

Numeric[★]

2017

**ANNUAL
REPORT**

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AFTER-SCHOOL PROGRAMS

6158
LEARNERS
tested at baseline
and endline as part of
our monitoring and
evaluation process

2128
LEARNERS
accepted into our
after-school programs

86
AFTER-SCHOOL
classrooms

2617 LEARNERS
applied for our
after-school programs

94%
AVERAGE
attendance across
all after-school
classrooms

92 HRS
OF ADDITIONAL
maths instruction
per learner

55 ADDITIONAL
MATHS LESSONS
per learner,
on average

40 PARTNER
SCHOOLS
In Cape Town
& Johannesburg

6
SATURDAY
SCHOOL
CLASSES
ran for a full year

85%
PERSISTENCE RATE

TEACHING ACADEMY

20
FELLOWSHIP
OFFERS
accepted for 2017

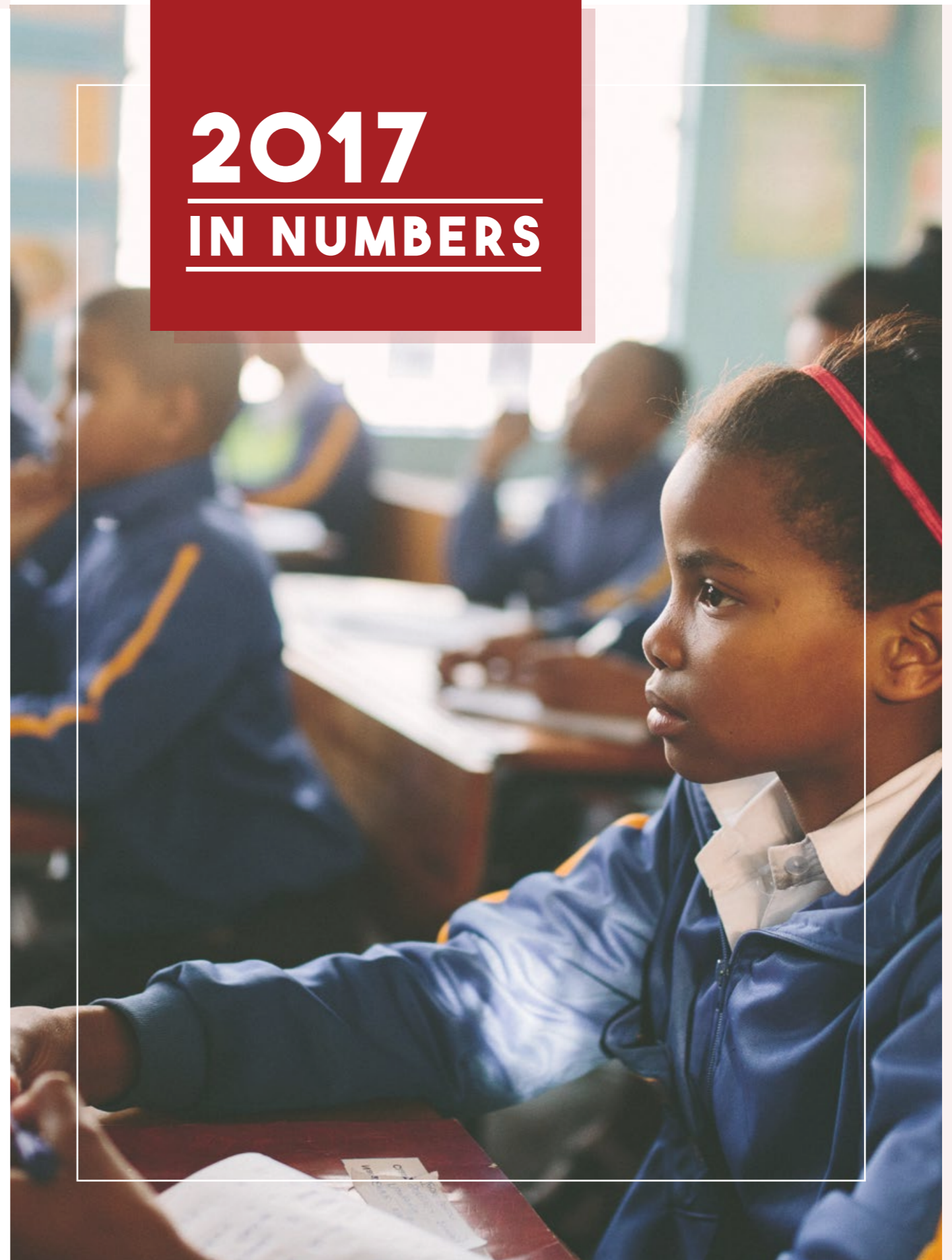
240
ADDITIONAL HRS
of maths content and
pedagogy instruction

82 HOURS
of in-class
teaching time per
teaching fellow

26 PERCENTAGE POINT
improvement on maths
content benchmark tests

47 UNISA
DISTINCTIONS
achieved by 2017 cohort

2017 IN NUMBERS





.....
*Our mission is to help
young South Africans excel
in mathematics and to
train well-equipped and
passionate maths teachers.*
.....

CAPE TOWN



WHERE WE
WORK

JOHANNESBURG

SOWETO



OUR VALUES

EXCELLENCE

We focus on quality in everything that we do. We recruit passionate people, deliver excellent teaching and training, and make a lasting impact.



INTEGRITY

We do what we say we're going to do. We are deeply and genuinely committed to our purpose and we do the right thing even when no one is looking.



COMMUNITY

We value people. We build community within our team, amongst our coaches, and within the communities we serve. It is community that gives us a collective sense of purpose, and the resolve to overcome great challenges.



TRUST

We provide autonomy for team members to accomplish the tasks expected of them and trust them to use creativity to achieve our goals.



LEARNING

We are constantly learning and seek to use our learning to improve ourselves and our programs. We deeply value and respect diverse perspectives and rely on open dialogue and honest feedback to improve.



TO OUR SPONSORS

Letter from our Managing Director



On the 18th of July 2017, Numeric turned five years old. We have come a long way since we launched our early pilots in Khayelitsha, and it's been exciting to see the way the organisation has grown and matured since then. It has been a good year for Numeric with our programs teams producing their best set of results yet. But it has not been without its challenges, and I will discuss some of these later in this report. Below I have summarised some of the key highlights from 2017.

AFTER-SCHOOL PROGRAMS

1

Numeric ran after-school programs for 2128 learners this year, the largest number to date. As part of the external evaluation done by our monitoring and evaluation (M&E) partner Ukufunda Education Consulting, 6158 learners were tested both in January and November, with Numeric learners accounting for about one third of learners tested, while the remaining two thirds were composed of learners from the same schools and same grades as a form of proxy control group.

2

Across our 86 classrooms, Numeric learners improved by 52 percent over the course of the year compared with a 24 percent improvement observed in control groups. The average Numeric learner gained 11 ranking positions in their grade as a result of the program (3130 learners per grade), a clear indication that the programs are having their desired effect.

3

At the top end of the spectrum, Numeric learners accounted for 3 of the top 10 learners at baseline. By November, Numeric learners accounted for all of the top 10 positions, as well as 18 of the top 20. This is an extraordinary achievement by the coaches responsible for generating these results, and is testimony to the time and effort they have put into developing their learners.

4

In terms of our key operating metrics, the average number of sessions delivered during the year declined slightly to 55 (2016: 58) as a result of public holidays and the way exams fell during term time. As a result, the number of contact hours per learner also declined from 100 to 92. In spite of the lower number of contact hours, the implementation of a clear curriculum structure and internal testing timeline ensured that coaches completed the curriculum as planned.

5

New and improved workbooks were introduced which provided an important means for our learners to reinforce and consolidate the lessons they were learning. These were significantly improved on the previous year, with exercises scaffolded carefully to assist learners in building their knowledge and ability in a logical and sequential manner. These workbooks are developed in-house by our programs teams and are a product in which we take great pride!

6

Average attendance across our programs increased to 94% (2016: 93%) and average persistence rate – i.e. the percentage of learners who complete the full year program – increased to 85% (2016: 82%). Persistence is a particularly important metric for us, as children tend to vote with their feet. If the program is not adding value, they are less likely to attend. There will always be some attrition in an after-school program (children move schools, take up other extra-curricular activities, etc) but 85% is our highest persistence rate since we started running programs and is indicative of the effort the coaches put into making the programs interesting, exciting and engaging.

NUMERIC TEACHING ACADEMY

1

In 2017 the Numeric Teaching Academy (NTA) entered its second year of operation. A rigorous recruitment process saw increased application rates with a total of 204 completed applications received (2016: 91). At the end of the interview process, 20 teaching fellowship offers were made equating to 10 applications received per offer compared with 4.1 in the previous year.

2

The Academy's year is split into two semesters, each comprised of 10 teaching weeks followed by a 5 week teaching practical. In 2017 we increased the number of teaching weeks but reduced the number of teaching days per week (from four to three) in order to give students more time to focus on their Unisa PGCE studies. In first semester, this had the effect of reducing overall contact hours to 150 (2016: 172) but increased attendance to 98% (2016: 90%) with a concomitant increase in student engagement and capacity to cope with the demands of their formal studies.

3

At the NTA we place a heavy emphasis on our students' mastery of their mathematics content knowledge. In first semester, we focus exclusively on Senior Phase mathematics (Grade 7-9). Students are independently and externally tested on this content in January and again in June, using highly comparable tests. Students improved from 47% at baseline to 73% at endline, a 26 percentage point shift (2016: 24 percentage points).

It should be noted that the external assessment used is fairly rigorous and holds students to, perhaps, a higher standard than your average Grade 9 assessment. Nevertheless, if South Africa is going to improve its outcomes in school mathematics, we must first acknowledge that there is a problem in the content knowledge of our trainee teachers. If we can appropriately address that challenge, we will go a long way to solving the problems we see in schools today.

4

In second semester we focus on selected topics in FET mathematics (Grade 10-12). Although the teaching term was shorter, students gave this course a rating of 4.8 out of 5.0 and reported significant increases in their confidence in teaching this material. It was pleasing to see that students rated their teaching internship experience in Numeric's after-school programs 4.5 out of 5.0, with students commenting that these opportunities contributed significantly to increased confidence in the classroom and their development as teachers as a whole.

FUNDING

In its first 5 years of existence, Numeric did not invest in its fundraising capacity. The combination of the enthusiasm for technology in education and specifically the global interest in Khan Academy allowed Numeric to grow substantially in a short space of time without focusing on its revenue generating capacity. We made the mistake of assuming the flow of external interest would continue, while changing our operating model to focus more on teacher development than technology. Additionally, our budget grew 65% between 2015 and 2016 with the launch of the academy. The increase in our budget, paired with little focus on fundraising, resulted in a deficit in both 2016 and 2017 and commensurately limited our growth prospects in 2018. We responded to this challenge by placing a key staff member in this important role last year and appointing a full-time fundraiser in late 2017. We have now expanded our funding base substantially and go into 2018 on a firmer financial footing. This was a tough lesson for the organisation, but one that has ultimately led to the establishment of fundraising capacity key to our sustainability.

OTHER CHALLENGES

While we enjoyed a successful year at the Academy in 2017, a series of events in the latter half of the year led to the expulsion of 10 of our students (more than half of the cohort!). This we did with great reticence, not only because of the impact it would have on the students, but also the impact it might have on our relationship with funders who were supporting the initiative and other interested stakeholders. However, the NTA has a very clear code of conduct, with an accompanying set of consequences for breach of this code, and while we continue to think highly of our students and are hopeful of their success in the world of teaching, we faced little choice but to follow through with our disciplinary process when they breached the code of conduct and their agreements with us.

For stakeholders who are interested in or concerned by what happened, Appendix C provides a more detailed account of what took place toward the end of last year.

What has become clear from events last year is that if public funds are to be used in Numeric's teacher training initiatives, then formal agreements with the department need to be reached. I am aware that Numeric is not the only organisation in this position. There are several other independent teacher training initiatives who would greatly benefit from the support of our government, and my hope is that in time the Department of Basic Education will make some small portion of the public purse available to initiatives such as ours to contribute to the production of scarce-skills teachers - teachers needed to build and improve the quality of public schooling in South Africa.

LOOKING FORWARD

At a special board meeting held on 11 October 2017, the board met to approve the budget for 2018. Having run a deficit in 2016, and anticipating another deficit in 2017, the directors elected not to run with the academy again in 2018. In spite of some of the challenges we faced in 2017, this was largely a financial decision to ensure the sustainability of our organisation. We continue to believe in the principles upon which the academy was founded, and may revisit the opening of the academy at some point in the future.

BOARD DEVELOPMENTS

During the year we bid farewell to two board members, Aziza Galiel (founder of Araviwe) and Adri Marais (CEO of Tsiba). Both have made significant contributions to the company during their tenure, and we are deeply grateful for their input, advice and oversight. We wish them both the best of luck as they commence on new endeavours in their own careers.

Also during the year we welcomed three new board members: Kristen Thompson, Riyaadh Najaar and Mahesh Cooper.

Kristen is Numeric's chief operating officer, and joins the board as its second executive director. She was Numeric's first employee back in 2013 and has made a significant contribution to the growth and development of the company over the last five years. Her extensive knowledge of our operations will make a meaningful impact at board level.

Riyaadh, or Mr Najaar as we prefer to call him, is highly respected in education circles, having run one of South Africa's most successful public schools for many years and having founded and chaired the Progressive Principals Association (PPA) since inception. Mr Najaar is intimately familiar with Numeric's operations, having provided the site for our first pilot back in 2012, and we are delighted to have someone with his experience in education on the board.

Mahesh is the chief operating officer of Perpetua Investment Managers, having previously served as an executive director at Allan Gray and head of institutional client servicing. Mahesh has served as a trustee on several philanthropic and impact-investing foundations, and we are pleased to welcome him as the most recent addition to our board.

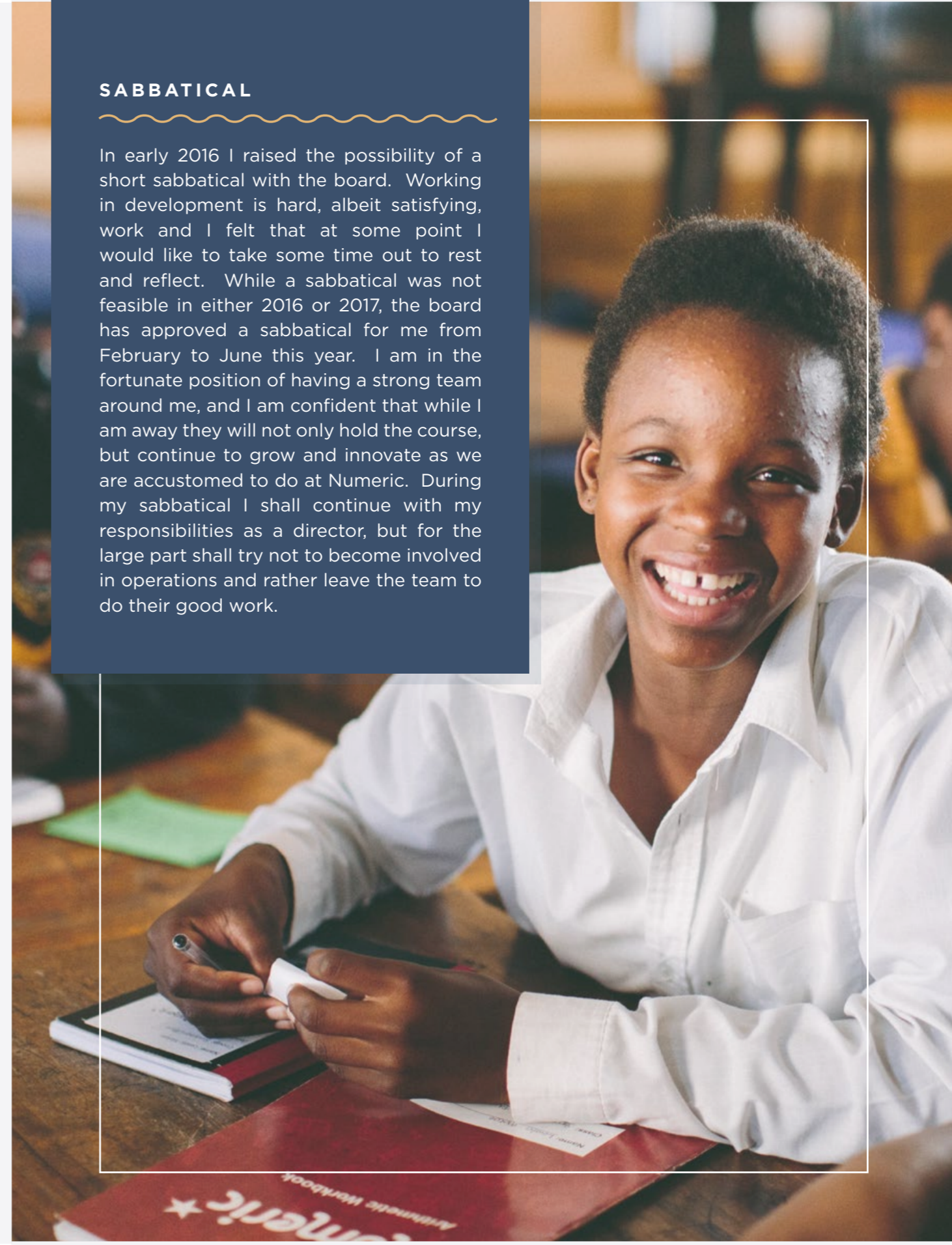
Governance in non-profit companies, and indeed in all companies and organisations, is critically important and I am confident that these new additions put Numeric on a firm footing going forward.

NOTES OF INTEREST

It is a little known fact that public benefit organisations (PBOs) such as Numeric, despite generating little or no revenue of their own, are eligible to register for value added tax (VAT) and to claim back VAT on their expenses. During the year Numeric completed its VAT registration and was able to file a retrospective claim of five years' worth of VAT. This resulted in a once-off "other income" line item of just under half a million rand, as well as ongoing annual savings of about two hundred thousand rand. In addition to being able to provide donors with Section 18a certificates, rendering their donations tax deductible, this is another way that the South African government supports public benefit activities such as ours.

SABBATICAL

In early 2016 I raised the possibility of a short sabbatical with the board. Working in development is hard, albeit satisfying, work and I felt that at some point I would like to take some time out to rest and reflect. While a sabbatical was not feasible in either 2016 or 2017, the board has approved a sabbatical for me from February to June this year. I am in the fortunate position of having a strong team around me, and I am confident that while I am away they will not only hold the course, but continue to grow and innovate as we are accustomed to do at Numeric. During my sabbatical I shall continue with my responsibilities as a director, but for the large part shall try not to become involved in operations and rather leave the team to do their good work.





“*Numeric has a very inspirational and motivational group. They helped me and other students conquer every math question we came across. Numeric was not only an after-school program, it was also a home to me and I cherished every moment I spent with the coaches and students.*”

~ Lulama, 2015 Learner

APPRECIATION

Without the support of our major donors, Numeric's existence and initiatives would not be possible. With that in mind, we would like to thank the Potter Foundation, Omidyar Network, Oppenheimer Memorial Trust and Mapula Trust for their financial support and ongoing encouragement and interest throughout the year. We would like to pay special thanks to the individuals behind those Foundations and Trusts who read our reports, provide thoughtful and critical input, and who administer their contributions on an annual basis. In particular, we'd like to thank Ben Stewart, Vineet Bewtra, Janet Marx and Michael Byron for their assistance and support over the last twelve months.

During the year we were sad to learn of the passing of Jennifer Oppenheimer. Jonathan and Jennifer played a critical role in helping Numeric to establish its presence in Soweto, and Jennifer was an energetic supporter of our work, taking time out to visit our programs and engage with our learners. I would like to extend our condolences to the family, and to assure them that Jennifer's legacy lives on in the work we do.

As mentioned previously, Numeric launched an individual giving campaign in 2017. Our individual donors contributed just under a million rand to our budget, making it possible for 285 children to complete our year-long program. We have been awed and inspired by the warmth and generosity with which these donors have given, and are grateful for their recognition of the importance of maths education in South Africa. While they may never meet the children they have sponsored, I believe their support will have far reaching consequences in the lives of these learners for many years to come.

As always, I would like to recognise and thank the school principals and liaison teachers at our partner schools. The South African education system is often criticised, and perhaps justifiably so, but these criticisms do not recognise that there are some incredibly dedicated and passionate people working inside the system to make it better. Numeric invests a lot of time and energy in identifying schools that have strong leadership and management teams, and we are both inspired by - and grateful to - the principals and liaisons at our partner schools for their support and contribution to our after-school initiatives.

Finally, I would like to thank the Numeric team - from managers to coaches to support staff - who have poured their energy, creativity and enthusiasm into our projects this year. You have produced an excellent set of results and can be proud of your achievements. I look forward to working with you to produce a similarly exciting set of results in the year ahead.

Yours sincerely,

Andrew Einhorn
Managing Director



Letter from the
Outgoing Chairperson

.....
We are delighted to share the latest update on the Numeric operations with you. We have much to celebrate and much for which to give thanks. The year 2017 started on a challenging footing. For the first time in the history of the organisation, the annual budget was not fully funded at the start of the year. While this was a stressful situation, the support of the stakeholders, combined with the tenacity and sacrifices of the management team and staff, turned the situation around. As is often the case in such situations, the crisis led to significant learnings within the organisation.

One of the beneficial outcomes was the development of a focussed fund-raising capability, together with the creation of related resources and networks. Notwithstanding this and other challenges, the team remained focussed on the core of the Numeric mission: producing excellent maths learner outcomes. In this Annual Report, we provide a detailed overview of the 2017 performance of the after-school programmes. As in previous years, these results have been independently evaluated by Ukufunda Education Consulting.

I would like to congratulate the management team and staff, the Numeric coaches, our partner schools, and most importantly the learners and their parents for an excellent performance – the best in the history of Numeric. You have worked very hard, and the results reflect this. It is amazingly inspiring to me to see how far Numeric has come. I was fortunate enough to be introduced to the organisation in 2012. At the time, all that existed was a pilot after-school program (or two?). Behind this was the founder Andrew Einhorn, a few volunteers, and a pioneering funder. There was no formal office or organisational infrastructure; but there was a dream, and a desire to make the dream real.

I was initially drawn in as a part-time volunteer, and as Numeric grew from a dream, to a project, to an organisation with employees, 41 partner schools, and 2128 learners, over time I joined the Board as a non-executive director, and briefly as chairperson. During this time, I observed two things that I think define much of what Numeric stands for:

- In the early days, I was often part of the recruitment process (staff, coaches, etc), and one of the extraordinary things I noticed was the very high calibre of candidates that the organisation managed to attract – this despite being a NGO not being able to pay commercial salaries;
- Embedded in the organisation is the focus on results and performance: the delivery of results, the measurement of results, and the reporting of results.

In this context it is not surprising that the programme performance is what it is.

During 2017, my professional commitments have led to me resigning from the board. I am blessed to have been part of the journey so far.

Thanks to the team, the funders (big and small), fellow board members, and all other stakeholders for all the energy and commitment you bring to the affairs of Numeric. Special thanks to Adri Marais, who is retiring as a non-executive director of the board. Adri has given generously not only of her time, but also of her valuable real-life insights in co-founding and running an organisation that, like Numeric, aims to create impact in the education space. We wish her well in her exciting new endeavours.

I hand over to Mr Najaar, the new chairperson, and wish him well on the next stage of the Numeric journey.

Aziza Galiel
(ex) Numeric chairperson

MATHS IN SOUTH AFRICA

- The Context

The recent 2017 matric results touted an increased pass rate in mathematics, of 51,9% who passed maths with a mark above 30%. While a pass rate of 51,9% in mathematics seems like an improvement, it is important to note that only 13,1% of the learners who wrote pure mathematics in 2017 achieved above 60% in mathematics (a mark that guarantees them access into tertiary

studies). There was also a significant decrease in the number of learners who wrote pure maths, with 20,000 fewer learners writing pure maths in 2017 compared to 2016. The drop-out and exclusion rates, particularly for mathematics, are important to consider when evaluating claims of an overall improvement in matric results.

The following diagram illustrates the 2017 Matric class.

IN 2006

1,185,198

CHILDREN ENTERED
GRADE 1

IN 2017, ONLY

534 484

WROTE
MATRIC

245 105

WROTE PURE MATHS

&
32 108

PASSED ABOVE 60%

In other words, for every 100 children who entered Grade 1 in 2006, only 45 of them wrote matric in 2017. Of those original 100, only 21 of them wrote pure mathematics and less than 3 passed with a mark above 60%, ensuring them entry into university studies in maths and sciences. **Less than 3% of children who started school together in Grade 1 finished matric in 2017 with a solid understanding of mathematics and the skills required to access tertiary studies in maths and sciences.**

At Numeric, we believe that an intervention at the high school level is too late to stem the tide of drop-out and loss of confidence in this important subject. That is why our interventions focus on the last year of primary school - our work allows more learners to leave primary school with a solid foundation in basic mathematics, enabling them to choose pure mathematics and be more successful in high school mathematics, thereby gaining access to tertiary studies.



“

The greatest lesson I took from being part of Numeric is that learners can learn while having fun, they just need to feel safe to make mistakes so that they can learn from them, after all maths is easy and fun, we just need to foster the I CAN DO IT attitude in the learners.

”

~ Tsheliwe, Former Coach



HISTORY & TRACK RECORD

| Key Metrics | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|-------------------------------------|--------|--------|--------|--------|--------|--------------------|
| Total Annual Budget | R0.41m | R1.85m | R3.81m | R5.58m | R9.42m | R10.01m |
| Operating Sites | 4 | 13 | 28 | 35 | 41 | 40 |
| Classrooms | 7 | 23 | 52 | 70 | 90 | 86 |
| Learners Accepted | 158 | 461 | 1138 | 1589 | 2084 | 2128 |
| Coaches¹ | 4 | 17 | 38 | 62 | 85 | 92 |
| Attendance Rate | 64% | 83% | 89% | 94% | 93% | 94% |
| Persistence Rate² | 61% | 66% | 74% | 81% | 82% | 85% |
| Avg Learners p/class | 22,6 | 20 | 21,9 | 22,7 | 23,2 | 24,7 |
| Contact Hours | 73 | 80 | 95 | 96 | 100 | 92 |
| Program Fees³ | R0k | R31k | R131k | R323k | R454k | R431k ⁴ |
| Cost per Learner p/m | R324 | R293 | R312 | R310 | R297 | R326 |
| Full-time Staff | 1 | 3 | 6 | 10 | 15 | 14 |

¹ Coaches are university students who complete a one-year teaching internship in our after-school programs, this internship is discussed in more detail later in this report

² Percentage of learners who start and complete the full-year program

³ Fees paid by participating learners as a contribution to overall program costs

⁴ Fees from 2017 reported exclusive of VAT - required as part of our VAT registration in 2017



AFTER-SCHOOL PROGRAMS

| KEY METRICS | 2016 | 2017 | Change |
|--|--------|--------|--------|
| Partner schools | 41 | 40 | -3% |
| Number of classes | 90 | 92 | 2,2% |
| Learners tested | 5585 | 6158 | 10% |
| Applications received | 2593 | 2617 | 1% |
| Application rate | 42% | 42% | 0pp |
| Learners accepted | 2084 | 2108 | 1% |
| Acceptance rate | 80% | 81% | 1pp |
| Numeric learners as % of total tested | 37% | 34% | -3pp |
| Percentage of classrooms in Grade 7 | 85% | 88% | 3pp |
| Average sessions held | 58 | 55 | -5% |
| Average contact hours per class | 100 | 92 | -8% |
| Persistence rate | 82% | 85% | 3pp |
| Attendance rate | 93% | 94% | 1pp |
| Gross shift in test scores (Numeric) | 16.4pp | 16,4pp | 0pp |
| Gross shift in test scores (Non-Numeric) | 8.5pp | 6pp | -2,5pp |
| Net shift in test scores | 7.9pp | 10,4pp | 2,5pp |
| Delta (Effect Size) | 0.77 | 0,87 | 0,1 |



Numeric partners with primary schools in low-income areas to run after-school programs for Grade 7 learners. Learners apply to join our programs in January and successful applicants commence the program in early February. Learners meet with their coaches twice each week throughout the school year, covering a curriculum of 22 key lessons during the year including arithmetic and pre-algebra. The learners are independently tested in January and again in November to quantify the level of improvement over the course of the year. The testing is done annually using highly comparable tests so that the Numeric operating teams can track their performance each year.

Numeric[★]

2017 RESULTS

AFTER-SCHOOL PROGRAMS

In 2017, Numeric's after-school programs achieved our greatest impact on record. We continue to contract an external evaluation company to assess our impact with 6158 learners tested as part of this process. One-third of learners tested were Numeric learners and the remainder served as a control group. In 2017, the average Numeric learner improved 52% during the year compared with an average improvement of 24% in the control groups. We attribute the improved results to improved coach recruitment and training processes, combined with the implementation of a clear curriculum structure for our coaches that included 5 scheduled tests throughout the year. Compared with previous years, the scheduled testing provided clear pacing targets for our coaches and ensured curriculum completion in 90% of our classrooms.

While the average control group (non-Numeric) learner IMPROVED BY **24%**

The average Numeric[★] learner IMPROVED BY **52%** over the course of the year*

& **11** RANKING POSITIONS in their grade (approx. 130 learners per grade)

Numeric[★] learners accounted for **3** OF THE **TOP 10** learners at baseline

& **ALL** OF THE **TOP 10** learners at endline

While the top control group learner scored **90%** the top Numeric[★] learner scored **99%** on the endline test

The most improved learner improved by **53** percentage points over the year, from **20%** to **73%**

Numeric[★] learners accounted for **35%** of learners tested, but **86%** of the **TOP 100** most improved

KEY METRICS

Average attendance in Numeric's programs was **94%** (Up from 93% in 2016)

Average persistence in Numeric's programs was **85%** (Up from 82% in 2016)

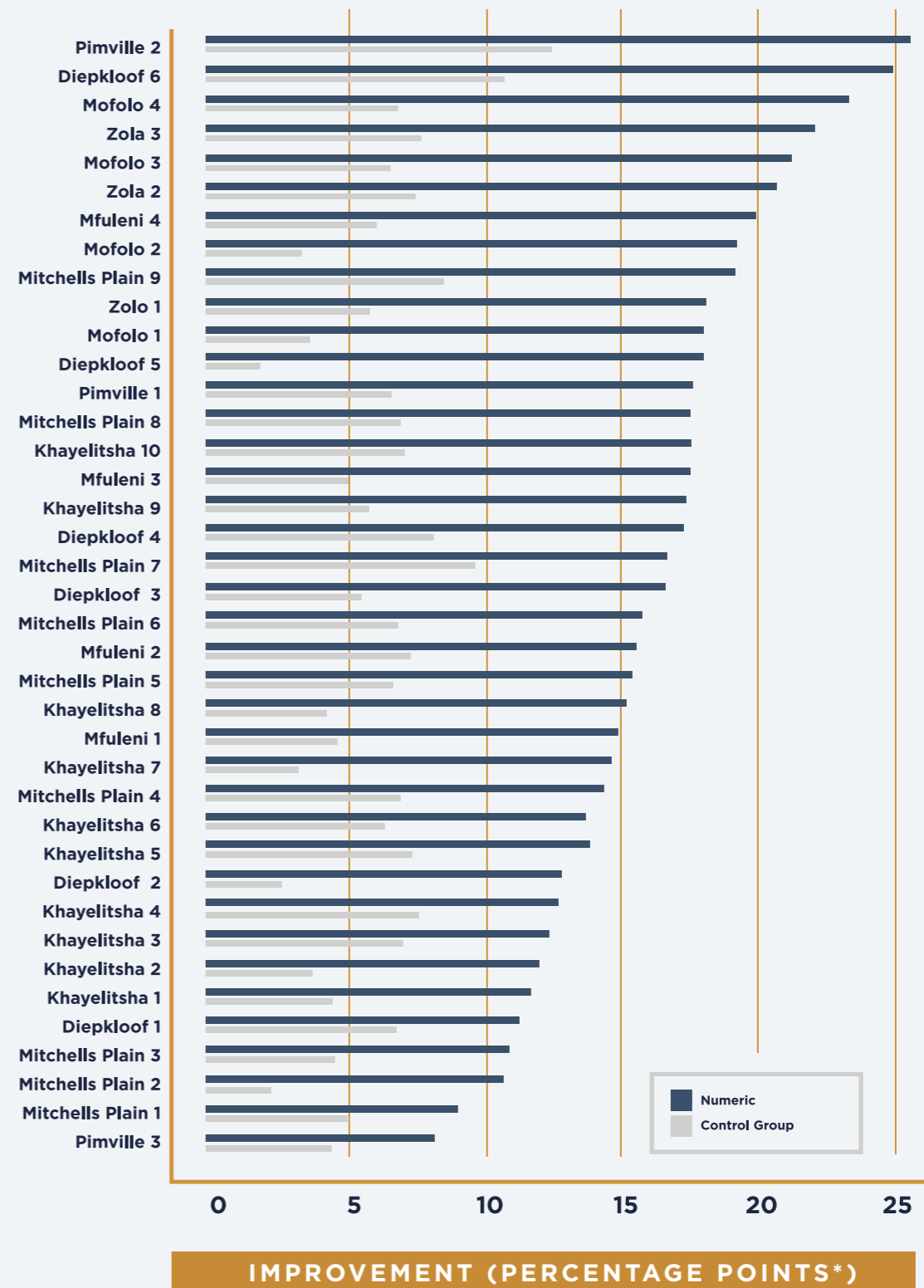
The average learner received **92 HOURS** of additional instruction throughout the year

88.4% of Numeric learners are **IN GRADE 7** (final year of primary school)

66.3% of Numeric learners **ARE FEMALE**

RESULTS BY SCHOOL

Numeric learners outperform their peers in 100% of our partner schools. The following graph indicates Test Score Improvement (by school**).



* There is a subtle difference between reporting 'percentage point (pp) change' in test scores and 'percentage improvement'. If a learner improves her test score from 40% at baseline to 60% at endline, it can either be viewed as a 50% improvement, or a 20 pp improvement. The 16.4pp improvement generated for Numeric learners in 2017 equates to a 52% improvement on their baseline scores.

** School names obscured to protect learner privacy.



MATH CAMP

Each year during the winter holidays, we hold a Math Camp for the most motivated learners in our after-school programs. The camps are held on university campuses in Johannesburg and Cape Town and provide learners a fun, stimulating, and engaging week of additional instruction, guest speakers, games, interactive activities, and opportunities to learn and apply maths in new and different ways. They also get to make new friends and have lots of fun!

As these camps draw learners from all of our programs, they are also an opportunity for learners from different racial, ethnic, religious, cultural, and linguistic backgrounds to meet and learn from one other. For many of our learners, this is also their first opportunity to visit a university campus and begin to envision their future beyond school. We hope that this exposure, both to new people and the university, sparks their motivation for future study.

In 2017, 672 learners applied to participate in our math camp and 345 were selected to attend the math camps at the University of Johannesburg and Cape Peninsula University of Technology. With limited capacity in our venues, the programs team used a set of criteria to select learners: 1. Strong after-school program attendance, 2. Good behaviour, 3. Good attitude toward learning and helping others, and 4. Properly completed applications.

The participating learners each received an additional 35 hours of maths enrichment in their week at math camp and were inspired to think about opportunities beyond school in tertiary studies and future career paths in maths.

Numeric[★] OLYMPIAD

In 2015, Numeric launched an Olympiad for all participating learners in our after-school programs. This Olympiad provides a unique opportunity to practice applying maths logic and reasoning in new ways while preparing learners for higher levels of maths and other maths competitions that they may encounter in high school. The Olympiads are held in the communities where we work (Mitchells Plain, Khayelitsha, Mfuleni, and Soweto) and involve a half day of extra activities – the maths olympiad test, snacks, and a guest speaker to inspire the learners. Learners look forward to participating in this special event and are awarded prizes at our end of year prize-giving based on their performance. The Olympiad also offers an opportunity for parents to visit as several of the venues are large enough for additional spectators.



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TEACHING ACADEMY

Numeric piloted its teaching academy (NTA) for a second year in 2017. As with the first year, we experienced some success, some challenges, and learned a great deal.

Our recruitment and the interest in our program increased year on year with application numbers increased from 94 in 2016 to 204 in 2017. At the culmination of the recruitment process, we made offers to 24 of the candidates, of whom 20 accepted and attended our training boot-camp. During our student recruitment for 2018, we experienced an 88% increase in application numbers, with 384 applications received (2017: 204). It should be noted that applications for NTA teaching fellowships are demanding, requiring

two motivational essays, short answer questions and submission of supporting documents. We interviewed over 100 candidates and shortlisted 30 students whom we were interested in supporting to complete their PGCE.

During the year, we delivered 240 hours of training on maths content, pedagogy, and professional communication. As maths content is a major focus of the academy training, it is important to reflect on the impact of the senior phase (Grade 7-9) training that took place in the first half of the year, where our students improved by 26 percentage points between baseline and endline on senior phase content tests.

As a result of the budget deficit we ran in 2016, Numeric explored a variety of different avenues to fund its academy. We eventually settled on a hybrid funding model where academy fellowships would be funded partly through donor funding, and partly through applications to the South African government's teaching bursary scheme (Funza Lushaka). When the awards were made in April, we were delighted to discover that 15 of our students had received the Funza Lushaka award, which – according to our agreements with students – would contribute just under half a million rand of funding to the academy (a similar amount would go to the students as a top-up to their bursary with us). As Funza Lushaka bursaries were paid directly into student bank accounts, students were required to pay the agreed upon sum to Numeric. When several students elected not to pay these amounts to Numeric, it resulted in a dispute which led to the dismissal of a number of our students. This incident is discussed in greater detail in Appendix C.

At a special board meeting held in on 11 October 2017, the board met to approve the budget for 2018. Having run a deficit in 2016, and anticipating another deficit again in 2017, the directors were concerned that running the academy again without additional financial support would put the organisation at risk. This being the case, we took the unpleasant but necessary decision not to run the academy again in 2018.

At this point it is worth saying that we continue to believe in the principles upon which the academy was founded, namely that human capital is the most important asset in a country; that teachers are the custodians of that human capital; and that therefore great energy and resource should be invested in the recruitment and training of teachers. As such, we may revisit the opening of the academy at such a time when funding allows for it, but until then will seek to support the major teacher training universities in our vicinity (CPUT, UWC, UJ, WITS) by providing teaching internships to their students through our after-school programs.



Numeric
TEACHING
INTERNSHIPS
- Our Coaches

Numeric's core business is to run after-school programs in mathematics and to use these programs to provide teaching internships to pre-service mathematics teachers. The majority of our interns are Bachelor of Education (B.Ed) students who are currently enrolled at local universities. Through our intense training, ongoing mentorship, and practical teaching experience, student teachers become significantly more confident, well-equipped and motivated to enter the classroom upon completion of their degrees.

RIGOROUS RECRUITMENT

The application process for teaching internships with Numeric is highly competitive. For the 2018 year, we received close to 500 applications for 60 available internship positions from students at the University of Johannesburg (UJ), the University of the Witwatersrand (WITS), the University of Cape Town (UCT), the University of the Western Cape (UWC), and Cape Peninsula University of Technology (CPUT). In addition to the B.Ed students who apply for these positions, we also have applications from students (science, commerce, etc) who are interested in education, some of which go on to do PGCE degrees after interning with us.

INTENSIVE TRAINING

After recruiting the most motivated and enthusiastic coaches, we train them intensively for two weeks (80 hours) in a training boot-camp that is run in December. During training, coaches are trained in maths content, pedagogy, effective board work and presentation skills, classroom management, and learner engagement methods, and are provided with a variety of practical tools which support them in creating high-quality learning environments. Numeric also uses an online training platform called Khan Academy and interns are required to complete 150 competencies on that platform before they are allowed to enter the classroom.

MENTORSHIP

Each coach is mentored by one of Numeric's dedicated program managers. Each program manager is responsible for mentoring and managing 10 coaches. In addition

to informal visits and support, formal observations are provided in first and third terms, and are used as opportunities to provide feedback on their classroom management and teaching effectiveness, as well as to provide suggestions and frameworks on how to improve. In addition to observations, program managers meet with their interns individually once each term to check in with them and provide informal support and feedback.

ONGOING TRAINING AND DEVELOPMENT

Interns also participate in ongoing training every second week during the year. This time is used partly to cover administrative aspects of the programs, but primarily to provide ongoing training in content, pedagogy and classroom management. Interns are treated like professionals, and are expected to engage actively in these training sessions.

IMPACT

For our 2018 cohort of coaches, we achieved an average of 36% improvement in maths content knowledge between baseline (test administered at coach interview in November 2017) and endline (test administered at the end of the training in December 2017), resulting in better equipped coaches for our programs and far better equipped future teachers.

- 30 HRS** | Ongoing mentorship, formal observations, one-on-one meetings
- 30 HRS** | Coach meetings and professional development
- 80 HRS** | Coach training boot camp
- 100 HRS** | In-class teaching time in Numeric's after-school programs

= 240 HRS of ongoing development during the one-year teaching internship

OUR PEOPLE

- Stories of Impact



I'm currently a grade 9 student at COSAT. I enjoyed the Numeric classes because we all treated each other as brothers and sisters in the Numeric class. It was like we are family and the coach was nice to us. I am grateful to Numeric because I was able to get into COSAT. Without attending Numeric classes I don't think I would have been accepted at COSAT because the only two learners from my grade who were accepted at COSAT were numeric learners. I even met other Numeric learners at COSAT from other schools.

Mbalentle Cukana - 2016 Numeric Learner



Being part of Numeric as a coach was a great experience. I have learnt so much about teaching and working with people, more especially about working with learners. A part of me was able to change (impact) young people's lives by giving back to the community, and helping them achieve their goals and encourage them to take initiative in the maths studies. I was a role model, a friend, and provided guidance to these young people. It was great because I also live in Khayelitsha, which allowed them to see that reaching where I am is possible. I feel I have learnt skills to be a better teacher. I have a vision that every learner from Khayelitsha may have the opportunity to be part of the Numeric programme.

Abongile Ndlazilwana - 2015-2017 Numeric Coach



Numeric was helpful to me because I learnt things I didn't know like prime factorisation. I used to dislike maths because I found it difficult, but now after joining the Numeric programme I love it. My school results have also improved as I have seen on my report.

Asanda Jizana - 2017 Numeric Learner



It has been a phenomenal experience being part of the Numeric team, I have learnt so much. Through the training we went through, my own mathematical understanding improved tremendously and even more so through teaching it. I have been able to apply what I have learnt to what we do in the math lectures. Moreover, my confidence has grown both in being able to stand in front of a classroom and in interacting with others. I have learnt the most basic things about being a teacher that we do not learn in any university modules, such as getting through a curriculum and meeting deadlines, marking scripts and setting mock tests and assignments, learning to write on a chalkboard and keeping track of learners' homework. Being part of the after school program has given me a taste of what it really means to be a teacher and a safe space to grow and improve.

Sadiyah Dhodhat - 2015 Numeric Coach



Being a Numeric coach has given me the foundation to become a great teacher. I have been equipped with skills to handle different situations and to be creative about how to handle discipline. I have learnt the importance of making learning fun and still motivate and inspire my learners to do well in mathematics. Maths should be an experience, learners should be able to relate to examples given and see them practically.

My confidence as I have been part of a supportive community that always allowed me to make mistakes and not judge me. We shared ideas on how to take care of our classes with other coaches and you would try strategies that would fit your personality. Confidence is very important as a teacher because learners can easily see when you are not sure and they will also lose confidence in you.

I am trained to teach grade 4- 6, however when the opportunity came to teach grade 3 learners I took it. After coaching at Numeric for a year I have learnt that whatever grade you teach, consistency and showing love is very important as a teacher. These are some of the lessons that encouraged me to take this grade even though many teachers were running away from it.

Even my family has commented about my increased confidence since I joined Numeric.

Lerato Molaba - 2015 - 2017 Numeric Coach, currently teaching full-time

INCOME STATEMENT (R'k)

For the year ended 31 December

| | 2015 | 2016 | 2017 |
|----------------------------------|------|------|-------|
| Donation Income | 6205 | 8054 | 7562 |
| Fee & Training Income | 528 | 597 | 1009 |
| Other Income | 105 | 174 | 573 |
| Total Income | 6838 | 8824 | 9144 |
| Program Costs | 4774 | 7776 | 7657 |
| Administrative Costs | 811 | 1645 | 2352 |
| Total Costs | 5585 | 9420 | 10009 |
| Surplus / Deficit | 1253 | -596 | -865 |

BALANCE SHEET

For the year ended 31 December

| | 2015 | 2016 | 2017 |
|--------------------|------|------|------|
| Assets | 2650 | 2130 | 1330 |
| Liabilities | 841 | 918 | 983 |
| Net Assets | 1809 | 1212 | 347 |

Annual Financial Statements available upon request.

APPENDIX A AFTER-SCHOOL PROGRAMS

PROGRAM OBJECTIVES

A low-cost, scalable model for the provision of high-quality after-school maths programs that:

- Provides solid foundations in mathematics to children as they transition to high school
- Increases learner confidence and excitement about mathematics
- Helps partner schools to become centres of excellence
- Provides valuable teaching experience and development opportunities to pre-service teachers (coaches)

KEY METRICS

We measure success as:

- The number of learners who complete our one-year program (2018 Target: 1,900 learners)
- The number of pre-service teachers who complete coaching internships (2018 target: 75 coaches)
- The average attendance rate across all classrooms (target: 90%)
- The percentage of learners who complete the program, aka persistence rate (target: 85%)
- The gross shift in test scores for Numeric learners between January and November (target: 20%)
- The net shift in test scores for Numeric learners - i.e. net of control group (target: 10%)
- The impact size (delta) measured as net shift over baseline standard deviation (Target: >0.5)
- The percentage of coaches who are teaching maths one, three and five years after graduating
- The percentage of alumni in the teaching profession one, two, three and five years after graduating.



APPENDIX B

RESULTS BY CLUSTER (2017)

| CPT Programs | Grade | Learners Tested | Num. Baseline (%) | Num. Endline (%) | Num. Shift (%) | NP Baseline (%) | NP Endline (%) | NP Shift | Std Dev | Net Shift (%) | Delta |
|--------------------|-------|-----------------|-------------------|------------------|----------------|-----------------|----------------|----------|---------|---------------|-------|
| Khayelitsha 1 | 7 | 125 | 30,1 | 43,3 | 13,2 | 25,6 | 32,9 | 7,3 | 11,1 | 5,9 | 0,53 |
| Khayelitsha 2 | 7 | 87 | 22,2 | 34,9 | 12,7 | 20,0 | 26,8 | 6,8 | 10,3 | 5,9 | 0,57 |
| Khayelitsha 3 | 7 | 110 | 38,8 | 56,4 | 17,6 | 31,5 | 38,4 | 6,9 | 13,7 | 10,7 | 0,78 |
| Khayelitsha 4 | 7 | 83 | 28,7 | 43,3 | 14,6 | 27,6 | 30,6 | 3,0 | 11,0 | 11,6 | 1,05 |
| Khayelitsha 5 | 7 | 125 | 30,7 | 42,5 | 11,8 | 27,7 | 32,2 | 4,5 | 12,6 | 7,3 | 0,58 |
| Khayelitsha A | | 530 | 30,1 | 44,1 | 14,0 | 26,5 | 32,2 | 5,7 | 11,7 | 8,3 | 0,7 |
| Khayelitsha 6 | 7 | 174 | 28,5 | 45,8 | 17,3 | 25,7 | 31,3 | 5,6 | 11,6 | 11,7 | 1,01 |
| Khayelitsha 7 | 7 | 136 | 38,7 | 53,9 | 15,2 | 30,7 | 35,0 | 4,3 | 13,6 | 10,9 | 0,80 |
| Khayelitsha 8 | 7 | 112 | 34,1 | 48,3 | 14,2 | 27,0 | 34,4 | 7,4 | 11,8 | 6,8 | 0,58 |
| Khayelitsha 9 | 7 | 130 | 31,9 | 46,1 | 14,2 | 20,3 | 26,3 | 6,0 | 13,3 | 8,2 | 0,62 |
| Khayelitsha 10 | 7 | 143 | 32,5 | 44,7 | 12,2 | 29,0 | 32,7 | 3,7 | 12,8 | 8,5 | 0,66 |
| Khayelitsha B | | 695 | 33,1 | 47,8 | 14,6 | 26,5 | 31,9 | 5,4 | 12,6 | 9,2 | 0,7 |
| Mfuleni 1 | 7 | 135 | 37,6 | 57,5 | 19,9 | 25,2 | 31,1 | 5,9 | 13,7 | 14,0 | 1,02 |
| Mfuleni 2 | 7 | 223 | 33,8 | 49,3 | 15,5 | 26,9 | 34,4 | 7,5 | 12,4 | 8,0 | 0,65 |
| Mfuleni 3 | 7 | 162 | 29,3 | 44,3 | 15,0 | 19,5 | 24,1 | 4,6 | 10,9 | 10,4 | 0,95 |
| Mfuleni 4 | 7 | 179 | 38,9 | 56,4 | 17,5 | 27,2 | 32,2 | 5,0 | 12,6 | 12,5 | 0,99 |
| Mfuleni 5 | 8 | 259 | 45,6 | 55,7 | 10,1 | 35,7 | 43,2 | 7,5 | 14,8 | 2,6 | 0,18 |
| Mfuleni | | 958 | 37,0 | 52,6 | 15,6 | 26,9 | 33,0 | 6,1 | 12,9 | 9,5 | 0,8 |
| Mitchells Plain 1 | 7 | 93 | 44,9 | 55,6 | 10,7 | 37,8 | 40,2 | 2,4 | 15,7 | 8,3 | 0,53 |
| Mitchells Plain 2 | 7 | 148 | 27,1 | 43,6 | 16,5 | 24,2 | 33,8 | 9,6 | 11,1 | 6,9 | 0,62 |
| Mitchells Plain 3 | 7 | 219 | 49,4 | 64,8 | 15,4 | 44,3 | 50,9 | 6,6 | 19,8 | 8,8 | 0,44 |
| Mitchells Plain 4 | 7 | 107 | 49,8 | 59,0 | 9,2 | 49,8 | 54,8 | 5,0 | 15,2 | 4,2 | 0,28 |
| Mitchells Plain 5 | 7 | 86 | 49,3 | 60,4 | 11,1 | 44,6 | 49,0 | 4,4 | 17,3 | 6,7 | 0,39 |
| Mitchells Plain A | | 653 | 44,1 | 56,7 | 12,6 | 40,1 | 45,7 | 5,6 | 15,8 | 7,0 | 0,5 |
| Mitchells Plain 6 | 7 | 136 | 37,6 | 53,4 | 15,8 | 30,8 | 38,1 | 7,3 | 17,1 | 8,5 | 0,50 |
| Mitchells Plain 7 | 7 | 128 | 31,9 | 46,4 | 14,5 | 33,2 | 39,7 | 6,5 | 12,2 | 8,0 | 0,66 |
| Mitchells Plain 8 | 6 | 150 | 39,9 | 59,4 | 19,5 | 33,5 | 42,0 | 8,5 | 13,4 | 11,0 | 0,82 |
| Mitchells Plain 9 | 7 | 151 | 34,5 | 52,1 | 17,6 | 31,8 | 38,6 | 6,8 | 13,4 | 10,8 | 0,81 |
| Mitchells Plain 10 | 8 | 251 | 38,7 | 51,6 | 12,9 | 30,8 | 35,1 | 4,3 | 14,4 | 8,6 | 0,60 |
| Mitchells Plain B | | 816 | 36,5 | 52,6 | 16,1 | 32,0 | 38,7 | 6,7 | 14,1 | 9,4 | 0,7 |
| CPT Programs | | 3652 | 36,2 | 50,7 | 14,6 | 30,4 | 36,3 | 5,9 | 13,4 | 8,7 | 0,66 |

| JHB Programs | Grade | Learners Tested | Num. Baseline (%) | Num. Endline (%) | Num. Shift (%) | NP Baseline (%) | NP Endline (%) | NP Shift | Std Dev | Net Shift (%) | Delta |
|--------------|-------|-----------------|-------------------|------------------|----------------|-----------------|----------------|----------|---------|---------------|-------|
| Diepkloof 1 | 7 | 123 | 39,8 | 57,0 | 17,2 | 33,2 | 37,1 | 7,7 | 10,1 | 10,5 | 0,63 |
| Diepkloof 2 | 7 | 177 | 26,8 | 43,3 | 16,5 | 21,7 | 28,1 | 5,7 | 9,0 | 8,9 | 0,96 |
| Diepkloof 3 | 6 | 56 | 23,1 | 48,1 | 25,0 | 17,0 | 28,6 | 15,0 | 8,4 | 14 | 1,63 |
| Diepkloof 4 | 6 | 81 | 21,6 | 39,6 | 18,0 | 16,5 | 32,3 | 16,1 | 22,5 | 15,9 | 1,62 |
| Diepkloof 5 | 7 | 55 | 23,2 | 34,7 | 11,5 | 18,3 | 34,4 | 8,4 | 10,3 | 4,8 | 1,41 |
| Diepkloof 6 | 7 | 69 | 35,9 | 49,2 | 13,3 | 33,6 | 36,2 | 2,6 | 14,6 | 10,7 | 0,73 |
| Diepkloof | | 561 | 28,4 | 45,3 | 16,9 | 23,4 | 29,2 | 5,9 | 11,9 | 11,1 | 1,0 |
| Mofolo 1 | 7 | 229 | 32,6 | 53,9 | 21,3 | 25,2 | 31,3 | 6,1 | 12,1 | 15,2 | 1,26 |
| Mofolo 2 | 6 | 77 | 30,0 | 53,9 | 23,9 | 21,0 | 27,5 | 6,5 | 11,4 | 17,4 | 1,53 |
| Mofolo 3 | 6 | 59 | 26,1 | 45,6 | 19,5 | 18,3 | 21,4 | 3,1 | 11,5 | 16,4 | 1,43 |
| Mofolo 4 | 6 | 26 | 20,0 | 38,0 | 18,0 | 12,6 | 16,0 | 3,4 | 7,9 | 14,6 | 1,85 |
| Mofolo | | 391 | 27,2 | 47,9 | 20,7 | 19,3 | 24,1 | 4,8 | 10,7 | 15,9 | 1,5 |
| Pimville 1 | 6 | 98 | 27,4 | 52,7 | 25,3 | 18,0 | 30,4 | 12,4 | 9,9 | 12,9 | 1,30 |
| Pimville 2 | 6 | 79 | 24,8 | 33,0 | 8,2 | 16,4 | 20,8 | 4,4 | 10,2 | 3,8 | 0,37 |
| Pimville 3 | 7 | 124 | 33,9 | 51,6 | 17,7 | 25,6 | 32,2 | 6,6 | 13,6 | 11,1 | 0,82 |
| Pimville | | 301 | 28,7 | 45,8 | 17,1 | 20,0 | 27,8 | 7,8 | 11,2 | 9,3 | 0,8 |
| Zola 1 | 7 | 212 | 33,3 | 54,3 | 21,0 | 26,4 | 33,7 | 7,3 | 10,9 | 13,7 | 1,26 |
| Zola 2 | 7 | 194 | 34,1 | 52,4 | 18,3 | 25,2 | 30,8 | 5,6 | 11,8 | 12,7 | 1,08 |
| Zola 3 | 7 | 230 | 37,9 | 61,1 | 23,2 | 24,4 | 31,7 | 7,3 | 12,5 | 15,9 | 1,27 |
| Zola | | 636 | 35,1 | 55,9 | 20,8 | 25,3 | 32,1 | 6,7 | 11,7 | 14,1 | 1,2 |
| JHB Programs | | 1889 | 29,4 | 48,0 | 18,6 | 22,1 | 28,2 | 6,1 | 11,5 | 12,5 | 1,1 |

Please note: Results above include results for learners in the year-one Numeric program only and exclude Saturday School and year-two classrooms. School names are obscured to protect learner privacy.

APPENDIX C

FUNDING

In its first five years of existence, Numeric never once employed a fundraiser. We have grown from a R500k budget to a R10 million budget, and never spent a dime on fundraising capacity. I'd like to pretend that I can claim sole responsibility for attracting such generous funding over that period, but I think it's necessary to acknowledge that Numeric has been the beneficiary of two secular trends which have very little to do with our actual performance.

The first is the rapid increase in (dare I say "hype around") technology in education. When Numeric was founded, we focused on implementing a technology-based platform in low-income areas with a view to improving learner performance. Back in 2011 this was still a novel concept, and once word got out about what we were doing, we were frequently approached by people either interested in working with us or in funding our initiative.

The second factor is the halo effect associated with Khan Academy. Along with Coursera and Udacity, Khan Academy was amongst the first great successes in online learning, attracting funding from the likes of Bill Gates and Google, and rapidly shooting through the 10 million user mark. Being one of the first organisations to implement this platform, on scale, and in Africa, Numeric attracted a lot of attention, both from local and foreign funders.

The result of the above two factors is that Numeric has been able to grow into one of South Africa's largest after-school programs with relatively little focus on the revenue side of our operation. This has been a blessing on the one hand, as it has allowed us to focus exclusively on implementation, but a curse on the other as we almost grew to believe that funding might always pour through the door in this way. No such luck!

Toward the end of 2015, we began to move away from a technology-based approach. It is important to clarify that we do not view ourselves as a tech ed company. While we will use technology when it makes sense to do so, our stated mission is to help young South Africans excel in mathematics. If technology can help us do that, ok. If there are other approaches that yield better results, then we will pursue those. Our focus will always be on the learner and doing things that help that child to build their confidence and establish strong mathematical foundations.

Following a review of our 2014 and 2015 monitoring and evaluation (M&E) results, we began to see a pattern. Our best results were consistently produced in classrooms staffed by our most passionate and competent coaches, regardless of the presence or absence of technology. At that time, approximately half of our classrooms ran in computer labs and the other half in traditional classroom settings using workbooks. Both produced good results, but

there was no correlation between technology and results. In fact, our traditional classrooms slightly outperformed our computer-based environments, and were significantly cheaper and easier to run.

Given our own observations, as well as a growing body of evidence internationally, we came to realise that the quality of coach we recruit and quality of training and mentorship we provide to them are far larger determinants of learning outcome than the medium used to provide curricular materials (tablet vs textbook). As one McKinsey report puts it: "Of all the controllable factors in an education system, the most important by far is the effectiveness of the classroom teacher. The world's best school systems make great teaching their "north star".' Albeit reluctantly at first (we had invested heavily in our knowledge and implementation of Khan Academy environments), we have transitioned to a more traditional classroom environment with a far greater emphasis on coach recruitment and training. And with significant benefits to our impact! While the control group improvement over the last five years has remained fairly consistent at around 25% per annum, Numeric learner improvement over the same period has improved from 36% to 52%. Our increased focus on coach recruitment and training, and the adoption of the traditional classroom model, has paid dividends.

The irony is that while our results have been improving, our move away from technology has affected the ease with which we can attract funding. This is not worth weeping over, it is a trade-off we would accept any day of the week! But it does mean that we need to make a more concerted effort to engage with the donor community to talk about what we are doing. It also means that Numeric needs to employ and develop full-time fundraising capacity in order to make our initiative sustainable. While at first it seems painful to spend money on anything outside of our direct beneficiaries, we have come to view it differently. Spending a small portion of our budget on engaging with the donor community is not only critical from a sustainability perspective, but provides us an opportunity to learn from these donors (many of whom are astute and have a lot of experience in this field) and to establish partnerships and collaborations where previously there might have been none. Donors are a key part of the development process, and it is only appropriate that we acknowledge their role and service them appropriately.

I must confess that I came to this realisation far too late, and my reluctance to invest in fundraising has greatly limited Numeric's ability to expand this year. That being said, over the last 12 months we have made a more concerted effort on fundraising. We have employed a full-time fundraising coordinator, established a 501(c)3 partnership in the US, and initiated an individual giving campaign. These efforts

have begun to bear fruit, with our total donor base increasing from 7 unique donors just a year ago to 52 at present (of whom 38 are individuals or families). I am confident that if we continue to invest in this way, Numeric will be able to extend its programs to a larger number of children in 2019.

TEACHING ACADEMY

In 2016, Numeric expanded rapidly, growing its program base by 25% and launching the Numeric Teaching Academy (NTA). As a result, the budget grew rapidly (by 65%!), and while we did a good job in growing our funder base, it was not sufficient to meet the growth in costs and resulted in a budget deficit.

Not wanting a repeat of 2016, we began to look for funding opportunities - for the Academy in particular - with a view to ensuring the initiative's sustainability.

The South African government has - very wisely - established a dedicated program within the Department of Basic Education (DBE) responsible for the funding of teacher training. This program is called Funza Lushaka, and receives approximately R1 billion each year from treasury to fund teacher training initiatives. This money is distributed between the 21 teacher training universities and is used to fund priority areas in education (mathematics, science, languages, etc).

With the Academy focused on recruiting and training new maths teachers, it seemed like a logical step to engage with Funza Lushaka around the possibility of funding for our program. In our engagement with them over the last three years, we have found them to be an impressive group of people and - gladly - very supportive of the work we do. However, they are limited in that their mandate allows them to engage only with the 21 teacher training universities and not with independent initiatives like ours.

Fortunately, Numeric uses the Unisa PGCE certificate and as such, our students are eligible for Funza Lushaka funding through Unisa. In the ideal world, Funza Lushaka would fund our students' Unisa studies and their living stipends during their year of training, while our donors would fund the training and internships we provide to these students. There are, however, two challenges with this. Firstly, there is no guarantee that our students will receive Funza Lushaka funding. Secondly, even if they do receive the award, the funds are only distributed in July/August, leaving them short of funds for the first six months of the year.

As a result of the above, we decided on a compromise. Numeric would provide the full funding required by our students to complete their PGCE, an amount of R70,850. This covers tuition, textbooks, a laptop, as well as transport and living stipends. Our agreement with our students is that we will apply for Funza Lushaka funding on their behalf (a total additional award of R58,280) on condition that if the application

is successful, 50% will go to the student in the form of a top-up and the remainder will go to Numeric to subsidise the cost of the bursary provided to them. In this way, students who do not receive Funza Lushaka funding are fully covered for the year; students who do receive Funza Lushaka funding receive a handsome top-up to their existing funding from us; and Numeric receives a contribution to its costs from public coffers.

In principle, this was a good plan, and we were delighted in April to discover that 15 of our students had been awarded Funza Lushaka bursaries. When the Funza Lushaka disbursements were made in August, funds were paid directly into student accounts (in accordance with government mandate) and students were then requested to pay the agreed-upon portion to Numeric. While several students did so, and completed the year in good standing, a significant number of them elected not to, feeling - understandably - that this was an award won on their merits and therefore due in full to them, in spite of what they might have agreed to in signing their fellowship agreement with us.

From a personal point of view, I recall being a student myself and remember a university roommate who was furious to discover that the university reduced its financial aid awards to students if they already had other merit-based awards. The result for him was that while he had worked hard to obtain a number of merit-based awards, he ended up receiving the same amount of funding as students who had not. While from the university's perspective this made sense (he had, after all, sufficient funds to get by and complete his studies), from his perspective it felt like a great injustice that he should not receive both sets of financial awards.

I believe our students may have felt something similar, the difference being that because the money was transferred into their bank accounts, the decision sat with them as to whether to honour their agreement with us or to retain both sets of awards. As mentioned, while several of them did transfer the agreed-upon amounts, a significant number did not.

Without going into details of the ensuing events, the conclusion of the dispute was that, following a formal disciplinary process and much deliberation on the matter, we expelled 10 of our students for breaches of their student codes of conduct.

At this point I would like to add that we bear no ill-will towards these students. What happened was unfortunate and it was unpleasant to dismiss them. I am confident that they will learn from these events, as have we, and will likely go on to make a significant contribution to the teaching of mathematics in South Africa all the same.



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