CODEJIKA.COM

VOCATIONAL CODING SKILLS & DEVELOPER PIPELINE

PART OF A NATIONAL “VOCATIONAL DIGITAL SKILLS FOR YOUTH” AGENDA

IMPACT A COMMUNITY PROJECT PROPOSAL

#REALWORLD

CODING SKILLS FROM DAY 1

The fastest way to inspire, drive and grow coding skills.

Connecting key stakeholders and advancing "future-safe" vocational skills in education.

Learn more

Proposal Summary

This proposal focuses on driving national change through engaging the public, government and the Department of Education structures in meaningful, simple steps towards increasing awareness, confidence, practical skills and long-term transformation in Computer Science and "new generation" vocational education.

1. Policy
   Propose a new elective and co-create technical courses for Secondary Schools on: Computer Science & Web Development.

2. Coding Campaign
   Raise awareness through a fun and impactful campaign.

3. Teacher Training:
   Allowing Teachers to have fun with Code, Clubs and Class.

4. Coding Districts:
   Co-developing provincial, district and School-level coding schedules and frameworks that make it easy to implement during school hours and in term schedules.

5. Online Coding Tools
   Curriculum and Online coding tools support the teachers, certification, in-school learning and the campaign.

Why vocational digital skills?

The informal economy is slowly transitioning to include digital elements. These themes must be enhanced through providing fast, efficient and large pools of software builders that can amplify potential businesses and products.

Why a so narrow? Why only Web Dev?

Web development is the perfect entry point. It's like the "writing" skill that allows further absorption and personal learning. Fast-turnaround times, engaging and creative outcomes, gender equity due to purpose and highly creative outcomes, low-cost rollout and a simple learning curve all contribute to a compelling case.

Beyond further development of intermediate level curriculum an application development course is planned.

Budget Summary

CodeJIKA *Impact a Community* Budget for Three Years		
YEAR 1		
YEAR 1: 7 JIKA Schools (74k each)	ZAR	518,000
JIKA - Platform Development - Entry Phase 1	ZAR	105,900
JIKA Schools - District-level Web-Design Competition	ZAR	35,200
Dev - School On-boarding & Teacher Content Creation	ZAR	175,000
Monitoring & Review (7.9k each)	ZAR	55,300
JIKA Program – YEAR 1*	**ZAR**	**889,400**
OPTIONAL ELEMENTS		
Basic National Awareness Drive - Incl Video	ZAR	225,000
Curriculum Dev - P4 - T2-T5	ZAR	131,000
Mobile - Components + Offline Code Validation & Cert	ZAR	82,000
Code Factory - Model & Basic Components	ZAR	175,000
Code Factory - Customized Curric & Management	ZAR	389,000
TOTAL Optional Elements YEAR 1	**ZAR**	**1,002,000**
YEAR 2		
YEAR 1: 4 **Additional** Schools (74k per school) - New	ZAR	296,000
YEAR 2: 7 JIKA Schools (62k each)	ZAR	434,000
Curriculum Expansion to IT Elective + Exam Features	ZAR	121,000
JIKA Schools - District-level Web-Design Competition	ZAR	45,100
Monitoring & Review (7.9k each)	ZAR	86,900
JIKA Program – YEAR 2	**ZAR**	**983,000**
OPTIONAL ELEMENTS		
Policy "Bringing WebDev Electives to Matrics"	ZAR	255,000
- (DBE & Principals Seminars)		
Basic National Awareness Drive - Incl User Gen Content	ZAR	225,000
TOTAL Optional Elements YEAR 2	**ZAR**	**480,000**
YEAR 3		
YEAR 1: 3 NEW Schools (74k per school)	ZAR	222,000
YEAR 2: 4 **Additional** Schools (62k per school)	ZAR	248,000
YEAR 3: 7 JIKA Schools (59k each)	ZAR	413,000
ICT & Coding in Schools Policy & App Dev Component	ZAR	243,000
JIKA Schools - District-level Web-Design Competition	ZAR	65,100
Monitoring & Final Year Evaluation (7.9k each)	ZAR	110,600
JIKA Program – YEAR 3	**ZAR**	**1,191,100**

OPTIONAL ELEMENTS		
High-level Media & Awareness Event – Feb 2022	ZAR	274,500
Mobile App Dev for On-going Offline Learning	ZAR	292,000
Subject Framework & Curricular Revision	ZAR	493,000
TOTAL Optional Elements YEAR 3	ZAR	1,059,500
TOTAL PROPOSAL		
JIKA Program – YEAR 1 - 2019/20	ZAR	889,400
JIKA Program – YEAR 2 - 2020/21	ZAR	983,000
JIKA Program – YEAR 3 - 2021/22	ZAR	1,191,100
Total Basic Elements JIKA Program I Year 1 – 3	ZAR	3,063,500

**Note: This is a partial annual budget. Additional communities, policy work, academic mapping, web dev, admin & compliance and awareness work are excluded.*

Minister Abrahams having fun with the @codejika learners from Prosperity High School, at @MicrosoftSA Digital Drivers event in Nov 2019.

Contents

Vision:

Every School in Africa Teaches Code.

First Step:

Every High School Offers a Computer Science Elective.

Our Philosophy:

We believe in the potential of youth to not only revitalize the economy, but to encourage and inspire - To lead by example and to build ethical and efficient businesses.

We've made it our job to:

A. Make sure they know we believe in them.

B. Provide them with the tools, confidence and community to build great things.

We do this through creating coding communities in secondary schools.

2-YEAR VISION:

GIRLS AND YOUTH TO HAVE MONETIZABLE SKILLS BEFORE LEAVING SCHOOL

10-YEAR VISION:

TO SEE A LARGE POOL OF ETHICAL DEVELOPERS EMPOWERING LOCAL MANUFACTORERS & SMES.

+27 11 455 2282
mail@code4change.co.za
Flex Office 14, 106 Johan Ave., Sandton 2191
PO Box 440, BFV 2008

Our History:

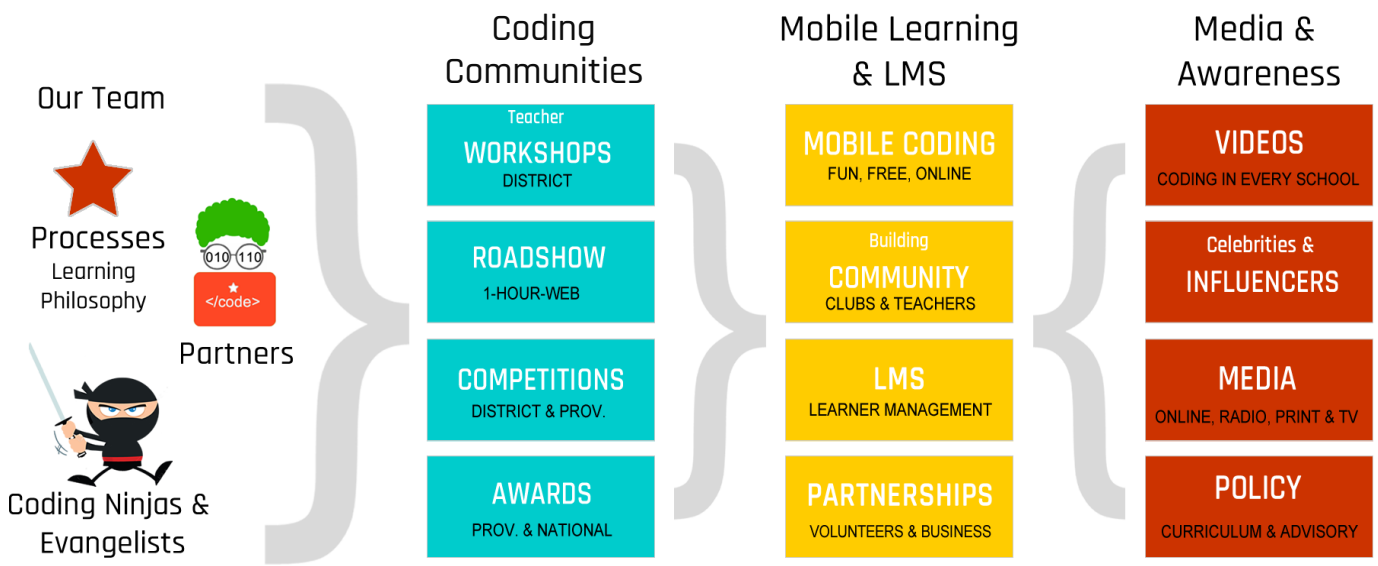
The CodeJIKA Program is a social impact project created and driven by Code for Change, an NPO which has trained over 10000 youth in 15 IT Training Centers & schools in 5 provinces since 2009 and has been on the forefront of coding in SA schools since 2014.

Meet the team

See the vision: Our 3 min Intro Video:
https://www.youtube.com/watch?v=da82NIbzsHo

CodeJIKA Structure

Overview: Project & Campaign Structure



Our Motivation:

Why is coding training in demand?

Opportunity-creating skills offer the user new career and study paths. They also radically increase the attractiveness of the learner within a "real" employment context. A student who has learned coding since 8th grade, taken part in competitions and is part of a club will be able to add value and be a junior developer within a few months of focused work. This is because the concepts and basics have been embedded since years.

Broader Opportunity Spectrum:

This is the primary difference between coders and those who, for example, learn carpentry. A carpentry worker can only use those specific skills in a workshop. A coder can add value in a social media company, a financial firm (working with macros and formulas in excel and other software), project management (planning and structuring processes), SMEs handling the websites and a software development company.

SME's must increase efficiency to grow or compete internationally:

The number of firms utilizing software for operations and client engagement, and needing customization thereof, is increasing rapidly. Having someone who understands how software works and being able to adapt it, either via a GUI or code, is important for a most medium sized enterprises and the market cannot supply skill at an agreeable rate.

As a result, small businesses lack skills and efficiency to create scale – This is our mission – Build a pool of ethical developers who can empower SMEs 5 – 10 years from now. We're not about a quick turnaround, we're about a long-term transformation of a job market, allowing a new breed of entrepreneur and enterprising developer to create a new form of business in SA: The digitally enabled, switched on SMME, which can compete on an international level due to specialization and efficiency.

Small businesses lack skills and efficiency to create scale – This is our mission:

Build a pool of ethical developers who can empower SMEs 5 – 10 years from now.

How We Are Different:

A. Clear 10-year vision
B. Curricular benefits to Department of Education – Data and results fed back.
C. Collaboration – Information sharing between Corporates, Min./Dept. of Education, Universities & soon-to-be students.
D. Strong Awareness component
E. Built for local and international scalability

1. CS POLICY, ADVOCACY & CURRICULUM DEVELOPMENT

INTRODUCTION

Policy supports and drives implementation. (Code.org)

Policy includes both legislation (Law) and regulation (How it is interpreted.)

Code for Change looks at both legislation and how current regulation can be best interpreted to implement intermediary changes.

IMPLEMENTATION

The CodeJIKA Program believes that scalable impact in education only comes through:

A. Deep collaboration with education authorities.
B. Certified subjects being implemented broadly in schools.
C. Great content, outcomes and skills aligned to teen's needs, desires and real-world futures when they leave education.

It therefore assists Dept/Ministries of Education in rolling out "Web Development and/or Application Development" as a subject and/or elective in High Schools.

Provisional Accreditation:

If approval or accreditation is not immediately available then provisional accreditation will be sought through;

1. National Educational Authorities
2. Provincial Authorities
3. TVET Management & Accreditation Authorities
4. National Standards Authorities
5. Leading University/ie assigning credit to curriculum/course.

C4C Approach to Policy

- Relationship Building through meetings ,events, publications, media, campaigns
- Targetted Relationships, including with the Provincial and National Educational Authorities – Ministers & Deputies, (ICT) Educational Committees (Members and Head), Curriculum Developers and Policy Writers

Initial Submissions for CS Policy in South Africa

1. Web Development as a Subject
2. New Web/App Dev Elective Suggestion
3. Consult on CS components in Edu (As part of new, general Technology or ICT Subject)

Showcase Results, Data and Pilots

- Data
- Narrative Reports
- Pilot programs

Range of recommended policy-related activities

Possible CS Policy Actions

Collaboration/Consultation
Consultation on existing CS efforts within DBE National & Provional
Policy Writing: White Paper and Proposal
Meetings with Policy Makers
Parliamentary Engagement
Tertiary Education CS Thought-leaders Engagements

Possible CS Awareness Actions

Expo Presence Stands
Conference Speaking
Media: Radio
Media: Print Interview
Press Releases
eNewsletters
Teachers News Bulletins
Teacher Oriented Events
Provincial: District Coordinators Workshops

High-level Research, Policy Proposals & White Papers

- Explore CS – Web & Application Development Framework for High Schools
- Partner with leading proposals and African Policy-makers around Computer Science in Education for a new High-school elective: CS & Web Development tailored to labour market and needs of small and medium sized enterprises
- Advocacy with various divisions within DBE National and Provincial
- Advocacy within Tertiary Institutions and Education

2.CODING CAMPAIGN

OVERVIEW

Spearheading a high-profile, national campaign is a critical part of driving awareness and ensuring digital skills are on the national agenda (Digital Skills Strategy) leading to increased buy-in by government and industry leaders towards policy change. It also sustains and strengthens in-school engagements and district-level commitments in a fun and impactful manner. It will communicate the importance of learning web development and digital entrepreneurship skills and how this will benefit girls and youth, their families and societies. This will drive a common goal of including youth in the digital economy and galvanize support from all sectors:

- The Government benefits from to better understand the possibilities and options available.
- The general public benefits from to be aware of the opportunities for youth and how it can allow job creation and relevant skills development.
- Schools and districts need to be invigorated from multiple touch points with an engaging, fun and modern way to doing things and transforming school context. Allowing faster and more efficient knowledge flow.
- Corporates need a structured way to support awareness of the skills of the future among staff and customers.

IMPLEMENTATION

The campaign will run on the following actions:

1. **Creating advocacy and branding materials,** such as posters, flyers, banners, press releases, and ground-breaking, youth coding videos;
2. **Engaging with media and partners online:** Building relationships with media and awareness partners, including NGOs, advocacy groups, media houses and conference/expo managers.
    a. Online banner partners liaising & advocating on-boarding on high-traffic sites, e.g. Gumtree, etc
    b. Providing Corporate Partner Blast Emails, Templates and Campaign Actions - Tools creation and corporate partner on-boarding
    c. Teacher Awareness Liaising (Teachers Associations, Districts, Provinces and other Line Ministries) with email blasts, ongoing communications, print communications and high-level meetings
3. **Building celebrity and influencer engagement,** adopting a district or province together with influencers and high-profile social media marketing

4. **Web content updates, including** content, security and key features to enable an increase in collaborator sign-ups and engagement options

3.TEACHER TRAINING WORKSHOPS

OVERVIEW

The teacher training workshops are focused on equipping provinces, districts, teachers and other implementing partners to teach, examine and coach learners on practical web development skills as well as support the integration of Computer Science into the South African syllabus and curriculum. Code for Change aims to create communities of enthusiastic digital change-makers in each district that support web development and digital learning in schools.

Target Teachers & Implementing Partners:

Attitude: Forward thinking, tech savvy & open-minded. Willing to learn and energetic.

Objective of Workshops:

To create communities of enthusiastic digital change-makers in each district that support Coding clubs, events and digital learning in the schools.

IMPLEMENTATION

How will this be achieved?

1. Through ongoing communication and advocacy with key implementing partners, including email blasts, meetings, and high-level events. Target implementing partners include teachers, ICT district and provincial administrators/coordinators, and other partners (IT associations, teacher unions, NGO's etc) who are actively engaging in providing digital skills and are willing to learn;
2. Effective and engaging workshops that introduce coding, CS and CodeJika programme in partnership with the national, provincial and district Department of Education. Gov partners, Edu Tech-focused NPOs and corporate volunteers are encouraged to attend the workshops and help support and encourage teachers in their roles as mentors and change-makers.
3. Follow-up structures by third-party partners/Code for Change project managers through emails, additional training and site visits, focusing on the top performing schools.

A unique training module will be on *Gender in Technology*, which will set the stage with powerful examples of women in tech, encouraging an increase female registration, participation and leadership in classes, and evolve towards equality.

4.ONLINE PLATFORM & CURRICULUM

In-house Web Development curriculum

F. FUN. Approaches coding and web development as a fun and engaging pastime.
G. Works completely OFFLINE: No installations, No need for internet at all.
H. 3 Projects: No loading content on the machines.
    A. This means no problem with viruses and access for introductory lessons.
I. Focused on local problems and impressive outcomes;
    A. Social – Youth are expected to teach others and find solutions for their neighborhoods.
    B. Entrepreneurial – Intermediate and ultimate outcomes focus on creating a website for a local business, school or organization.
    C. Job-seeker – Project 2 creates an web-version CV.
J. Curriculum is oriented at self- & group-learning
K. Mentors & Club-Starters don't need experience in coding.

In-house Online Learning Platform

(in beta www.codejika.com)

A. Interactive, web-based mobile coding platform
    i. Full interactive and personalized learning & coding environment (not just content, but micro coding assignments with immediate feedback.)
    ii. Benefits of Web-based:
        1. With Telco zero-rating all learning would be free & immediately accessible.
        2. Apps incur charges for downloading and have a psychological barrier to entry.
    iii. Unique mobile-first curriculum and teaching style.
B. Complementary Desktop Version (limited lessons available.)

Tech Tools in Production

C. LMS (Learner Management System) Progress Tracking & Monitoring Tool for online learners. - [in production]

D. On- & Offline Trainer Progress Tracking & Attendance Tool

Coding Curriculum Model

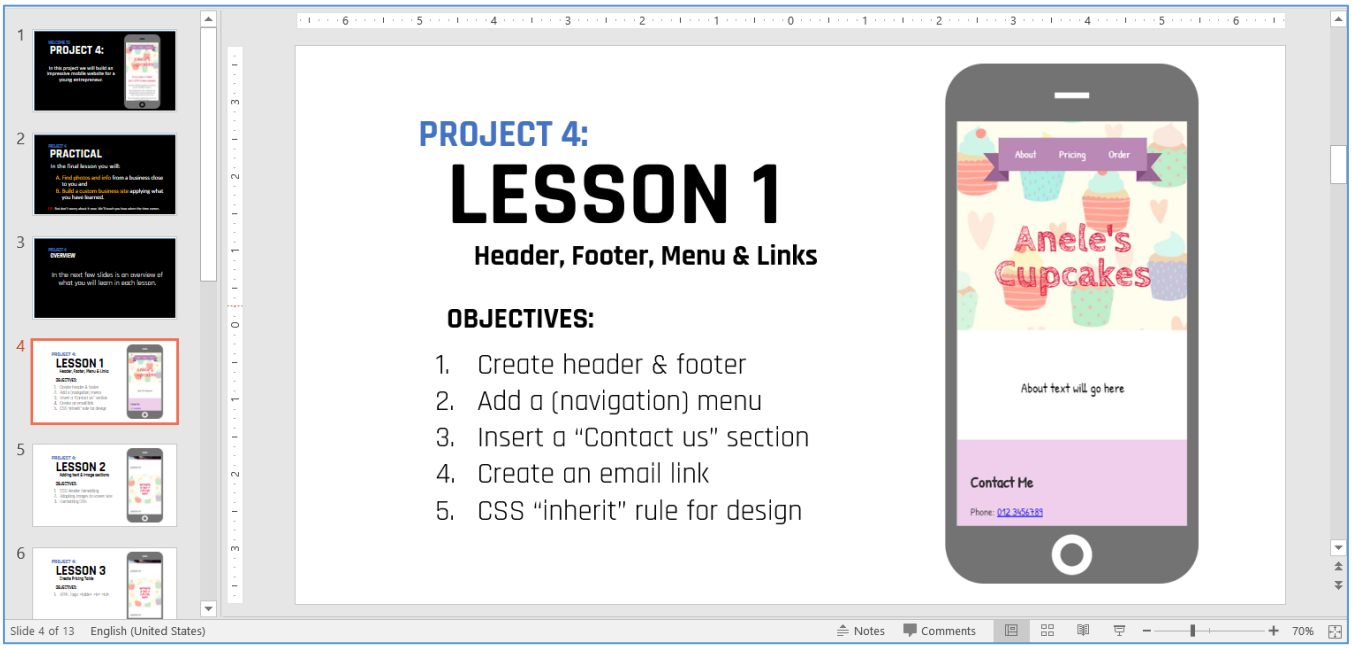


Image: Screenshot of CodeJIKA Curricular Design.

Introduction to CodeJIKA Curriculum:

One of the over-riding goals of the CodeJIKA program is to see: Monetisable skills in South African Secondary School learners.

Medium-term economic student-generated outcome:

"Kids able to make from digital skills while still in school."

Our solution brings learners further and faster to an impressive outcome thanks to removing all non-essential elements from the program.

How to we achieve this?

1. We **start with the end** result in mind. All trainers, students and participants in the program know the end goal and every step of learning is building directly to a challenging and distant goal.
2. **Practical focused training**: All learning is focused directly on implementation – Learning by doing. If theory is not important to the leaner understanding how to the build the final project, it is "stacked" for later or provided as complimentary, non-mandatory learning material.
    a. We call these theory focused elements "Learning Pods". These are mini-learning packages which can be referenced from anywhere on the page and even after a project is complete.
3. Completely linear approach: **Frontend web development is the only topic.** Backend programming structures, how a pc operates, OS, MS Office, Word, Excel are all shunned until a final, impressive project is completed.

Our goal in the curriculum development of the CodeJIKA program an as-impressive-as-possible singular final project which everything learnt builds towards.

Curricular Design Goal:

An as-impressive-as-possible singular final project which everything learnt builds towards.

Curricular Design Philosophy:

Our philosophy in curricular development is that all points of contact and learning must culminate in a singular, focused result. The outcome must be obvious, impressive and empowering. Why?

A. **Limited amount of time**: Since it is an afterschool program and hard to coordinate, get buy-in from learners, teachers and school management, and customarily, only core curricular topics are prioritized.
B. **Show evidence of learning**: If the outcome is impressive it sustains interest and shows the results of the program thereby allowing scale and further growth.
C. **Confidence building**: A student's confidence is built if a practical, functional project can be produced.
D. **Real-world entrepreneurial application**: It supports the entrepreneurial element in the program which allows students who apply themselves to have opportunity to sell/generate revenue from the skills developed.

E. **Parental and teacher support:** Support from these stakeholders can be increased through showcasing an impressive result.
F. **Ease of monitoring trainer and program results**: If one school's learners consistently out-perform others in the final projects then we investigate, ask why/how and how came the results are so impressive, attempting to learn and improve through this, and vice versa.

Dual-benefit approach to learning:

An additional differentiation is that all content is directed toward the demographic and context of the learner. With this in mind, every engagement and implication is carefully crafted to have maximum impact on the thoughts, dreams and further development of the learners.

Examples of this:

Project 2: Creating a CV in Project 2: Few learners in government schools are taught about CV creation. These learners create, hard-coded online versions. Learners are required to create a digital, web-based CV. This means they learn CV creation, introspect and analyze regarding IT related career paths and learn how to present themselves better.

Project 3: Creating a simple webpage for an imaginary business: Learn about how to add value to a business and market a product.

Project 4: Create a complex website for a business. **Understanding the challenges of entrepreneurship**.

Project 5: Learn how to create a quotation function for a business application. **Understanding pricing models.**

Project 6: Practical Project: **Source information and images from a real business** and construct a complex, well designed, hard-coded website with pricing, information and feedback function. Learn how to work with real people, plan and create a digital product.

CodeJIKA Online Platform – Phase II Partial

Why it's important that the platform is developed?

A. Scale: An online platform can reach anyone, anywhere.
    a. Learners not enrolled in the hands-on program in existing schools can log-in.
    b. Learners from schools not a part of the program can participate and learn.
    c. Learners who dropout but want to continue later can.
    d. Adults and unemployed youth who are keen to learn may have full, free access if they apply.

e. Primary school learners, who are ignored by our hand-on program, can begin accessing and learning the program.

B. Market creation:
   a. No other provider is solving the need for accessible and engaging code-learning content for African youth. (Refer to the curricular section to get a sense of why this is important.)
   b. No industry-leading online coding academy offers a web-based mobile version* (*That we know of). All learners are directed to a desktop/laptop.
   c. Our engagement, branding, on-boarding is directed to youth – This enables ownership and greater uptake.

C. No Desktop: Many youth and communities do not have access to desktops.

D. Zero-Rating of Data: Code for Change is a non-negotiable approach to mobile operator collaboration: Every mobile operator on the continent must offer free, zero-rated data to all their subscribers.
   a. Zero-rating of educational sites is becoming increasingly accepted.
   b. IMAGINE: This means that through an SMS sent link, any mobile device can immediately access the full, interactive, world-class coding classes and communities.
      i. Absolutely no apps, or downloads are necessary.

Content Strategy:

Our policy: In order to minimize the cost of content creation a three-pronged approach is adopted:

A. Leverage off content partners,
B. Adapt to localized approaches,
C. Custom-made material.

If content is not available or cannot be applied success fully to the application then custom content is created.

5. LEARNERS EQUIPPED WITH WEB DEVELOPMENT SKILLS

The main outcome of the CodeJika program is that school-leavers are equipped with practical web development skills that can be used in the informal digital economy through providing value to local manufacturers and SMEs.

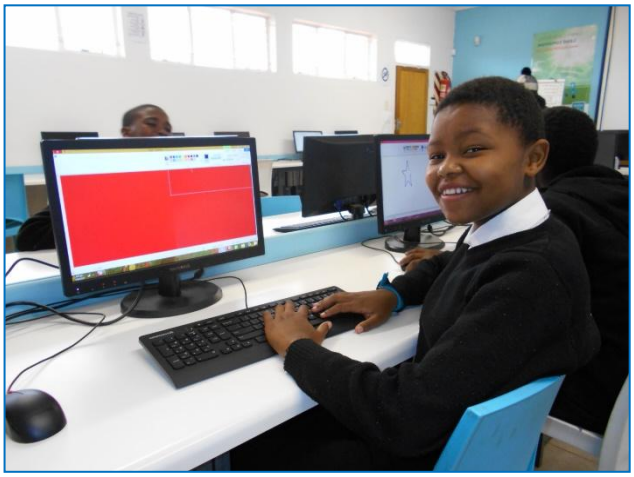
The program looks for sustainable, on-going and impactful learning results through:

1. In-Class Learning: Low-tech simplified, project outcomes for class-based learning.

2. Online Learning: Teen-focused, web-based mobile learning environment (www.codejika.com)

In-School Coding Outcomes

Students learn



Project 1: Make a simple Landing Page

Project 2: Make a CV using CSS and emojies.

Project 3: Simple business website

--Certificate --

Project 4: In Dev – Intermediate CSS

Project 5: Basic Javascript

Project 6: HTML Putting it together – Basic business website.

-- Final Project --

Students participate

In the final project where they must each make website for local business, school/assoc.

Students evolve and talent emerges

Through Inter-School Competitions, Intra School Competitions, Practical Workshops – create an Entrepreneurial Web development project.

Mentoring and skills development

of ICT Educator in each partner school

Key partnership with schools

Increase in the participation of **girls and young women**

in Computer Science and work readiness knowledge, while empowering underserved communities

Increase in youth employment

and available skills on the job market. Youth demonstrate a specific skill sets, resulting in them becoming sought after employees.

PARTNERSHIP AND SUSTAINABILITY MODEL

The sustainability of the CodeJika program is grounded in an implementation approach which emphasizes building national and local partnership, developing local capacity, and encouraging ownership.

The CodeJika program aims to develop key partnerships with schools, districts, NGOs, Government Agencies or Gov Funded Projects for Youth and other forward-thinking implementing partners to provide them with the skills to empower their communities. Engaging with implementing partners at multiple levels ensures that solutions are locally owned and led, increasing the likelihood that such interventions will be more effective and continue after project has ended.

BE PART OF THE SOLUTION

Let's build better communities, schools and cities by bringing opportunity-creating skills to every child and young person.

Let's open possibilities and help our youth access a brighter future.