



**KHETH'IMPILO-DRC**

**Concept note**

**INTEGRATING HIV/AIDS, GENDER, AND SEXUALITY EDUCATION INTO  
MATHEMATICS CURRICULUM in DRC SECONDARY SCHOOLS**

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**<https://khethimpilo-drc.org/>**

## 1. Implementer information

**Kheth'Impilo-DRC.**

## 2. Name of the project: ANAVA

## 3. Background

The HIV/AIDS prevalence remains a major public health concern among adolescents and young people (AYP) in the world. In Central Africa included DRC, in 2024, the prevalence of HIV among young people aged 15 to 24 was estimated at 3.4%, which is above the global average of 2.5%, with significant disparities between countries and between regions in the country, from less than 1% to more than 6%. ([\[UNAIDS, 2025\]](#), [Gabonactu.com](#)). In DRC, data showed the following prevalences among girls for some provinces<sup>1</sup>: Haut-Katanga: 4,6 %; Kinshasa: 0,6 % and Lualaba: 0,1 %. Moreover, in the Kikula health zone of Haut-Katanga province in DRC, HIV prevalence among youth is 4.3% while the provincial average for youths was 0,03% ([afro.who.int](#), [wvi.org](#)). Those discrepancies are signal of the need to identify local risk factors and allocate resources to high-risk hotspots.

Among the initiatives aligned across the world to increase HIV prevention among adolescent and young people, the integration of HIV and related concepts such as high-risk sexuality and gender into the curriculum of secondary and university level students is often mentioned. Educational programs like “All In” have shown success in improving HIV awareness among adolescents. In 14 provinces, including Central Kasai and Maniema, 4,941 adolescents gained knowledge about HIV prevention and reproductive health services ([open.unaids.org](#), [wvi.org](#)).

Despite efforts by the Ministry of Education to integrate HIV/AIDS education into biology and “Education à la Vie Familiale, in DRC for instance,” gaps remain in translating knowledge into behaviour change.

To address HIV/AIDS effectively, interventions must be innovative, person-centred, and comprehensive—integrating sexual and reproductive health rights, gender, and socio-economic topics. Effective education must go beyond health and biological facts to include psychosocial, legal rights, policy, gender, and cultural contexts. Adolescents' vulnerability is heightened by early sexual debut, making school-based education critical.

While HIV content is included in some subjects, mathematics remains excluded, and math teachers often don't see their role in health education except manipulating number. Modern mathematics offers a unique lens to explore gender in human relationship context, medical information, statistics, epidemiology, and HIV gender disparities. It can serve as a channel for HIV/AIDS education and human values, beyond numerical literacy. Integrating these themes into mathematics as a co-curricular subject can enhance critical thinking while equipping students with public health knowledge related to sexual and reproductive health (UNESCO, 2021; WHO, 2022). Among the propals, the integration of HIV concepts into modern mathematics classes to increase awareness is encouraged as such educational approach will contribute to a more inclusive, contextualized, and engaged education, capable of addressing contemporary challenges while promoting a positive transformation of mindsets and behaviours as mentioned in some studies literature<sup>2</sup>.

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<sup>1</sup> Source : EDS 2023–2024

<sup>2</sup> *Using Mathematics Lessons in Adolescents' Sex Education* – Demonstrates how math can help students analyze HIV/AIDS data and understand its community impact ([file.scirp.org](#)). *Integrating HIV & AIDS Education in Pre-Service Mathematics Education for Social Justice* – Explores how math educators can promote social justice

KHETHIMPILO-DRC (KI-DRC), a local non-governmental organisation (NGO) supporting HIV activities in the DRC with PEPFAR/USAID funds, from 2019 to 2025 with particular emphasis on innovative strategies, aims to demonstrate that integrating HIV/AIDS, gender, and sexuality education into mathematics can boost analytical skills and public health awareness. Hence coming up with evidence-based peer education self-risk assessment which could lead to self-care decision making. This model aligns with global recommendations from UNESCO and WHO. Mathematical concepts will be used to explore and integrate notions of human relationships and gender, sexually transmitted infections and their causative agents, as well as their specific antibodies. Additionally, our target will reflect during math sessions on epidemiological data, gender disparities, and identify behavioural risks categorized and classified into three categories: no risk, low risk, and high risk. This will allow students to perform a self-assessment of their own sexual behaviour using a code referring to abstinence and sexual practice with the notions of frequency, prevention, and number of sexual partners.

This initiative aims to enhance their capacity to self-assess, identify their own risk, and decide on a related change in behaviour, while enabling self-management and raising awareness about crucial public health issues. Moreover, the initiative aims to explore and address the persistent risk factors in this special and growing segment of the population.

The projet will start by a pilot in targeted schools and universities in three provinces : Kinshasa, Haut- Katanga, Kasai Oriental and Lualaba. The results of the pilot phase will lead to the formulation of recommendations for advocacy for the integration of HIV/AIDS prevention concepts, including pre-exposure prophylaxis (PrEP), into mathematics education, which could enhance the level of knowledge and awareness among students and thus contribute to achieving the UNAIDS objective of controlling the epidemic by 2030, to which the DRC has already committed.

#### 4. Objectives

- **General Objective:** Contribute to improving HIV prevention among adolescents, school-aged youth, and students by integrating concepts of HIV infection into mathematics.
- **Specific Objectives :**
  - Assess the level of knowledge about HIV prevention among young people and adolescents in school and university settings, with particular attention to PrEP, condom use, abstinence, knowledge of serological status, and experience of gender-based violence
  - Enhance students' understanding of HIV/AIDS through mathematical analysis.
  - Equip teachers with tools to deliver health education through mathematics.
  - Inform national policy on integrating public health topics in the teaching of mathematics to secondary school students.
  - Formulate appropriate recommendations to planners and competent authorities.
  - Document and publish the results of the survey.

#### 5. KI-DRC CCS/Anava approach

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through HIV/AIDS topics ([scielo.org.za](http://scielo.org.za)) and *Urban High School Students' Learning About HIV/AIDS in Different Contexts* – Highlights the importance of integrating HIV education across subjects, including mathematics ([onlinelibrary.wiley.com](http://onlinelibrary.wiley.com)).

The global approach will be implemented in three phases: (i) Assess the knowledge, attitude, and practice study in targeted schools and universities, (ii) the implementation of the intervention consisting in integrating HIV/AIDS, Gender, and Sexuality Education into Mathematics Curriculum and (iii) Conduct the evaluation of the health education strategy through mathematics.

### *Phase I. Conducting the Knowledge, attitude and practice study*

A cross-sectional baseline survey study will be conducted to appreciate knowledge and practice of the target group before and after the intervention including mathematics teachers. The pilot implementation science intervention will assess and classify AYP risk behavioural to identify the ground for evidence based and differentiated peer education. It will explore the feasibility of integrating public health topics into mathematics and inform national policy. Scaling up evidence-based HIV education in schools will improve knowledge and increase awareness, support epidemic control and contribute to achieving SDG 3 (Good Health and Well-being), SDG 4 (Quality Education) and ending HIV/AIDS by 2030 goal to which DRC Government has already subscribed

The six KI-DRC “Sexual Behavioural Codes – Help-us-to-help-you” (SBC/h or CCS/Anava in French) framework can help students understand gender identity, risk factors, and increase HIV awareness considering epidemiological trends through the use of a semi structured interview with a questionnaire descriptive statistics for the purpose of health education evidence based, gender sensitive and adolescent person centred approaches using Differentiated Risk Communication and Adolescent Centred Behavioural Change DRC-ACBC peer education.

The value of this approach can be also enhanced through mathematic Relationship consideration, basic Statistical Analysis of HIV/AIDS Prevalence, probability models in risk assessment and risk communication and gender disparities in HIV Impact.

Follow steps are important to perform this study:

- **Step 1: Preliminary Contact with gate keepers and local stake holders.** Collaborate with leaders or responsible of adolescent/youth groups. In addition, conduct local literature search to gather evidence of previous local findings of any sexual behaviour study conducted in the local targeted population. Plan with the stakeholders on the timing of the survey and train data collectors who should not be part the same group leaders. Attach a code to each school for identification of country, province, Health Zone and specific group number according to order of SBC/h administration starting with the first Group and following as X.Y.Z.Gr (X= Country Order, Congo DRC, Y = Order of the province , Haut Katanga being No1, Lualaba being No2 and Kinshasa being No3, Z = Order of the Health Zone in which the youth group where the SBC/h code was administered. E.g Sakania = 1.1.1. Gr, Lualaba = 1.2.HZ. Gr, Kinshasa = 1.3. HZ.Gr
- **Step 2: Meeting and seeking consent for ongoing school adolescent and young people:** Meet the young people/adolescent after receiving consent from their school authorities and Parent or teachers Association committee, during their routine school activities while learning, introduced by one school authority person and leave the data collector with the group. Before administering the code to the target population, to explain to them why we would like to carry out the exercises, explain its purpose to get baseline sexual behaviour practice and HIV prevention prior to the intervention we are intending to start with them soon. Seek consent from the group on site after explaining the importance of the exercise at individual life and the public health. Let those not willing to participate declare interest without any coercion.

- **Step3: Carry out Self-Assessment using SIX (6) KI-DRC customised tools– “Sexual Behavioural Code - Help -us -to- help- you” SBC/h:** Administer (SBC/h). An assisted semi structured interview questionnaire, producing 6 dependant variables on sexual practice, frequency and HIV prevention with basic independent variable on demographic information like age/sex, parental status, HIV sero -status awareness; Other independent variables are gotten from answer to the following questions are as follow: “Are you taking PrEP or not? For female only, are you on contraceptive? Have you experienced gender-based violence /intimate partner violence (GBV/IPV)? Access to a personal Telephone smart or ordinary? All these questions are answered in form of codes on 1/16 or A4 Paper or 2cm<sup>2</sup>.
- **Step 4: Risk communication – Mirroring phase:** After collecting data when administering SBC/h. Data is organised into information through MakFramework table and MakFramework figure coupled with a problem definition to engage targeted group of AYP to reflect on their identified coded behaviour. The risk communication will be presented as feedback of self-assessment presenting perceived risk sexual behaviours among AYP with qualitative and quantitative approaches considering the frequency of specific safe or risk behaviours revealed by SBC/h code survey result. It can be presented in table form, figure form with possibility of histograms or pie chat, linear form coupled with Linear form and problem definition.
- **Step 5: Brainstorming and action to address with linkage to youth friendly services:** If they declare having identified a problem then AYP need to state if based on the SBC/h Code result, they have identified their problem or not. Only If they say they have a problem then they should propose themselves various activities and discussion themes or subject which need to be discussed with them to increase their knowledge and awareness on HIV/SRHR to be planned for at least 6 months. They also need to identify health services which are available for possible guided visit and receive services. Assess health provider readiness to offer youth friendly services. Plan to train providers in youth friendly services if gap has been identified where we shall monitor youth friendly health services utilisation uptake.

*Phase II: Introduce the intervention: Integrating HIV/AIDS, Gender, and Sexuality Education into Mathematics Curriculum*

- **Step 1: Curriculum Development.** Engaging local educators and health professionals’ social scientists gender specialist to design the curriculum.
- **Step 2: Developing mathematics lesson plans** that incorporate Human relationships, Infectious disease, cause agent and Anti bodies, local HIV/AIDS statistics, HIV risk among young people and gender sensitive, probability models for risk assessment, and gender-based data analysis in relation risk behaviours
- **Step 3: Train mathematics teachers** on delivering integrated lessons: Conducting workshops for mathematics teachers on integrating HIV/AIDS, gender, and sexuality into mathematics lessons and Mak Framework. Providing teaching materials and guidelines.
- **Step 4: Implementation:** This initiative will not create new mathematics concepts but integrate social health concepts messages into the existing mathematics ones, finalising and introducing the new curriculum over one academic year, collecting student and teacher feedback and monitoring engagement by using the peer education and participatory learning methods.

*Phase III: Evaluation and Monitoring*

- The phase consists in conducting pre- and post-intervention assessments through Student focus groups and peer educator reports to measure student learning outcomes increased knowledge and acceptance by local mathematics teachers, collect regular data for weekly analysis and engaging local stakeholders to assess impact on knowledge, attitudes, and behaviours and to evaluate program effectiveness and acceptance.

### Expected Outcomes

- Increased self-HIV Sero status awareness among student including awareness of HIV/AIDS, gender, and sexual reproductive rights issues.
- Improved analytical and critical thinking skills.
- Enhanced teacher capacity to deliver interdisciplinary education.
- Enhanced quantitative literacy and basic HIV risk data interpretation skills.
- Positive attitudinal change towards gender equality and evidence-based HIV/AIDS preventive measures through Condom use and PrEP.
- Evidence to support scaling up the model nationally.

## 6. Partnerships and Stakeholders

- Kheth’Impilo/DRC (lead implementing NGO).
- Ministry of Education and Ministry of Health.
- UNICEF, World Vision, and other local health organizations.
- School administrators and parent associations.

## 7. Sustainability and Scale-Up

- Align with national curriculum reform efforts.
- Advocate for inclusion of public health themes in mathematics curriculum.
- Build capacity among educators for long-term integration.

## 8. Indicated budget Summary

Activities	Total costs (\$)
Teacher training workshops	5 000
Curriculum development	9 000
Educational materials: Teacher and pupil’s manual	15 000
Data collection Analysis and Evaluation	11 000
KI-DRC Project coordination and administration	15 000
Monitoring by school	12 000
Residential quarterly meeting with core team	33 000
Author and conception	10 000
Total Budget	110 000

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