



**OFFER** ZEN

# MERGE

**Teaching Digital Skills and STEM to  
Empower South African Students**

# WHO AM I?



**Ridhwana Khan**

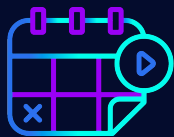
- Senior Software Engineer at Smile Identity
- Advocate for diversity and inclusiveness
- Co-Founder of Kasi Maths (NPO)

# FOCUS POINT

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**How do we empower and expose students in South Africa to be able to be best equipped for the world, so that they can have a better future for themselves and their children?**

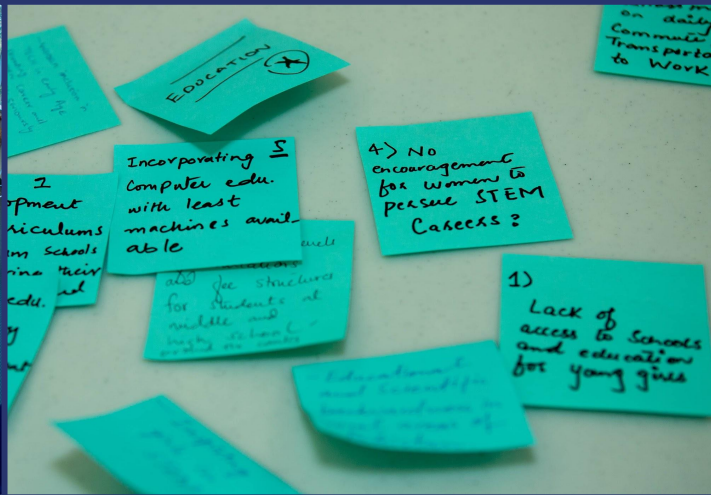
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## NEXT UP

- 1 What I have done thus far in the education space
- 2 What problems exist
- 3 What steps were taken to solve these problems
- 4 How we can work as a community to improve

# BACKSTORY





**40%** in four subjects (one of which is a Home Language)

**30%** in any other three subjects

**2%** as a condonation in one subject if it will lead to a pass



**80%** maths for STEM in tertiary institutions

# KASI MATHS





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**KasiMaths is a fun and interactive after-school STEM  
Enrichment Hub.**

**We remind students that Maths is Fun, Maths is  
Essential and Maths is Everywhere!**



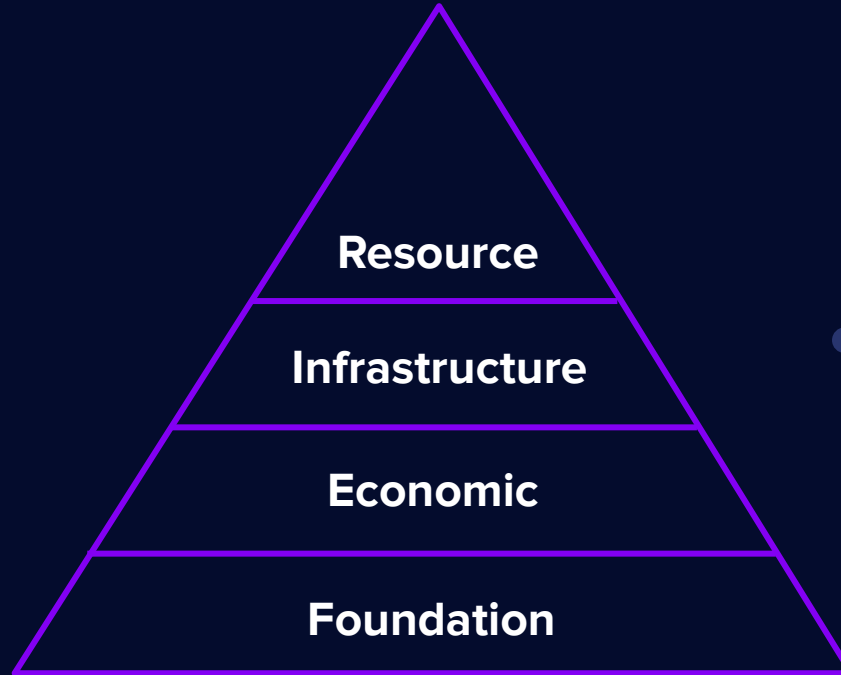


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**Since Digital and STEM skills are vital for future job opportunities, and we are living in a technology advanced society that is only getting more advanced with time, it is beneficial to teach students these skills in a way that compliments their foundation, and promotes their growth whilst piquing their interest.**

# CURRENT ISSUES IN SOUTH AFRICA

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1

## The overpopulation of classrooms in public schools and it's learner teacher ratio

School type	Number of learners	Number of educators	Number of schools
Public	12 490 132	399 156	23 796
Independant	402 141	34 164	1 966

## 2 Infrastructure and resource availability

**Public schools and facilities by province, 2016**

Province	With water	With electricity	With laboratory	With computer facility	With library
Gauteng	100,0%	100,0%	33,3%	80,3%	63,3%
KwaZulu-Natal	98,4%	94,1%	11,4%	33,3%	24,2%
Western Cape	100,0%	100,0%	33,2%	59,3%	55,0%
South Africa	99,3%	97,6%	18,3%	41,4%	29,2%

Adapted from Source: Department of Basic Education

### 3 Fail/Pass rates of mathematics & sciences

Results for selected subjects (proportions), 2008-16						
Subject	Year	Wrote	0-29%	30-49%	50-69%	70-100%
Mathematics	2008	300 008	54,6%	24,6%	12,5%	8,3%
	2016	265 810	48,8%	29,9%	14,4%	6,9%
Physical Science	2008	217 300	45,1 %	39,9%	11,6%	3,4%
	2016	192 618	38,0%	37,3%	16,6%	8,1%

Adapted from Source: Department of Basic Education

## 4 Literacy levels of parents

**Adult (age 35-64) literacy rates by province, 2016**

Province	Statistics	Not literate	Literate	Total
Gauteng	Number	575 371	4 013 463	4 588 834
	Per Cent	12,5	87,5	
Western Cape	Number	288 918	1 762 494	2 051 412
	Per Cent	14,1	85,9	
KwaZulu-Natal	Number	650 033	1 956 497	2 606 530
	Per Cent	24,9	75,1	
Total	Number	3 180 117	12 172 919	15 353 036
	Per Cent	20,7	79,3	100,0

Adapted from Source: Community Survey, 2016

## 5 Languages spoken in households

Distribution of the adult population aged 25-64 by language and literacy status, 2016

Language most spoken in the household	Statistics	Illiterate	Literate	Total
Afrikaans	Number	348 482	3 015 775	3 364 257
	Per Cent	10,4	89,6	
English	Number	86 633	2 301 380	2 388 013
	Per Cent	3,6	96,4	
IsiXhosa	Number	716 567	3 154 223	3 870 790
	Per Cent	18,5	81,5	
IsiZulu	Number	999 559	4 725 506	5 725 065
	Per Cent	17,5	82,5	
Sepedi	Number	358 703	1 929 447	2 288 150
	Per Cent	15,7	84,3	
Total	Number	3 805 851	20 826 045	24 631 896
	Per Cent	15,5	84,5	100,0

Adapted from Source: Community Survey, 2016

## 6

## Transport

Mode of transport used by students to get to educational institutions, 2016					
		Geographical area			
Mode of transport	Statistics	Urban	Traditional	Farm	Total
Walking	Number	6 191 721	5 884 287	291 390	12 367 398
	Per Cent	50,1	47,6	2,4	100,0
Bicycle	Number	40 921	28 053	2 764	71 738
	Per Cent	57,0	39,1	3,9	100,0
Motorcycle/scooter	Number	45 023	25 870	3 527	74 419
	Per Cent	60,5	34,8	4,7	100,0
Minibus taxi/sedan taxi	Per Cent	1 046 607	307 004	32 645	1 386 256
	Number	75,5	22,2	2,4	100,0

Adapted from Source: Department of Basic Education







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# SOLUTIONS AT KASI MATHS

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# ✓ TRANSPORT AND INFRASTRUCTURE



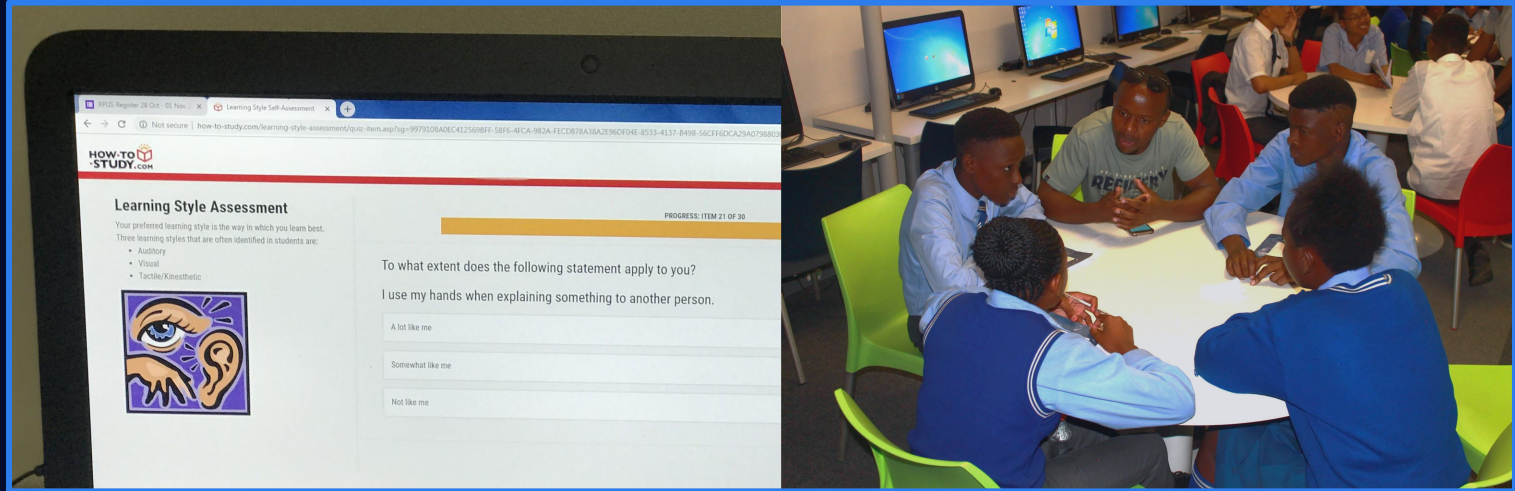
# ✓ FOUNDATIONS FIRST



# ✓ REAL WORLD EXAMPLES



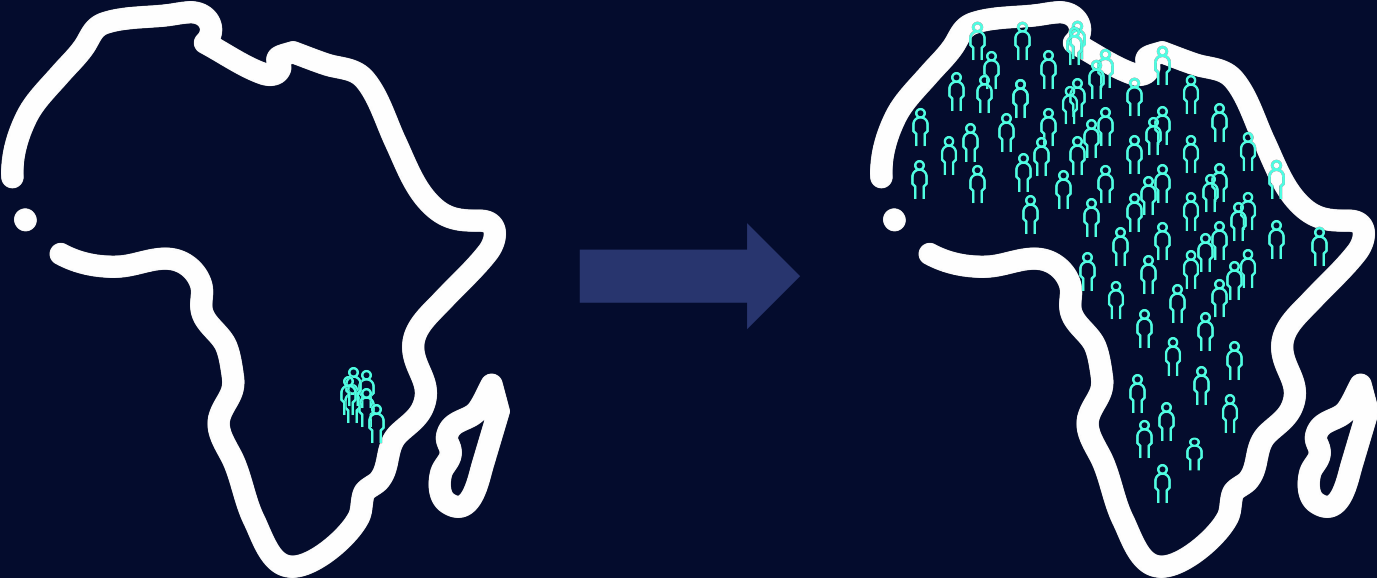
# ✓ PRACTICAL SKILLS



# ✓ MENTORSHIP



# SUSTAINABILITY & GROWTH





# GOVERNMENT PLANS

## SA develops coding, robotics curricula for Grade R-9



By **ADMIRE MOYO**, ITWeb's news editor.  
Johannesburg, 13 Mar 2019

Read time 4min 10sec

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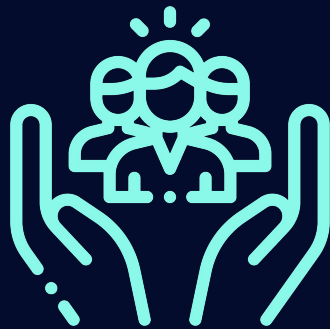
### On social media, readers were just as concerned:

Nazlee asked: *How are we so excited about coding when basic literacy is still very much absent? What am I missing?*

Romeo agrees with her: *It's a step in the right direction, but I agree with you on that. Basic literacy should be addressed first before we rush into introducing such things into our curriculum.*

Bongo says: *That was too quick! We don't even have well-trained teachers for this. How are these kids going to learn to code? Rushing things because we don't want to be 'left out' is going to mess up our children's future!*

Tisha is concerned: *Grades R - 3 learners can't read, write or understand basic maths. How will they understand these new subjects?*



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**LET'S WORK AS A COMMUNITY**

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# ✓ BE AWARE

## 1 The overpopulation of classrooms in public schools

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2 388 013

3 870 790

5 725 065

24 631 896

100,0

# ✓ NO DEED IS TOO SMALL

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**USE YOUR SKILLS**



**COLLABORATE**



# GET INVOLVED ?

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Website: [www.kasimaths.org](http://www.kasimaths.org)

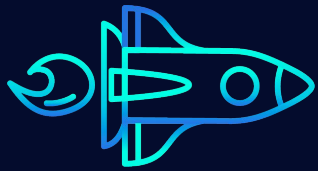




***Education is the passport to the future, for  
tomorrow belongs to those who prepare for it  
today.***

**– Malcolm X.**





**Questions?**

# REFERENCES

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