AUTHOR:
Dr Siphe Madyibi[1]
Prof Amiena Bayat[1]

AFFILIATION:
[1]University of the Western Cape

DOI: http://dx.doi.org/10.18820/2519593X/pie.v39.i4.11

e-ISSN 2519-593X
Perspectives in Education
2021 39(4): 156-171

PUBLISHED:
6 December 2021

RECEIVED:
26 August 2021

ACCEPTED:
12 November 2021

A CASE STUDY OF EARLY CHILDHOOD DEVELOPMENT FACILITY INFRASTRUCTURE IN PHILIPPI, SOUTH AFRICA

ABSTRACT

Adequate infrastructure plays a critical role in early childhood development (ECD) facilities providing high-quality early learning services. An ECD facility is a partial care facility that provides an early childhood programme that encompasses early learning and the development of children before they start formal schooling. Hence early learning in South Africa is primarily accommodated in privately owned facilities that range from registered to unregistered facilities. For this reason, the inadequate infrastructure that characterises conditions under which most ECD facilities operate in South Africa has been noted with concern in numerous studies. This paper assesses the state of the physical infrastructure of ECD facilities in Philippi, an impoverished township in the City of Cape Town in the Western Cape. Owing to the regulatory function of the state in the ECD sector, through which compliance standards have to be met to secure subsidisation, the authors analyse the impact of ECD legislation on the state of ECD infrastructure in Philippi. The analysis shows statistical differences in the infrastructure of 10 registered and 10 unregistered facilities. The infrastructure differs partly due to the registration status and the location in which the facilities are situated. We therefore deduce that the current state's avoidance of infrastructure investment in ECD facilities amounts to the denial of positive early learning outcomes to these children in Philippi.

Keywords: *Early childhood development facility infrastructure, early learning, registered ECD facility, unregistered ECD facility, Philippi.*

1. INTRODUCTION

An early childhood development (ECD) facility is a partial care facility that provides an early childhood programme that encompasses early learning and the development of children before they start formal schooling. Adequate infrastructure plays a critical role in the ability of ECD facilities to provide high-quality early learning and ECD services. It is considered the foundation of the early learning phase, enabling children to learn and develop (Mathwasa & Shumba, 2020). Sotuku, Okeke and Mathwasa (2016) stress the importance of ECD facilities' infrastructure, stating that architects should not design spaces that merely

enable children to meet minimum requirements in their developmental milestones but instead design spaces that challenge children to surpass the accepted norm.

Early learning provision in South Africa is primarily provided in the home and in privately owned facilities that range from registered to unregistered ECD facilities. It is therefore concerning that a series of nationwide and provincial ECD audits of facilities have consistently described the physical infrastructure of many facilities as inadequate and called for urgent improvement (DSD, 2014; Williams *et al.,* 2001). The lack of adequate ECD facility infrastructure can be viewed as a national crisis within the ECD sector that has been fuelled by state legislation that prohibits public finance from being utilised to upgrade privately owned facilities (Financial and Fiscal Commission, 2015). Despite it being known that ECD facilities struggle to provide adequate infrastructure, many unregistered ECD facilities operating in the City of Cape Town Metropolitan Municipality fall outside the legal scope and capabilities of the provincial government (City of Cape Town, 2015). For its part, the city is unable to assist the two types of ECD facilities commonly found in its impoverished communities. Firstly, ECD facilities established in privately-owned, converted residential houses are excluded from benefiting from council residential infrastructure upgrades (City of Cape Town, 2015). Secondly, privately-owned ECD facilities in informal settlements also cannot be upgraded because the land they are located on, tends to have been occupied illegally. Moreover, the facility owners cannot afford to upgrade the infrastructure, given the meagre fees they charge as well as the likely denial of a state subsidy.

The purpose of this paper is to assess the state of the physical infrastructure of ECD facilities and the impact of ECD legislation on the state of ECD infrastructure in Philippi in the Western Cape, pursuant to which, the following research questions are posed.

- How and why does infrastructure differ between registered and unregistered facilities in Philippi?
- To what extent does ECD legislation in the country determine the state of the current ECD infrastructure?
- How does the state of the infrastructure in Philippi influence children's early learning experience?

2. LITERATURE REVIEW

The following literature review supports the case for why ECD facility infrastructure matters in terms of its implications for child development and the extent to which the ECD sector's prominent stakeholders, namely the state and communities, are liable for financing the infrastructure of ECD facilities.

2.1 Why ECD facility infrastructure matters: Development implications

Investing in ECD facilities' physical infrastructure is a necessity for child development (Barret *et al.,* 2019). Many development researchers theorise that variations in physical environments shape child development and can determine the adult future of children (Scarr, 1992). These include Kurt Lewin (1931), Jean Piaget (1962) and Urie Bronfenbrenner (1979), who all identified the environment, explicitly or implicitly, as the primary mechanism in a child's development.

As an early advocate of high-quality learning settings, Greenman (1988) argued that the physical environment is a living, dynamic system with the power to influence how we feel, think and behave. This old notion is consistent with modern research. For instance, Smith (2007) argued that children who attend ECD facilities that offer spacious and pleasant indoor and outdoor infrastructure were less likely to exhibit distress and anxious behaviours. Abbas, Othman and Rahman (2016) established that children in Malaysian preschools who were exposed to spatially defined classrooms tended to exhibit appropriate behaviours when playing with their peers. Appropriate behaviour in the study included friendliness, social conversions and cooperative play, whereas inappropriate behaviour was expressed in aggression, object possessiveness and conflicts. The same authors argue that such outcomes are likely to hold irrespective of cultural context.

Children need to be provided with diverse play opportunities for physical development. According to Tadjic, Martinec and Farago (2015), children generally prefer high mobility activities, namely, climbing, crawling and sliding. A multilevel regression analysis study investigating the relationship between physical activity, which includes play, and child well-being, established a positive relationship between the two (Sando, 2019). The same study found there was a reduction in child play in cases where ECD facilities classes had tables and other furniture, as the children assumed they were expected to be seated on the furniture. These findings mean that furniture (chairs and desks) may discourage children from playing freely in ECD facilities.

Knauf (2019) notes that the implications of ECD facility infrastructure are often analysed regarding how it fosters physical play or active learning. The author digresses from this traditional approach and determined that the physical infrastructure design also enhances child participation in various ECD games and activities at ECD facilities. Increased child participation increases opportunities for development, especially cognitive development.

Finally, a high-quality ECD facility and programme is a combination of factors, with the physical infrastructure being one of the quality-determining factors. Highlighting the important role of the physical facility infrastructure, many researchers (Cabello & Savec, 2018; Sotuku *et al.,* 2016; Strong-Wilson & Ellis, 2007) have embraced the Reggio Emilia approach developed by educational theorist Loris Malaguzzi, of treating the physical environment as the third educator. The Reggio Emilia approach to education and development settings refers to three educators simultaneously: the child, teacher and the environment (Malaguzzi, 1998). Hence the physical environment, which includes the infrastructure, supports the capacity of a pre-schooler to perform tasks (creative tasks, music and movement, cognitive), relate with one another and explore their immediate environment (Tadjic *et al.,* 2015).

The implications of inadequate infrastructure impact more than the children. Inadequate infrastructure results in unsafe and unhygienic work environments for teachers, negatively affects the teachers' ability to do their jobs and decreases teachers' motivation – such teachers are likely to feel undervalued in their profession (Rahardjo, 2014).

2.2 Extent and limitations on state liability for ECD infrastructure

Infrastructural shortcomings among ECD facilities are so widespread nationally that, according to Mathwasa and Shumba (2020), it would require a collaborated effort by all arms of government to address the shortage of basic infrastructure, such as sanitation and safe drinking water in unregistered facilities.

State liability for ECD infrastructure is largely confined to limited funding for registered ECD facilities and setting standards for qualifying for registration. Facilities need to meet ECD norms and standards to be registered, as prescribed by section 94, Chapter 6, of the Children's Act, Act 38 of 2005 (as amended by the Children's Amendment Act, Act 41 of 2007 and Child Justice Act, Act 75 of 2008) (Republic of South Africa, 2010) and the various municipal bylaws regulating building, structural safety and health. Crucially, while the national Minister for Social Development is responsible for setting the norms and standards, the delivery of the government's ECD strategy is a provincial competence supervised by the MEC of the Department of Social Development.

At first glance, the Children's Act appears to concede that funding should be prioritised for "communities where families lack the means of providing proper shelter, food and other basic necessities of life to their children" (Republic of South Africa, 2010: section 93.4.a). However, Van der Walt *et al.* (2014) have noted the contradiction in the same, seemingly pro-poor legislation, which also criminalises non-registration and requires rigid compliance to regulations and municipal bylaws that are daunting prerequisites for registration and beyond the resources of many ECD centres. Among the most challenging of these prerequisites are the National Building Regulations and Building Standard Act, Act 103 of 1977 (DSD & UNICEF, 2006). This Act requires that the land or building in which a proposed ECD facility will be situated should be (re)zoned for that use, have approved building plans and a structural design that is fireproof and compliant with numerous other spatial requirements and restrictions. Not only would the typical structures in informal settlements fail to satisfy most of these infrastructure requirements, but the cost of compliance in building, converting or extending a formal house for ECD use without funding assistance impacts heavily on ECD provision in poorer communities.

Van der Walt, Swart and De Beer (2014) divert from the traditional discourse that holds the state to providing quality ECD services, including adequate infrastructure suggesting that communities should be allowed "to do the best they can if nobody else is going to do it for them" (2014: 4). In the absence of governmental assistance, their argument implies the relaxation of compliance requirements to enable communities to solve the ECD infrastructure challenges they face within available means. Makhubele and Baloyi (2018) further add that communities should seek local solutions to raising funds to establish their community based ECD facilities. For most facilities, the owners themselves have already invested in establishing and maintaining the facilities with their resources and are committed to their work (Housing Development Agency, 2014).

The self-help approach has abundant historical precedents since ECD services have been primarily provided by private organisations and communities (Biersteker, 2010). However, the caveat here is that South Africa also has a history of multi-dimensional inequality making high-quality early learning interventions only accessible to affluent households. This history ensures that when communities "do the best they can" in providing ECD infrastructure, it is often in the context of flouting the law.

The review of relevant South African legislation shows that no law compels the state to provide ECD infrastructure and, judging by the proposed ECD infrastructure grant, it can be argued that the government seems to have no appetite for changing the status quo. In proposing the grant, the National Integrated ECD policy only commits to funding public infrastructure and states that funding private infrastructure is conditional and depends on

the availability of funds (Republic of South Africa, 2015). More recently in 2020, during the COVID-19 pandemic lockdown, the government was criticised for not extending a relief fund to ECD facilities whose financial capabilities were heavily constrained by the imposed closure of the facilities to curb the spread of the coronavirus (BRIDGE *et al.,* 2020).

Ashley-Cooper, Van Niekerk and Atmore (2019) argue that the lack of political will is also to blame for the weak implementation of ECD-related policies in the country. Jansen (2002) goes even further, bluntly concluding in his review of various educational policies introduced in post-democratic South Africa that the government never intended to implement most of its significant policy measures.

3. CONCEPTUAL FRAMEWORK

According to Barrett et al. (2019), the area of educational infrastructure is multifaceted, encompassing ergonomics, architectural design, education pedagogy and social policy. The conceptual framework used in this paper is drawn from the ECD norms and standards prescribed by the amended Children's Act of 2007 (Republic of South Africa, 2010) and the ECD guidelines (DSD & UNICEF, 2006). The ECD norms and standards mainly relate to safety, hygiene and enhancing child development or the learning experience.

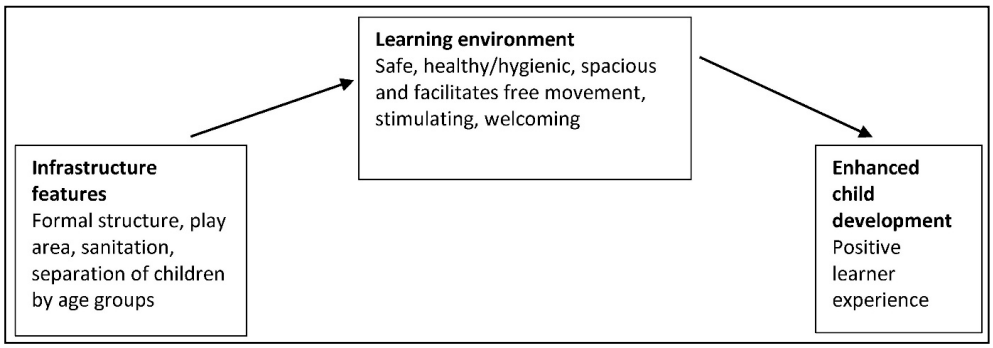

Figure 1: The effect of infrastructure on the learning environment and child development
Source: Adapted from Republic of South Africa (2010) and DSD & UNICEF (2006).

Figure 1 depicts how infrastructure impacts the learning environment and child development. A facility with adequate infrastructure – a formal structure that is well-ventilated and waterproof, has proper sanitation and a play area, and that can accommodate the separation of children by different age groups – leads to a conducive learning environment that is safe, hygienic, stimulating, welcoming, allows free movement and exploration, and ultimately enhances child development. This understanding of the impact of infrastructure is confirmed in the literature (Barrett *et al.,* 2019; Nepal, 2016, among others).

4. RESEARCH METHODS

The study was undertaken in Philippi, a low-income township in Cape Town, South Africa. Despite its proximity to economic hubs – the Cape Town International Airport, Philippi Horticultural Area and the Philippi Industrial Area – this township is characterised by high

unemployment, poverty and crime, further exacerbated by seasonal floods and periodic fires affecting the informal areas.

The researcher employed purposive sampling, which allowed the deliberate selection of data sources (Babbie & Mouton, 2001; Onwuegbuzie & Collins, 2007). The selection of the sample was based on the researchers' judgement and available resources. In this case, ECD facilities were selected as likely to provide rich information relevant to answering the research questions. Relying on purposive sampling, the researchers obtained an equal sample of ten registered and ten unregistered facilities representative of the different areas under Philippi. The sub-areas are Acacia, Brown's Farm, Lower Crossroads, Marcus Garvey, Luzuko Park, Marikana informal settlement and the Thabo Mbeki informal settlements. Data collection was achieved through an observation questionnaire implemented at the selected facilities. Hennink, Hutter and Bailey (2011: 170) define observation as a research method that enables researchers to systematically observe and record subjects' behaviour, actions, interaction and the surrounding environment. For this study, the observation questionnaire investigated the state of the infrastructure at the selected facilities and identified the following themes related to physical infrastructure: the built (neighbourhood) environment of the facility; demarcation of children; safety measures of the facility; play area; availability of toilets; and the interior appearance of the facility.

In analysing the results, the researchers employed descriptive statistics and the Fisher exact test of independence that uses nominal data to test whether there is a statistical relationship between the nominal variables (Chan, 2003). The relationship is established using the level of significance with a p-value of 0.01, 0.05 and 0.10. The study and its methodology were approved by the Humanities and Social Science Research Ethics Committee of the University of the Western Cape. Since the study included ECD facilities registered with the Western Cape Department of Social Development, ethical clearance was also obtained from the department. Individual consent was obtained from the principals who participated under the conditions of anonymity and confidentiality.

5. RESULTS

In defining what constitutes infrastructure in ECD facilities, the South African national integrated ECD policy refers to the actual structure or building, water, sanitation, indoor and outdoor space, learning material and equipment (Republic of South Africa, 2015). Because of municipal bylaws, we argue that the built environment is also crucial in influencing the extent to which ECD facilities in Philippi can develop appropriate infrastructure.

5.1 The built environment

Philippi consists of a mix of formal and informal houses with shacks appearing in the backyards of government-subsidised formal houses as well as on formerly vacant land. Hence the categories "mostly formal" and "mostly informal" in Table 1 not only reflect the type of the majority of the houses and buildings in the facilities' immediate environment but are relevant as they will likely determine the type of buildings the facilities can use.

Table 1: Area type of ECD facility

Facility factor		Registered facility N=10	Unregistered facility N=10	Total sample	Fisher's exact (Pr)
The type of area in which the facility is located	Mostly formal	100%	60%	80%	0.087*
	Mostly informal	0%	40%	20%	

Source: Primary data.

At 10% significance with a p-value of 0.087, there is a statistical relationship between the type of area in which the facility is located and its registration status, indicating a greater likelihood of registered facilities being found in formal rather than informal areas. All the registered ECD facilities interviewed are indeed situated in mostly formal housing areas. This point is significant because it tends to be extremely unlikely that an ECD facility situated in a mostly informal area will achieve registration. Indeed, 60% of ECD facilities are situated in formal areas, with the remainder situated in mostly informal areas. Children who reside in informal settlements are therefore highly unlikely to have access to registered facilities in their residential areas (Department of Social Development, 2014; Housing Development Agency, 2014; Mbarathi *et al.,* 2016).

Table 2: Type of building used as ECD facility

ECD building	Registered facility N=10	Unregistered facility N=10	Total sample
Formal separate house/ building	30%	30%	30%
Formal residential house (not separate)	70%	30%	50%
Informal building separate from a residence	0	20%	10%
Informal building not separate from a residence	0	20%	10%

Source: Primary data.

In this paper, "formal separate house/building" means a facility that does not share a roof with a residential house. It has a designated site and is not a residential dwelling.

Table 2 shows that a separate formal building is equally uncommon for registered and unregistered facilities: only 30% of registered and unregistered facilities are situated in a separate formal building. A facility situated on its own site has a significant advantage in terms of space, as was observed in the study sample, where the outside areas were spacious, allowing the children to play freely. Such facilities are likely to have more space inside as well, evident through multiple classrooms, kitchens, toilets and play areas. The other 70% of the registered facilities were formal buildings but were extensions to residential houses and converted into ECD facilities. The homeowners were also the principals and owners of the facilities. Although part of these premises remained in residential use, the greater proportion of

the space was utilised for the children. The multiple classrooms, kitchens and toilets confirmed the prioritisation of the facility's needs over the homeowners' accommodation needs.

Of the unregistered ECD facilities, 30% are formal buildings attached to the residential house, whereas 20% of unregistered ECD facilities are separate informal buildings (i.e., backyard shacks) alongside informal residential dwellings. The remaining 20% of facilities are informal structures that are not separate from an informal residential house. That is, the residence doubles as an ECD facility. Both backyard shacks and dual-purpose residences lack safety and space and will almost certainly not meet the requirements for registration.

5.2 Indoor demarcation into groups

Children aged three-and-a-half to five years are considered to have a longer attention span than younger children and are likely to engage in physical activities. By contrast, babies between four and six months old are only starting to learn to grasp objects without using their thumbs (City of Cape Town, 2015). Children of the same age groups are likely to have achieved the same cognitive developmental milestones and therefore be on a similar development path (Piaget, 1962). Thus, separating children by age group is believed to accommodate an efficient transfer of age-appropriate knowledge.

Table 3: Children's demarcation

Facility factor	Registered facility	Unregistered facility	Total sample	Fisher's exact (Pr)
Children demarcated into groups	100%	20%	60%	0.001***

Source: Primary data.

Although mixed-age classrooms are not entirely denounced in literature, two implications stand to be noted. Katz (1992) points out that younger children might become a burden to the older children, constantly asking for help from the older children to complete tasks. Secondly, being in a separate optimal space would reduce overcrowding and improve their opportunities to move freely and learn. Currently some of the ECD facilities are one-room structures accommodating all ages from 0–6 years old. During the study, paradoxically, two ECD facilities had moved all the children into one room as they were constructing additional rooms to create more space. While few unregistered ECD facilities separated children by age group, all the registered facilities in the study were able to divide the children into different classrooms based on their age groups.

5.3 Learning material displayed on walls

Displaying the instructional material on the walls of the facilities creates a bright and welcoming environment for the children and aids learning, e.g. an illustrated display of the alphabet helps children to memorise the letters. Berris and Miller (2011) mention that children need to feel happy when coming to the facility. The welcoming appearance of ECD facilities is especially important when the children first start attending the facility and are getting used to being separated from their families. All the registered facilities had displays of instructional material on their walls while 80% of the unregistered facilities also displayed instructional material. In

addition to creating a welcoming atmosphere, Osa and Musser (2004) consider the display of learning material instrumental to assist children identify concepts, letters and differentiate between similar words and objects.

5.4 Outside play area

Play is a critical element in fostering early learning. It fosters cognitive development, social and emotional development, speech and language development, as well as gross motor skill development. Although children do play inside, outside play specifically offers the significant advantages of physical exercise and allows children to initiate the type of play they want to engage in using their own rules and reasoning (Sando, 2019). The pedagogy of play at the ECD level requires sufficient space and the availability of play equipment. The researchers investigated the presence of an outside play area.

Table 4: Outside play area

Facility factor	Registered facility	Unregistered facility	Total sample	Fisher's exact (Pr)
Play area in the facility	70%	20%	45%	0.070*

Source: Primary data.

At 10% significance, there is a relationship between having a play area and the registration status. The descriptive statistics reveal that 80% of the unregistered facilities do not have an outside play area compared with only 30% of the registered facilities not having an outside play area. The lack of an outside play area was largely the result of inadequate outside space. The facilities on residential properties had already used most of the available space for building extensions and the ECD facilities in informal areas had too little space between dwellings to allow demarcated outdoor play areas.

Observation of most of the facilities that had outside play areas showed that the equipment in the play areas of the facilities appeared old, rusty and inadequate. Lacking an outside play area did not always mean that the children spent the whole day indoors. The principal of one registered facility that did not have an outside play area stated that they took their children to the nearest community park a few times a week for playtime.

5.5 Safety features of the infrastructure

Ensuring the safety of children in an ECD facility setting is of utmost importance. The ECD guidelines identify the jeopardising of children's health and safety as a cause for a potential closure of a facility (DSD & UNICEF, 2006). Many children spend most of their daytime hours at the ECD facilities. Children start arriving as early as 6 am and are fetched around 5 pm. Given that children spend about 11 hours in the facilities, it becomes crucial for these facilities to ensure their safety.

The observation questionnaire posed the following safety questions in relation to infrastructure:

- Is the ECD facility fenced?
- Is the gate locked during school hours?
- Are any hazardous objects in the yard (stones, broken bottles, any sharp objects, etc.)?

Table 5: Safety of ECD facilities

Safety feature	Registered facility	Unregistered facility	Total sample	Fisher's exact (Pr)
Has fence	100%	90%	95%	1.00
Has lockable gate	100%	60%	80%	0.087*
No hazardous objects	100%	80%	90%	0.47

Source: Primary data.

The registered ECD facilities fared significantly better on all the safety measures. Fences and gates are normal, standard features of formal housing. Unsurprisingly, all the registered facilities had a fence, a lockable gate and there were no hazardous objects that could prevent the children from playing freely and safely. Only 10% (one) of the unregistered ECD facilities in the study did not have a fence. This particular ECD facility is in a part of the informal settlement where shacks are very close to each other, making fencing extremely difficult. Facilities without lockable gates (40%) were chiefly situated in informal dwellings and were all unregistered. Having neither a lockable gate nor constant supervision increases the likelihood of children wandering outside the ECD premises. Intruders can also easily enter the ECD premises. The Fisher exact test showed that there is a statistically significant relationship between having a lockable gate and the ECD facility registration status.

Regarding hazardous obstacles in the ECD facilities that might prevent children from playing freely and safely, it was found that 20% (2) of the unregistered facilities had hazardous objects in their yards. These were bricks and rubble resulting from renovation then underway at the facilities. For whatever reason, temporary closure of the facilities or restricting children's outside access during construction were not considered viable options. It is probable that lacking a government subsidy, temporary closure would have risked losing vital revenue and possibly losing the children to other ECD facilities.

5.6 Availability of toilets

Adequate sanitation at ECD facilities, including sufficient and appropriate toilets for the children, is a health and safety requirement to maintain adequate hygiene and prevent disease. The researchers observed that the type of toilet used at a facility strongly correlates to the basic services available in the community. Recognising that the younger children most likely still use potties, the researchers only investigated and measured the presence of flush toilets and chemical/ bucket systems, the waste systems used by all the older children. The data on chemical and bucket system types were combined since both these systems are used in different sections of the community.

Table 6: Availability of toilets

Facility factor	Registered facility	Unregistered facility	Total sample	Fisher's exact (Pr)
Flush toilet	100%	60%	80%	0.087*

Source: Primary data.

The type of toilet used reflects the type of area where the facility is located. All the registered ECD facilities use flush toilets while 60% of the unregistered facilities use flush toilets and the remaining 40% use a chemical/bucket system. The availability of a flush toilet is statistically related to the registration status of the facility at 10% significance. Hence, all the registered facilities in this sample use flush toilets. ECD facilities situated in mostly informal areas are more likely to use a bucket system since there tends to be no formal sewerage infrastructure. Since the Department of Human Settlements would consider the type of toilet when vetting the facility, it follows that facilities using a bucket system would be disadvantaged thereby in the assessment for registration.

6. DISCUSSION

From the findings on the state of infrastructure, it is apparent that there are statistically significant differences between the infrastructure found at registered facilities and that found at unregistered facilities in Philippi. Unregistered facilities in informal structures and informal areas have little prospect of improving infrastructure unless they register and qualify to receive subsidies. Yet, given the onerous registration standards in place, it would be unlikely for the health department, fire department or other relevant departments to approve their registration. The consequences for the communities are dire. One is the probability, that unregistered ECD centres' infrastructure will deteriorate further because of limited financial resources. Another, as pointed out in the Financial and Fiscal Commission (2015) report, is that the lack of financial assistance to facility owners is discouraging the establishment of ECD facilities in low-income and under-resourced communities, despite demand increasing with a rising population.

In 2018, the General Household survey estimated that approximately 1.7 million children (9%) in South Africa lived in backyard dwellings or shacks in informal settlements (Hall 2019). Meanwhile the government persists in its denial of economic realities by discouraging informal and unregistered facilities through legislation and withholding financial assistance, it offers poorer communities no alternative to finding their own ECD solutions, other than the untenable prospect of millions of children growing up at risk in informal settlements while being denied the quality early learning development opportunities enjoyed by their affluent peers.

If the state neglects to allow ECD facilities access to funding to improve infrastructure, the onus devolves to the ECD centre owner, parents and their communities to fund infrastructure. We have already shown that the immediate area in which the facility is situated influences the structure of the facility, type of toilet available, the play area and the safety measures available for the facility. The findings further revealed that some infrastructural differences reflect spatial inequalities found in the different areas of Philippi. As mentioned above, Philippi experiences severe economic hardship due to high unemployment and endemic poverty. It is self-evident that despite the efforts reported by many of the principals/owners in the study, the resources to upgrade ECD infrastructure to the point of meeting registration requirements simply do not exist among the vast majority of Philippi's residents.

The study provides strong indications that most of the unregistered facilities lack safety, do not have outside play areas, tend to be overcrowded and provide few opportunities for exploration and stimulation. By contrast, with somewhat more adequate infrastructure largely due to government subsidies, the registered ECD facilities in Philippi constitute a more conducive learning environment that is safer, more spacious, and provides more opportunities for stimulation that in turn enhance early child development.

These pre-schoolers' learning experience and development in unregistered facilities is compromised in nearly every aspect of physical, cognitive and social development. For instance, the lack of play area decreases the likelihood of pre-schoolers exhibiting positive behaviour (Abbas, Othman & Rahman, 2016; Smith, 2007) and engaging in physical activity, which is paramount for physical and cognitive development (Knauf, 2019; Tadjic, Martinec & Farago, 2015). Although most of the facilities had displays of learning materials on the wall, 20% of unregistered facilities did not, which means the pre-schoolers forfeit the opportunity of reinforcing the knowledge of concepts, letters and shapes.

The researchers share the concerns of Sotuku *et al.* (2016) and Mathwasa and Shumba (2020) over ECD facilities' physical infrastructure failing to enhance learning and child development. This was foreshadowed by the reviewed conceptual framework that showed the effect of infrastructure on the learning environment and child development.

7. CONCLUSION

Developing economies are confronted with fiscal pressures but simultaneously want to receive the socioeconomic returns of investing in early learning. Although South Africa officially shares this goal, as is evident in the National Development Plan (National Planning Commission, 2012), its actual investment is problematic and the returns deeply worrying.

This study showed statistical differences in the infrastructure of registered and unregistered facilities in Philippi, a poor community in the City of Cape Town. The differences were partly due to the registration status, the location in which the facilities are situated and the unequal resources among the facility owners. The paper argued that prevailing ECD legislation fails to assist the provision of ECD facilities in low-income areas like Philippi. Despite the contravention of laws and regulations by unregistered ECD facilities, the government has not embarked on a campaign to shut them down. We argue that this could be seen as a tacit admission that their services, whatever the flaws, serve the public good.

It is clear from the study that ECD infrastructure in Philippi is largely determined by the communities' self-generated resources. Owners of ECD facilities are essentially prevented from achieving funding assistance from the government by onerous registration requirements.

The lack of ECD infrastructure in South Africa reflects a problem far beyond merely a challenge of enhancing ECD. It should be noted that due to the limited sample and confinement to one area, the findings of this study cannot be generalised. However, if the essential economic function of a government is to ensure economic prosperity for the populace through investment in human and social capital, the current government's avoidance of such investment in ECD facilities amounts to the denial of positive educational outcomes to these children in Philippi and a missed opportunity to ensure inclusive development.

8. RECOMMENDATIONS

We concede that the problems and remedies needed in the ECD sector are complex. Progress is inhibited by many factors, including unrealistic legislative and regulatory standards, the state's lack of urgency, the poor performance of the economy, a historical lack of infrastructure dating back to apartheid, the rapidly rising population, lack of education of parents, the negative impacts of crime and unemployment, the high number of single-parent households, the politics of land ownership and tenure, and banks' lack of appetite for granting loans in poor

communities. However, the complexity of the problem should not detract from the urgent need for solutions. Options that should be investigated include:

- As it does with schools, including Grade R, the state could assume responsibility for erecting ECD facility buildings in line with its ECD norms and standards. Given that the land is often illegally occupied in informal settlements, such state constructed ECD facilities would be built in or near formal areas.
- The Departments of Basic Education, Social Development and the National Treasury should investigate and make recommendations on the feasibility of state provision of ECD.
- Build ECD facilities at public schools, which often have excess land available.
- Adapt the regulatory and legislated standards, without compromising health and safety, to decrease the cost of building ECD infrastructure by private owners. An incremental improvement strategy can be devised whereby ECD facilities gain increasing access to the government subsidy when reaching set milestones.
- Rather than imposing standards, the state could consult existing ECD facilities and engage communities on what types of ECD infrastructure would be fit for purpose.
- Finally, further scientific research is needed to gauge the impact of inadequate ECD facility infrastructure on children's current and later academic performance.

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