

Online HIV/AIDS Education: A Doorway to an Innovative Teaching and Learning Approach

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ABSTRACT

An increasingly high prevalence of Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome (HIV/AIDS) cases especially among the young generation has been noted in Mauritius over the last two decades. The HIV/AIDS education is now recognised as an important response to the emerging HIV/AIDS crisis and the Government of Mauritius strongly supports all policies linked with it. The Mauritius Institute of Education (MIE) being a unique tertiary institution in teacher education in the country, has been integrating HIV/AIDS education into various teacher training programmes, primary and secondary school curricula, and is also undertaking various research projects in related fields. Under the MIE-School link Initiative a project was recently initiated using a blended mode of face-to-face and online interaction of HIV/AIDS course designed for secondary school students. This was aimed at creating awareness on HIV/AIDS among students and enabling them to actively participate in the learning process and become independent learners. It also focused on developing a community of practice whereby learners were encouraged to network with their peers and friends from other schools on the above related issues. They were motivated to be instrumental in conveying HIV/AIDS education to their parents and the community at large. This project included online interaction in order to provide flexibility in the learning process where the learners can access their pedagogical resources from anywhere and at anytime. Since Internet connectivity is a major hindrance to the learning process in many schools of the island, a CD-Rom with all the learning resources on HIV/AIDS was provided to both students and teachers. The Moodle e-learning platform was used as it is an open source and is also based on socio-constructivist approach. The interface was carefully designed to make it more intuitive, user-friendly and navigable and the instructional principles were carefully applied while designing the course material. This approach was pilot tested using questionnaire and semi-structured interviews at one school for a period of one month. The findings were used to amend the online approach and materials prior to its eventual use at 2 mixed schools in two different educational zones of Mauritius. After 3 months of close monitoring, the effectiveness of whole HIV program was evaluated using questionnaire, semi-structured interviews and observations.

BACKGROUND INFORMATION

Acquired Immune Deficiency Syndrome (AIDS) is one of the common Sexually Transmitted Diseases (STD) and constitutes a major public health problem in developing countries especially in Africa. According to the WHO/UNAIDS report (2007) today **more than** 33 million people are living with HIV/AIDS including 30.8 million adults (15.4 million women) and 2.1 million children under 15 years old. More than one in three people age 15-49 in Botswana and Swaziland are HIV-positive, and more than one in five adults are HIV-positive in Lesotho, Namibia, South Africa and Zimbabwe. In Mauritius, since October 1987, when the first HIV/AIDS case was reported, the total number of HIV/AIDS cases, up to the end of December 2007, amounted to 3133. There is also an increasing tendency in the prevalence of HIV/AIDS cases with 1 out of every 5 cases being a person aged between 15 and 24. Literature reveals that such epidemic has always led to various tragic social and economic consequences including some destructive impacts on health systems in other countries and the international response to HIV/AIDS must embrace prevention, support, treatment and long-term care. Prevention is the only dependable measure and education on AIDS is a priority intervention in the prevention strategy.

Mauritius has a relatively big population of young people and the present data tend to show that there is an on-going HIV-epidemic in the island with more and more youngsters contracting HIV. This has led much concern to the Mauritian Government, which constantly puts more emphasis on education. The latter seems to be the only solution or social vaccine to counteract the trend and prevent the spread of the HIV. However, it is noted that many people have still poor knowledge on the disease despite various campaigns and sensitization HIV/AIDS programmes carried out throughout Mauritius. This implies that that we need to revisit our approach of dissemination of HIV/AIDS education and

also reflect upon the factors influencing learning of the disease including the different teaching aids being used in each sensitisation campaign.

Moreover, Mauritius Institute of Education (MIE), the unique National tertiary institution on Teacher Education has been playing a vital role in the prevention of HIV/AIDS as it can easily reach out majority of the youngsters (including those in the group 15-20 yrs) through its trained teachers (multiplier effect) and school curricula. The MIE is already involved in various school outreach projects to help the community and the society at large in the promotion of health education. This project is also an outreach programme, probably first of its kind and aims at networking with students at each school and with others through a blended mode (face to face and online interaction) and working together to prevent the spread of the disease.

METHODOLOGY

Under the MIE-School link Initiative a project was recently initiated using a blended mode of face-to-face and online interaction of HIV/AIDS course designed for secondary school students. This was aimed at creating awareness on HIV/AIDS among students and enabling them to actively participate in the learning process and become independent learners. At the beginning we intentionally selected Biology students of form V as they follow the Cambridge International Examination (CIE) Biology syllabus (2008) and this has a section entitled "Sexually Transmitted diseases (STD)" (*addressing the spread of HIV/AIDS and methods by which it may be controlled*), which is usually covered at form V level throughout the island. This helped us to convince School Managers and Biology teachers at each school and proceed with the study very easily. For instance, they were both briefed about the scope of the project which included a face-to-face session and then online interaction with students on HIV/AIDS in order to provide flexibility in the learning process where the learners can access their pedagogical resources from anywhere and at anytime. The main emphasis of the HIV/AIDS education course was on the following areas:

1. STD, HIV and AIDS
2. modes through which HIV are transmitted
3. facts, myths and misconceptions about HIV/AIDS
4. communication skills of assertiveness, negotiation and decision making
5. ways to cope with high risk situations
6. human rights (discrimination and stigma)

The Moodle e-learning platform was used as it is an open source and is also based on socio-constructivist approach. The interface was carefully designed to make it more intuitive, user-friendly and navigable and the instructional principles were carefully applied while designing the course material. Since Internet connectivity is a major hindrance to the learning process in many schools of the island, a CD-ROM with all the learning resources on HIV/AIDS was provided to both students and teachers. Therefore School Managers and Biology teachers readily accepted to participate in the project, as this was not a completely new area to be explored and taught nor disturbed their routine schoolwork. Moreover they were convinced that that the online interaction and use of CD-ROM on HIV/AIDS would surely enhance students' understanding of certain concepts on HIV/AIDS and would eventually prevent any spread of the disease among students at the schools and help the society at large. In some cases, the teacher of the Information Technology was also briefed about the project in order to help the Biology teachers in case they have difficulties to use the Moodle platform.

This approach was therefore pilot tested using questionnaire and semi-structured interviews at one school among form V Biology students for about one month. Questionnaire was purposefully selected as it is an easy and useful data gathering tool and it also allows us to collect data in a very quick manner (Gilham, 2000). Since this involves site-specific case study and the sample size was relatively small, a qualitative, less structured, word based and open-ended questionnaire was more appropriate as they could capture the specificity of a particular classroom situation (Cohen *et al.*, 2001). The semi-structured interview involved asking our interviewees a series of pre-established questions (Denzin & Lincoln, 2000) and they were allowed to discuss their interpretations of the world in which they live, and to express how they regard classroom and learning situations from their own point of view (Cohen *et al.*, 2001). The findings were then used to amend the online approach and materials prior to its eventual use at one mixed school in the two educational zones of Mauritius. Students of the selected

classes were requested to fill in a pre-instruction questionnaire in order to assess their level of knowledge and attitude towards HIV/AIDS. The students were also motivated to network with their peers and be instrumental in conveying HIV/AIDS education to their parents and the community at large. The whole programme was closely monitored at one form V class in a randomly selected mixed school in every two education zones of Mauritius for about 2 months and its effectiveness was evaluated using questionnaire, semi-structured interviews and observations.

RESULTS

The above study reveals that both schools actively participated in the project (Table 1). There was a total number of 2 face-to-face and online sessions on HIV/AIDS education per week at each school over a period of 2 months. Percentage of students sought technical assistance decreased over the course of time (from about 50 to 11.1 at school A and 57.1 to 7.1 at the school B). During our observation in the computer laboratory (classroom), we found that students were very motivated to be connected on-line and use the Moodle platform to learn and interact with their peers and the instructor. Initially they faced several difficulties and needed technical assistance. Some students were eager to continue the work at home and; there were about 11.1% and 14.2% of students from school A and B respectively who had online interaction at home per week. About half of the students' population at each school were found to network with their peers at their schools. A low percentage of students networked with students from other schools. The students used CD-ROM moderately and highly at the schools and home respectively.

Table 1. Characteristics of each school with respect to HIV/AIDS related education

Attributes	School A (n=18)	School B (n=14)
Number of Face -to -face sessions/week	2	2
Number of online e education at school/week	2	2
Percentage of students sought technical assistance first two weeks	50	57.1
Percentage of students sought technical assistance in the second month	11.1	7.1
Percentage of students having online interaction at home/week	11.1	14.2
Percentage of students networking with their peers	55.6	57.1
Percentage of students networking with students from other schools	22.2	14.3
Frequency of use of CD ROM at school by students	Moderate	Moderate
Frequency of use of CD ROM at home by students	High	High

n: number of students

When pre-instruction questionnaires on HIV/AIDS were analysed, it was found that about 40 to 45 % of students at both schools could explain what HIV stand for and that the latter was the causative agent of AIDS disease. About half of the students' population at each school could give correct answers to questions based on mode of transmission and its preventive measures; while only 10 % and 22% of them could rightly answer questions on chemical treatment of the disease. About 42 % to 50% of students had negative attitudes towards HIV/AIDS infected persons. However, findings from post questionnaires, interviews and observations revealed changes in students' knowledge, attitudes and behaviour towards HIV/AIDS; for instance, table 2 shows that a majority of students (88.9 -100%) answered correctly to the first three questions based on agent and pathology of the disease. About 71 to 100% of students at both schools also gave right answers to questions based on mode of transmission and test, treatment (preventive) of HIV/AIDS. Similarly, Table 3 demonstrates that 100 % of students had positive attitudes in 5 HIV/AIDS related statements at both schools. Almost 52 to 100 % of students could also answer correctly to other statements on attitudes linked with HIV/AIDS. The findings of the post-instruction questionnaires were consistent with results of the interviews (data not published).

Table 2. Knowledge about HIV/AIDS

Item	Percent students answering correctly Post-instruction	
	School A (n=18)	School B (n=14)
Agent and Pathology		
HIV means human immune deficiency virus.	100	100
HIV causes AIDS disease	100	100
HIV weakens the natural defence of our body against infections	88.9	92.9
Modes of transmission		
One can get HIV by using needles or syringes used by someone who is infected	100	100
One can get HIV by using instruments used on someone with HIV for ear piercing, tattoos or circumcision that have not been properly sterilized.	72.2	57.1
HIV is found in semen and vaginal fluids and the virus can be passed from one person to another when they have sex	88.9	92.9
HIV is spread by mosquito bites and other insect bites	100	100
One can get infected with AIDS by sharing forks, knives, spoons and cups or other personal things with an HIV positive person.	94.4	85.8
One can get AIDS by hugging or shaking the hands of the infected person.	100	100
HIV is passed from mother to baby either in the mother's womb, when the baby is born or through breast milk	100	100
Test, Treatment (preventive)		
There is no cure or vaccine against AIDS	100	100
A negative test means there are no antibodies to HIV in the blood	72.2	71.4
Consistent condom use is the best way of preventing HIV infection	88.9	92.9

Table 3. Attitude towards people with AIDS

Item	Percent students answering correctly Post-instruction	
	School A (n=18)	School B (n=14)
We should have compassion and empathy for an AIDS patient	100	100
We should NOT allow students with AIDS to go to our schools	72.2	57.1
We should discuss HIV/AIDS with our families and friends	100	92.9
AIDS patients should be allowed to attend public gatherings such as marriage, excursion..etc	100	100
We should be willing to take care of our family member if he/she is infected with HIV	100	100
We should not shake hands or hug people who care for persons with AIDS	100	100
We should allow teachers living with HIV/AIDS to teach in schools	100	92.9
HIV-positive students can sit next to his/her classmates in a classroom	88.9	92.9
We should not discriminate against students due to their sexual orientations/preferences	72.2	57.1
We will not allow students to play with HIV-positive children	88.9	92.9
There should be schools for HIV-positive children	72.2	92.9
We should not shake hands or hug people who suffers from AIDS	100	100

DISCUSSION

Findings from the pre-instruction questionnaires of the present study reveal that there were substantial lacunae in knowledge and attitude of the students towards HIV/AIDS at both schools A and B. This is consistent with another study on HIV/AIDS carried out at one secondary school in Mauritius (Bholah R and Naugah J, 2006). A thorough analysis of the situations show that STD/ HIV/AIDS were initially little covered in our secondary school curricula except in the subject 'family life education' in the past; but now they have been deliberately introduced in the school textbooks especially the science ones at the lower secondary level. Despite the lower secondary level students are now more exposed to the HIV/AIDS related themes in their schools, they still have poor knowledge on the theme and do not have appropriate attitudes towards the HIV infected cases. This can be related to various factors including expertise of the teacher, availability of appropriate resource materials, methods of instruction including the type of learning theories used or teaching and learning was no focus on behavioural change. We strongly believe that that the traditional method of teaching at the lower secondary level at those schools did not bring about meaningful learning on the HIV/AIDS among students.

Moreover, educators in the 20th century have seen a number of technological innovations enter in classrooms across the world and the use of multimedia including CD ROM offers another opportunity for enhancing ways in which teachers can teach and learners learn. Recently the World Wide Web (WWW) and online interaction are widely being used in classrooms in various countries. In our study the students were very motivated to use CD-ROM and Moodle platform; they were experiencing the same content and interaction as in class courses with convenience being at home. Our observation reveals that this study brought about self-directed learning, interaction and collaboration among students; for instance, the online teaching approach stimulated dialogue between the students and the instructors and also among the students themselves. Results also show that our teaching approach increased students' understanding of various concepts in HIV/AIDS and developed various communication and negotiation skills. Besides our findings are consistent with the study by Coll and his team (2007) who found that Moodle platform enabled a blended context of teaching and learning which combines face-to-face and distance learning, as well as the use of some available resources so that students might reflect on their work and their learning and that the instructor may guide and oversee this process. They also mentioned that use of student knowledge, skills and attitudes should be encouraged through design of situations that stimulate real and complex problems. These situations should promote a process of reflection that extends from retrieval of prior knowledge and eventually construct meaning of particular concept.

CONCLUSION

We believe that use of online education and CD ROM holds the potential to have positive impact on HIV/AIDS education; supporting a number of HIV/AIDS related concepts that are difficult for students to understand, and especially for those concepts that have proven inappropriate and difficult by traditional notion of instructional learning. This also brings about self-directed learning, interaction and collaboration among students; thus, this blended mode (online/face-to-face) HIV/AIDS education can be extended to other schools throughout the Republic of Mauritius.

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