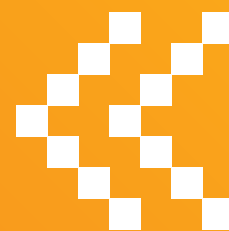


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Community of Practice for Social Systems Strengthening to Improve Child Well-being Outcomes

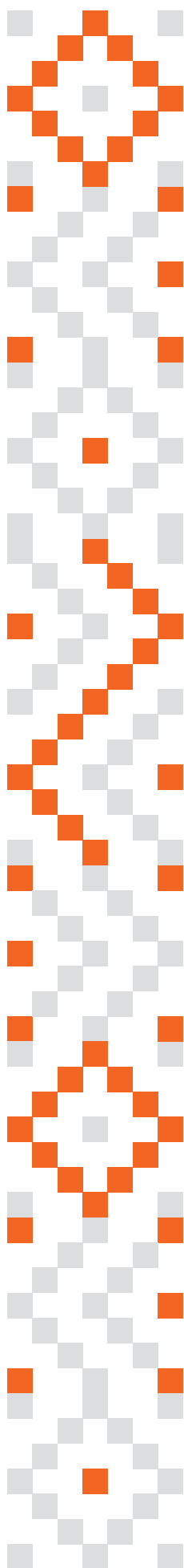
It takes a village to care for a child:
Evidence from the Community of Practice
Child Wellbeing Tracking Tool

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The Community of Practice is a multi-sectoral and inter-disciplinary collaboration between academic researchers, practitioners, governmental and non-governmental agencies and is supported by the National Research Foundation.







Abstract

The aim of the Community of Practice Child Wellbeing Tracking Tool (CWTT) is to investigate the community of practice relating to care for children in underprivileged settings in South Africa.¹ This research paper is one of several studies in the project. Here, we look at the coherence of responses from parents/caregivers, teachers and healthcare providers regarding children's wellbeing in a small sample based in five primary schools in the Gauteng province. We explore performance in the three cognitive tests that formed part of the study; and we provide the answers parents/caregivers, teachers and healthcare providers gave during this study.

The overall picture our data reveals is one of little agreement between parents/caregivers, teachers and healthcare providers on the specifics of how each child was doing, and how they were progressing. The most worrying sign of the dissonance we found was the complete lack of agreement between caregivers, teachers and healthcare workers on whether there was evidence of child abuse.

Key words: *Child wellbeing, abuse, early grade reading, community of practice, Child Wellbeing Tracking Tool (CWTT), childcare, early childhood development*

Introduction

This paper contributes towards a larger research project that focuses on the community of practice (CoP) regarding child wellbeing in South Africa. The CoP project largely entails qualitative research in which 170 children participated. This paper presents a quantitative analysis of the data, and has a strong emphasis on education as an outcome variable. We draw from our earlier work in the field of the economics of education (see van der Berg, 2008; 2015). Our small sample size, however, limits the strength and the complexity of the statistical relationships that can be found.

Testing of child participants

Altogether 130 children were tested on the Early Grade Reading Assessment (EGRA), 127 children took the Meerkat Maths Language Test (MMLT), and 120 children took the Assessment of Mathematics and Numeracy Competence Levels (MARKO-D). All children took the same three tests. There are different numbers due to child absenteeism. The participating children were almost equally split between Grade R and Grade 1, children's first two years of formal schooling. Henning et al. (2022:1) explain the three test instruments we used:

The instrument for the assessment of early number concept development, published in South Africa as the MARKO-D SA test, provides succinct results per individual. The Early Grade Reading Assessment (EGRA) assesses children's first steps into literacy. The Meerkat Maths Language Test (MMLT) was selected because it assesses vocabulary knowledge required for early mathematics learning.

The test outcomes should be understood in the context of the Covid-19 pandemic which seriously affected children's school attendance and learning between October and December 2020. An analysis of Western Cape Systemic Tests (van der Berg et al., 2022) shows that learning losses in the years 2020 and 2021 represented almost a full year of lost learning. The extent of learning losses varied across schools; learners in the more affluent schools coped better with online learning, and were perhaps also in a better position to limit lost days by using rotational timetables. South Africa classifies schools into five quintiles based on the poverty level of learners who attend the school. Schools in quintile 1 are the poorest 20% of schools; quintile 5 represents the wealthiest 20% of schools.

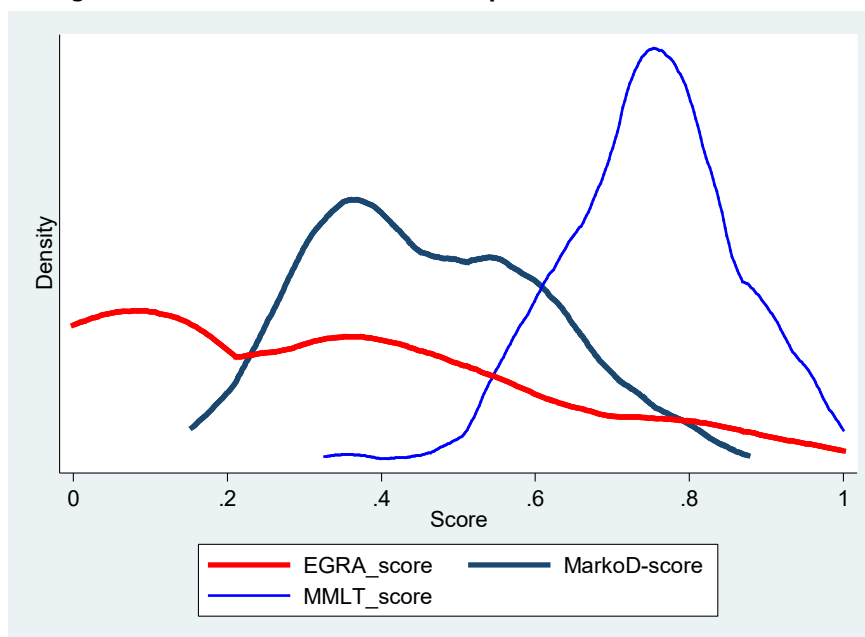
Surprisingly, there was almost no correlation between the EGRA (reading) scores and the scores in the two numeracy-based assessments²; these had a moderate correlation of 0.58. The kernel density graph shown in Figure 1 is a "bell curve", or distribution of the marks

¹ See Patel et al. (2021) Community of Practice for Social Systems Strengthening to Improve Child Wellbeing for further details on the broader CoP project.

² The correlations were negative and around -0.05 and -0.04.

that learners scored on the three tests. It indicates that the EGRA score was fairly evenly distributed across the whole range, with some evidence of floor effects with 47% of the children scoring below 15%. The Marko-D scores showed an almost normal distribution around a mean of 46%, with a standard deviation of 16%. The MMLT scores were higher and more tightly distributed around a mean of 74%, with a standard deviation of 12%. The lowest score on MMLT of 33% is higher than the average for EGRA of 31%.

Figure 1: Distribution of the children's performance on the three tests



Source: Authors' calculations from Patel et al. (2021)

The Child Wellbeing Tracking Tool (CWTT) was developed as part of this community of practice initiative. It allowed the research team to construct a number of indices which measure various domains of child wellbeing. The indices are the:

- education index which measures caregiver help/involvement in the child's education.
- nutrition index which measures food security and eating practices.
- health index which measures the child's physical health.
- socioeconomic status index which is a measure of household socioeconomic status.
- care index which measures the level of care the child receives, such as a caregiver's attention to knowing where the child is, any evidence of abuse, and discipline methods.

Table 1 shows that these indices were not highly correlated, which is unsurprising as they represent very different concepts.

Table 1: Correlations between the five indices which measure domains for child wellbeing

	Education index	Nutrition index	Health index	SES index	Care index
Education index	1.000				
Nutrition index	0.409	1.000			
Health index	0.300	0.290	1.000		
SES index	0.069	0.319	0.025	1.000	
Care index	0.273	0.194	0.333	0.185	1.000

Source: Authors' calculations from Patel et al. (2021)

The questions we asked

Using the Child Wellbeing Tracking Tool (CWTT), we asked parents/caregivers, teachers and healthcare providers to answer questions about each child in their care. In many cases, the same question relating to a child was posed to two or all three categories of respondents. For example, both teachers and caregivers were asked if the child was progressing with their schoolwork, and if the child attended school regularly. Tables 2.1 to 2.5 show the correspondence between the answer these teachers and parents gave. They show how adults have answered the question. For example, Table 2.1 shows that when asked, "Is the child progressing with their schoolwork?" there were 83 children for whom both teachers and parents/caregivers answered "Yes". There were ten children for whom parents/caregivers replied "Yes" and teachers replied "No". There were 12 children for whom parents/caregivers replied "No" and teachers replied "Yes". There were three children for whom both teachers and parents/caregivers answered "No". There was dissonance in the answers between teachers and caregivers when it came to how children were faring, and how they were prepared for school.

- For 21% of the children, teachers and parents/caregivers disagreed about whether the child was progressing with their schoolwork.
- For 29% of the children, parents/caregivers said they helped with the homework, but teachers did not think the child was receiving help.
- For 24% of the children, parents/caregivers and teachers disagreed on whether the parent/caregiver was involved in the child's education.

In contrast to this dissonance, there was a higher degree of agreement between parents/caregivers and teachers about whether the child attended school regularly, and whether they had the correct books and uniform (see Table 2.2). These are the most externally obvious behaviours and easier to note. This may suggest that teachers and parents/caregivers are more aware of the visible external wellbeing facts than the internal world of the child, such as their emotional and mental wellbeing, or the child's cognitive development.





Key	
	Both parents/caregivers and teachers answer "yes"
	Teachers answer "no" and parents/caregivers answer "yes"
	Both parents/caregivers and teachers answer "no"
	Teachers answer "yes" and parents/caregivers answer "no"

Table 2.1: Is the child progressing with their schoolwork?

		Teacher	
		Yes	No
Parent/caregiver	Yes	83 (77%)	10 (9%)
	No	12 (11%)	3 (3%)

Table 2.2: Does the child regularly attend school?

		Teacher	
		Yes	No
Parent/caregiver	Yes	92 (84%)	13 (12%)
	No	2 (2%)	2 (2%)

Table 2.3: Does the child do homework as required?

		Teacher	
		Yes	No
Parent/caregiver	Yes	65 (61%)	31 (29%)
	No	6 (6%)	4 (4%)

Table 2.4: Is the caregiver involved in the child's education?

		Teacher	
		Yes	No
Parent/caregiver	Yes	82 (75%)	22 (20%)
	No	4 (4%)	1 (1%)

Table 2.5: Does the child have the correct books and uniform?

		Teacher	
		Yes	No
Parent/caregiver	Yes	75 (71%)	4 (4%)
	No	16 (18%)	7 (7%)

Source for tables 2.1 to 2.5: Authors' calculations from Patel et al. 2021

Healthcare providers and parents/caregivers were asked if the child had difficulty seeing or hearing compared with other children their age (see Table 2.6). For 21% of children, parents/caregivers indicated "yes" while healthcare providers indicated "no". If the parents and caregivers' answers are correct – and this may not necessarily be the case – it could mean that healthcare providers struggled to identify these disabilities. This suggests that it may improve the community of childcare practice if parents/caregivers are more actively consulted about their child's disabilities, and if they are encouraged to report concern with any disabilities they notice.

Table 2.6: Does the child have difficulty hearing or seeing?

		Healthcare provider	
		Yes	No
Parent/caregiver	Yes	3 (2%)	25 (21%)
	No	1 (1%)	92 (76%)

Source: Authors' calculations from Patel et al. (2021)

Evidence of abuse

Parents/caregivers, teachers and healthcare providers were all asked if there was any evidence of child abuse in the children in the sample. Caregivers identified evidence of abuse in six children, and teachers and healthcare workers each identified five children. That is, there were 16 children in total who respondents regarded as being abused by one of these three respondents, yet there was not a single case where two or more respondents agreed on this issue. This is extremely concerning because it takes multiple people being aware of the abuse for effective protection for the child. For example, if a child is being abused at school, teachers and parents/caregivers must be aware of this so that the child can be removed from unsafe situations. Additionally, this may indicate that parents/caregivers, teachers and healthcare workers would benefit from learning about and understanding the multiple child behaviours which are recognised as abuse, and the different ways being abused could present in a child's behaviour. Our findings also indicate there is little communication between these parents/caregivers, teachers and healthcare workers regarding such a dangerous signal. Tables 2.7 to 2.9 show the correspondence between their answers.

Table 2.7: Evidence of abuse: the correspondence of responses between parent/caregiver and teacher

		Teacher	
		Yes	No
Parent/caregiver	Yes	0	6 (5%)
	No	5 (5%)	102 (90%)

Table 2.8: Evidence of abuse: the correspondence of responses between parent/caregiver and healthcare provider

		Healthcare provider	
		Yes	No
Parent/caregiver	Yes	0	8 (7%)
	No	5 (4%)	106 (89%)

Table 2.9: Evidence of abuse: the correspondence of responses between healthcare provider and teacher

		Teacher	
		Yes	No
Parent/caregiver	Yes	0	5 (4%)
	No	5 (4%)	2 (2%)

Source for tables 2.7 to 2.9: Authors' calculations from Patel et al. (2021)

Interestingly, there was no significant statistical association between any respondent identifying a child as being a victim of abuse and two of the three educational test outcomes. In regression analysis, in the case of the MMLT, there was a significantly negative association with test scores, with a coefficient of -0.05.

Each child was asked a number of questions. There was no statistically significant pattern between the child's answers and the child showing evidence of abuse. For each of the children for whom parents/caregivers flagged abuse, the child felt that their caregiver knew where they were most of the time. Another worrying indicator around abuse was that 10% of children in the sample did not feel safe at home.

It is poignant to pause here and acknowledge the strength of this evidence which affirms that a caring community is necessary to properly care for a child. The lack of harmony in answers regarding evidence of abuse between different adults who engage with the same child suggests that this warrants serious attention for strengthening the community of practice in caring for children.

Regression of the five indices on outcomes in the Early Grade Reading Assessment

We did further regression analysis to establish the statistical relationship between the five indices which measure the care of the child and test scores. Regressions were run for each of the tests with the five indices as explanatory variables to determine whether they were associated with test performance. No significant results were obtained for the two numeracy tests. For the EGRA score, however, statistically significant results were obtained. That is, although three of the indices were statistically significantly associated with the EGRA score, two of the indices had the opposite sign to what is expected. It is expected that higher SES would be associated with higher test scores, instead of the negative association in Table 3. It is clear that for such variables, a one-tailed level of significance would be more appropriate.

Table 3: Regression of EGRA scores with wellbeing indices as explanatory values

	EGRA score
Education index	-0.058*
Nutrition index	0.057**
Health index	0.011
SES index	-0.055***
Care index	0.021
Constant	0.562***
R-squared	0.118
N	103
* P<0.1, ** P<0.05, *** P<0.01	

Source: Authors' calculations from Patel et al. (2021)

In the regressions that follow, the entire range of variables that could conceivably be associated with children's improved outcomes on the three tests were considered as potential explanatory variables. Such a large number of variables could potentially lead to high multicollinearity, a problem that often plagues statistical analyses of the inputs to children's education, or "education production functions". To diminish the possibility of this problem, the modelling strategy we used was to consider first control variables that would be retained in all three models. Only the necessary control variables were retained in backward stepwise regressions. This final model was tempered by an underlying logical model which restricted the direction of potential associations. For example, if the association between a child's level of self-control was a significant explanatory variable in all three tests, it was retained in the final model.

The South African literature on regressions of test scores has shown that it is always wise to control for socioeconomic status, even though it is known that the effect of SES is usually not so large at the individual level compared to the school level. Put differently, the school a child attends offers a far better predictor of performance in cognitive tests than the child's household SES. But it is now well established that SES effects largely differentiate between children in the bottom three quintiles, and those in quintiles 4 and 5 in South African schools, the wealthiest 40% of schools. Since all five schools that participated in this study were in quintiles 1 to 3, the poorest 60% of schools, little differentiation by SES was expected, yet SES and its square were nevertheless retained as control variables. The same applies to gender, which is often an important predictor in South Africa, with girls largely outperforming boys, especially in reading (Hofmeyr, 2020, Rühle, 2022).

It is notable, as can be seen in Table 4, that there were quite large differences in performance across the five participating schools, with learners' grade level and the nature of the test adding further layers of differentiation. Generally speaking, School 1 and School 2 performed better in the two numeracy tests, especially in the Marko-D test, but much worse in the EGRA reading tests.

Table 4: Average test scores by school and grade

	Marko-D score			MMLT score			EGRA score		
	Grade R	Grade 1	Both	Grade R	Grade 1	Both	Grade R	Grade 1	Both
School 1	37%	59%	45%	73%	84%	77%	4%	14%	7%
School 2	48%	62%	56%	70%	83%	77%	18%	13%	15%
School 3	42%	49%	45%	71%	73%	72%	37%	48%	43%
School 4	40%	49%	43%	71%	77%	73%	30%	35%	32%
School 5	42%	39%	41%	73%	75%	74%	48%	42%	45%
All schools	41%	51%	46%	72%	77%	74%	28%	33%	31%

Source: Authors' calculations from Patel et al. (2021)

Table 4 shows regressions of the three educational outcomes. As mentioned, the variables relating to socioeconomic status and its square as well as, an indicator variable for whether or not the child is a girl, and whether the child was in Grade 1 rather than in Grade R, were retained as controls in all the regressions, whether they were significant or not. SES and its square were not significant in any regression, either separately or jointly, and neither was gender. Grade 1 learners significantly outperformed those in grade R in the two numeracy tests, as expected. But what was surprising was that Grade 1 learners scored only 4 to 9 percentage points higher on the tests relative to Grade R learners. This is surprising because Grade 1 learners are expected to score at least 20 to 25 percentage points higher than Grade R learners. In the case of reading with the EGRA test, the effect was not significant, even at a 10% level of significance. It is unclear to what extent the Covid-19 pandemic's impact on school attendance may have negated the advantage of the additional year at school that Grade 1 learners had.

To reduce the problem of multicollinearity with so many potential predictors available, other variables were entered in initial backward stepwise regressions. This included dummy variables for each of the five schools, with School 1 being the reference school. Thereafter, the models were tested and reformulated to retain only variables that did not meet the removal criterion of a lower than 15% significance level. Ultimately, the only other variables we retained in some of the equations were:

- the education index;
- whether the child had difficulty in self-control;
- whether the child was sad or depressed;
- whether the child believed that other children liked to play with him or her;

- whether the teacher saw the child as anxious;
- whether the child believed they were treated fairly at school;
- whether the teacher believed the child was making good progress at school;
- whether the child received a school meal; and
- the nutrition index.

Even though the socioeconomic status variables were not in themselves significant, they indicate that the returns to socioeconomic status of test results have a convex shape. This same relationship is found in many South African education production functions. It indicates that the major positive effect of socioeconomic status is towards the high (wealthier) end. This applies to all three regressions. The indicator variable for girl children was not significant in any of the regressions, unlike what is usually the case in education production functions in South Africa.

In the first regression, for the Marko-D test, the relatively high R-squared indicates that close to 40% of the variance in test results could be explained by the retained variables in the regression (see previous bulleted list). Because of the large number of explanatory variables used together with the relatively limited sample size, the adjusted R-squared is considerably lower than the R-squared, but still a respectable 0.316, and indicates that the model fits well.

In the mathematics regressions, School 3 and School 5 performed worse in both the mathematics tests but better in the reading test. School 4 had a similar pattern to schools 3 and 5, although it was not significantly different from the reference school in the Marko-D tests. The education index played a role only in the Marko-D regression, where it had a positive but relatively modest coefficient.

In contrast, there was a statistically significant negative coefficient in the case of a child feeling sad or depressed. This had a net 'effect' of 10 percentage points in the case of the Marko-D test, and almost 8 percentage points in the case of the MMLT tests. But whether the child was anxious seemed to be associated with a more positive outcome in the Marko-D tests. A very large outcome gain was associated with a child believing that they are treated fairly. In cases where the teacher said the child was making good progress at school, the results were significantly higher. Children who did not receive a school meal achieved higher test marks on average, which is perhaps counter intuitive. One possible explanation for this may be that a child who does not receive a school meal is probably from a family that is better off financially. This is something that may not be fully captured in the socioeconomic status variable.

Conclusion

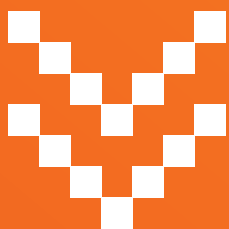
A largely qualitative study such as the Community of Practice Child Wellbeing Tracking Tool has, by its nature, certain strengths and limitations. The intensity and depth of the qualitative work that had to be performed limited the sample size. This implies that quantitative exploration of associations between the difference indices of wellbeing and educational outcomes will necessarily not yield very strong and complex insights.

Despite this, we can draw three conclusions from this quantitative exploration which may hold important implications for the project as it progresses:

- There appears to be a concerning dissonance between the responses from healthcare providers, teachers, and parents/caregivers about the children's wellbeing, apart from the most visibly noticeable signs of wellbeing, such as school attendance or non-attendance. This makes a case for deeper enquiry into why they differ so greatly.
- It is critical that practitioners from different disciplinary backgrounds are educated as to the multiple signs of child abuse or physical disability, and communicate with each other regarding children they identify as being abused or physically disabled.
- The lack of concurrence in the assessments might be due to the different disciplinary backgrounds of health, education and social work.

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