996, p 25).

Words such as “learner-centred pedagogy”, “classroom spaces”, “special teaching areas”, “well-equipped libraries, laboratories and computer resource centres”, and “policy aligned with LER” play a crucial role in promoting learning when addressing issues of overcrowding. This transformation emphasises the importance of cooperative learning approaches to develop self-directed learner. Restructuring the curriculum is necessary to shift from traditional learning techniques to a learner-centred approach that focuses on developing knowledge and skills. This approach encourages cooperative learning through small groups working together towards common goals (Johnson & Johnson, 2018); the transformation of previously content-loaded curricula into the Curriculum and Assessment Policy Statement (DBE, 2011) that aimed to empower learners to become independent and informed citizens. Implementing learner-centred techniques in challenging environments such as overcrowded classrooms, necessitates radical changes in teaching approaches, strategies and methods.

To gain a deeper understanding of the issue of overcrowded classrooms, it is important to recognise that large class sizes are not ideal for neither teachers nor students. Ellis (2005), points out that the physical environment of a learning institution has an impact on students' cognitive and behavioural development. This supports the argument that school infrastructure, including factors

such as the age of the buildings, the size of the classrooms and the quality of teaching, can significantly influence academic performance and student attendance, particularly in a safe and secure learning environment (Marishane, 2014).

5.9.4 Strengthening school-community relationships

Enhancing connections between schools and communities, also referred to as school-community relationships or partnerships, involves building networks involving schools, organisations, and businesses. The primary goal of these networks is to foster relationships that contribute to the holistic development of students (Sanders, 2006). This school-community partnership should be viewed as a collaborative effort, by which both parties work together for mutual benefits and shared objectives.

The current sector strategy prioritises the need to strengthen school-community relationships. This is a dual relationship in the sense that communities are critical contributors to the development of their children's schools, education processes, and outcomes. At the same time, communities are also benefiting from their schools. There is still a challenge of providing adequate facilities in schools that communities could use. It is equally challenging to design schools in a manner that is culturally inviting and appropriate for community usage. (RSA, 1996, p 26).

The concepts of "school-community relationships," "critical contributors," and "culturally inviting schools" all revolve around the idea of partnership and mutual engagement. Scholars often use phrases such as "school-community relationship" and "school-community partnership" interchangeably (Berg, 2012;

Epstein, 2018; Park & Holloway, 2017). These partnerships between schools and communities were initially established to address issues such as inadequate infrastructure, school programmes, and improving students' academic performance. Naidu et al. (2008) argue that collaboration between schools and communities is strongly supported by the positive academic outcomes of students. Berg (2012) further explains that schools lacking strong relationships with their community stakeholders may face discrimination and compromise the quality of education. Overcrowded schools without reliable partnerships between schools, households, and communities fail to create a safe, inclusive, and diverse learning environment which contributes to indiscipline, bullying, and poor academic performance among learners.

Parents can secure a promising future for their children and strengthen their connections by actively collaborating with schools (Msila, 2012). The collaboration between businesses and Non-Government Organizations (NGOs) is essential in establishing partnerships with schools. This highlights the significance of parental participation in improving instructional delivery, placing teachers as key stakeholders in engagement efforts (Jacobs, 2008). By embracing this approach of involving stakeholders, it is possible to address the challenges posed by overcrowded classrooms, which can hinder effective teaching and learning.

Culturally inclusive schools provide an inclusive learning environment where individuals from all backgrounds in a specific community can feel welcomed and accommodated (Walker, 2010). These schools embrace the diversity of cultures and foster an intercultural society. Where a teaching culture does not exist, it

can create a disconnect between teachers' knowledge and their ability to effectively apply it. Sharan (2010) argues that multicultural education promotes enlightenment, recognising learners from diverse cultural and community backgrounds as valuable human resources. This perspective emphasises the importance of parental collaboration.

5.10 Conclusion

The guidelines outlined in "The National Policy for an Equitable Provision of an Enabling School Physical Teaching and Learning Environment of 1996" (DBE, 2010), emphasise three key areas to enable teachers to improve their capacity by implementing cooperative learning as an innovative teaching strategy and counterbalancing the issue of overcrowded classrooms. However, the issue of overcrowding in poorly resourced schools should, according to the abovementioned policy, be addressed by creating constructive teaching and learning environments with acceptable school infrastructure, adequate classrooms, and learning centres which provide safe spaces for learning.

To begin with, good core school infrastructure is paramount for ensuring an optimal learning environment for learners. Adequate and well-maintained infrastructure ensures that students have access to the necessary tools and spaces to support their educational journey. It promotes safety and allows students to focus on their studies, and express themselves, and it provides a conducive learning environment. The delivery of acceptable school infrastructure requires careful planning, sufficient funding, and collaboration between educators, NGOs, and policymakers, initiated by the Department of Education. By investing in high-

quality infrastructure, the overall educational experience could be enhanced and an environment created that nurtures growth and creativity, leading to academic success.

Secondly, adequate classrooms that provide safe spaces for learning are fundamental in creating conducive learning spaces. These classrooms prioritise the physical and emotional well-being of students, ensuring that they can focus and thrive academically. Furthermore, classrooms should be designed to accommodate different learning styles and needs, with flexible seating arrangements, and accessible resources. By fostering a sense of belonging, respect, and inclusivity, adequate classrooms can promote positive social interactions and assist students developing a strong sense of community. Ultimately, adequate classrooms provide safe spaces for learning and empower students to explore, collaborate, and reach their full potential.

Thirdly, creating constructive teaching and learning environments is essential for fostering student growth and engagement. These environments prioritise collaboration, critical thinking, and active participation; all part of a learner-centred approach. Teachers play a crucial role in setting the tone by establishing a positive and inclusive classroom culture whereby they encourage open dialogue, respect diverse viewpoints, and provide a safe space for students to express themselves.

Furthermore, curricula and pedagogical reform refer to 21st-century knowledge and skills-based curricula that prepare teachers and learners to employ autonomy and self-ownership where teachers become independent thinkers. These skills go beyond traditional academic knowledge and focus on equipping

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individuals with capabilities and skills. In today's rapidly changing and interconnected global society, individuals need to be able to navigate complex challenges, work effectively in teams, think critically to analyse and evaluate information, and generate innovative solutions. Added to this, it fosters lifelong learning and adaptability, and individuals must continuously update their knowledge and skills to keep in pace with rapid advancements in technology and changing societal demands. By developing these skills, individuals are better prepared to face the challenges and seize the opportunities of the 21st century.

Moreover, teachers must be open to change their pedagogy in advancing and employing learner-centred teaching techniques. However, they need to have been trained and to become experienced. In today's fast-evolving educational landscape it is important for teachers to embrace innovative approaches that prioritise the needs and interests of their students. Embracing a learner-centred approach shifts the focus from traditional teacher-driven instruction to one that places the learner at the centre of the educational experience. This requires teachers to be flexible, adaptable, and open-minded in their instructional practices and to be willing to explore new teaching strategies where they can incorporate technology and multimedia resources. The Department of Basic Education should provide continuous professional development opportunities to enhance teachers' pedagogical skills to stay updated on best practices. Moreover, embracing learner-centred teaching techniques enables teachers to stay relevant, and effectively prepares students for the challenges and opportunities of the future.

Communities play a vital role as critical contributors to schools. They are more than just a physical presence surrounding educational institutions; they are active partners in shaping the learning experiences of students. They provide valuable resources, expertise, and support that enhance the educational opportunities available to students. Parents and families contribute by providing a supportive home environment, participating in parent-teacher associations, and volunteering their time and skills. Local businesses and organisations can offer mentorship programmes, career exploration opportunities, and internships, preparing students for the real world. Community leaders and professionals can share their knowledge through lectures, workshops, and partnerships with schools. Furthermore, community involvement fosters a sense of belonging, pride, and shared responsibility for the success of the school. By working together, schools and communities can create a holistic educational ecosystem that nurtures the growth, well-being, and achievement of students. The initiatives listed above can be implemented to strengthen teachers in coping with overcrowded learning environments to implement cooperative learning successfully.

This chapter has proven that a cooperative learning technique for educational institutions may be employed as a supportive teaching approach that promotes self-directed independent skills and an opportunity for learners to enact in conversations that develop cooperative intellectual inquirers. This chapter thus concludes that policy investigation can offer solutions, such as an innovative cooperative learning framework, to counterbalance the effects of overcrowded classrooms.

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The researcher is confident that if the proposed strategies are implemented, they can improve teachers' working environments by providing sufficient support and assistance when facing the challenges of overcrowded classrooms. SMTs, teachers and relevant stakeholders need to collaborate and start implementing the recommendations suggested so as to achieve a positive outcome.

Future studies should investigate challenges and solutions related to overcrowded classrooms in other areas in South Africa, and in different phases of schooling. Future research could also identify successes in teaching and learning in overcrowded classrooms, which could help inform teachers' teaching strategies in overcrowded classrooms as well as teacher education curricula. Action research on these implications might also be worthy research in the future.

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