Lecturer perceptions about integrating HIV and AIDS education into the electrical engineering curriculum of an African University of Technology

Lawrence Meda 1 Nicolaas Luwes 2
1 Cape Peninsula University of Technology PO Box 13881 Mowbray, 7705 South Africa.
2 Central University of Technology, Free Sate P. Bag X20539 Bloemfontein South Africa.
1 medalawrence@gmail.com; 2 nluwes@cut.ac.za

Statistics show that South Africa has the largest number of people living with HIV and AIDS in the world. There is now a movement to introduce more HIV and AIDS education into all South African tertiary curricula. The purpose of this paper is to present lecturers’ perceptions about integrating HIV and AIDS education into the curriculum of the department of electrical, electronic and computer engineering of an African University of Technology. The study was done using a mixed methods approach and its paradigmatic position was interpretive. All lecturers in the department were purposively selected to complete open and closed questionnaires. It was found that a combination of failure to understand what integration entails and a lack of interest made lecturers dislike incorporating HIV and AIDS education in their engineering curricula. It was concluded that a culture that is prevalent among engineering lecturers that HIV and AIDS education should be addressed elsewhere is tantamount to claiming that teaching about the epidemic is irrelevant.

Introduction and Background

HIV and AIDS has become a global disease, spreading rapidly since the first cases were identified in the 1970s. The epidemic is currently one of the main causes of death in various countries of the world. Sub-Saharan is the worst affected region (Goldberg and Short, 2016); it accounted for 74% of people dying from AIDS-related causes in 2013 (UNAIDS, 2014: 9). South Africa has the largest number of people living with the disease in the world. The country is estimated to have approximately 5.51 million people living with HIV and AIDS (Statistics South Africa 2014, p. 2). In this 2016, South Africa remains the country with largest numbers of infected people in the world (Fourie and Meyer, 2016).

Within the context of widespread HIV and AIDS, universities have a critical role to play. Youde (2016) states that at the centre of much of the work in combating HIV and AIDS must surely be the recognition that universities have a key role to play. Integrating HIV and AIDS education into the university curriculum has great potential of raising students’ levels of understanding the scourge and reduce risky behaviours (Fourie and Meyer, 2016).

In South Africa, the adolescent group comprises the largest number of people living with HIV and AIDS. HEAIDS (2007, p. 1) estimates that, “in South Africa, almost 1 in 6 university students could be HIV positive”. It is against this backdrop and the realisation that the majority of university students fall in the ‘at-risk group’ of adolescents that Higher Education South Africa (HESA) mandates universities to integrate HIV and AIDS education into the curriculum (HEAIDS, 2010a). All universities in South Africa have been challenged to play a leading role in the nation’s battle to alleviate HIV and AIDS in the society (HEAIDS, 2010a). There is a pressing need to integrate HIV and AIDS education into the university curriculum in order to prepare students to live and work in a context where millions of people are infected with the virus (Wood, 2014; UNAIDS, 2014).
Generally, lecturers agree that it is essential to integrate HIV and AIDS education into a university curriculum. However, they differ on where it should be integrated into the university curriculum. Some categorically maintain that HIV and AIDS education should be taught exclusively in generic social science modules. Others maintain that a discipline specific approach to teaching HIV and AIDS education is more effective because it ensures that students graduate with necessary competencies to deal with the epidemic in their respective professional areas (Wood, 2014; Van Laren, 2012). A discipline specific approach to integrating HIV and AIDS education into the curriculum contributes to public good because of its potential of educating students to be competent about how to deal with the epidemic in their respective professions (De Lange, 2014).

Tanga, De Lange and Van Laren (2014) argued that integrating HIV and AIDS education into the academic curriculum is not engaged with vigorously enough in South African higher education institutions. Lecturers have mixed feelings about integrating HIV and AIDS education in disciplines like Engineering, Information Technology and Business Management. Reasons for this include lecturers’ claims that they lack time and space in the curriculum (Wood, 2011). The curriculum is said to be overloaded, hence, no space to integrate HIV and AIDS education.

Some lecturers are not integrating HIV and AIDS education into the curriculum because they do not understand what integration entails. Wood (2011) postulates that some lecturers think that integrating HIV and AIDS education entails making significant changes into the curriculum which require a university council to approve. The ending result is that lecturers do not want to integrate HIV and AIDS education into their teaching. Some lecturers do not want to integrate HIV and AIDS education into their curricula because it is irrelevant to their subjects.

HEAIDS (2010a) concluded that representatives of some faculties (like engineering) in South African universities did not see it reasonable to integrate HIV and AIDS education into the curriculum. Similarly, one accounting lecturer who was convinced that HIV and AIDS education should be taught exclusively in medical and psychology programmes said, ‘HIV and AIDS does not belong in an accounting curriculum’ (HEAIDS, 2010b, p. 48). The subject (HIV and AIDS) is conceptualised as a social issue which must be taught solely in social and medical science modules.

Integration of HIV and AIDS education across different disciplines requires lecturers to have a positive attitude (Van Laren, 2012). Van Laren (2014) used metaphors for integrating HIV and AIDS education in mathematics curriculum - something that may be deemed impossible by a person with negative attitude. De Lange, Van Laren and Tanga (2014) maintained that as long as a lecturer has positive attitude, there will be a way of integrating HIV and AIDS education into the university curriculum.

Lecturers are sceptical about integrating HIV and AIDS education in their disciplines because they claim that the subject (HIV and AIDS) has been over emphasised. Students in South Africa learn about HIV and AIDS in primary, secondary and tertiary education. Hence, a perception that there is no need of teaching students about HIV and AIDS education because they have been taught what they needed to know about the scourge (Wood, 2011). Such an opinion corresponds with another view from lecturers who claim that integrating HIV and AIDS education into their disciplines is ‘a waste of time’ because students learnt about the epidemic in school and in some generic modules at university (Wilmot and Wood, 2012). The underlying assumption behind this perception is university students already know everything there is to know about the scourge (Tanga et al., 2014). This is quite contrary to literature which states
that university students lack comprehensive understanding of HIV and AIDS (Meda, 2013; HEAIDS, 2010a).

Some lecturers distance themselves when it comes to integrating HIV and AIDS into their curriculum. They speak to an individualistic and limiting approach, of only working within the parameters of a particular discipline and claim that they are not supposed to be doing it (Van Laren, De Lange and Tanga, 2013). The argument behind is, HIV and AIDS is a sensitive topic which needs to be approached with care. The task has to be done by a trained person who is aware of developments in that field (Van Laren, 2007). The current state of the epidemic in the South African context needs collective efforts in order to minimise the rampant effects of HIV and AIDS (Van Laren et al., 2013). Addressing the epidemic is just too big an issue to be taken up by only a few (Van Laren et al., 2013). There is a need for lecturers and every person in the country to join hands and commit themselves to alleviating the spread of HIV and AIDS. This resonates with a view of Kelly (2001) that combating HIV and AIDS requires more commitment and togetherness than fighting a war of independence.

The purpose of this paper is to present lecturers’ perceptions about integrating HIV and AIDS education into the curriculum of the department of electrical, electronic and computer engineering of an African University of Technology. A study related to this focused on introducing HIV and AIDS education into the electrical engineering curriculum (Craig, Xia and Venter, 2004). None of the studies, to the knowledge of researchers explored lecturers’ (in electrical engineering) perceptions about integrating HIV and AIDS education into their modules. A lack of knowledge in this area is what this study seeks to address.

**Theoretical Framework**

This study was underpinned by two theoretical frameworks. The first was Kosslyn and Rosenberg’s (2001) notion of perception which they viewed like attitude which can be positive or negative. Whether perception is positive or negative, it influences behaviour which in turn affects beliefs (Kosslyn and Rosenberg, 2001). Lecturers’ perception of integrating HIV and AIDS education into the engineering curriculum can either be positive or negative. When a lecturer has a positive perception of integration, he/she will be having a desire to make a difference in the age of HIV and AIDS. In contrast, lecturers with negative perception have various excuses about integrating HIV and AIDS education in their teaching.

The second theoretical framework is Golding’s (2009) theory of interdisciplinary. According to Golding (2009), there are various ways of integrating a subject to a particular discipline. However, it is essential for one to clearly identify a specific way of integrating which is relevant to what needs to be achieved. In this study, the outcome is to investigate lecturers’ perceptions about integrating HIV and AIDS education into their engineering curriculum. Lecturers are expected to integrate HIV and AIDS education into their engineering curriculum without necessarily going deeper into HIV and AIDS content material. One does not have to be an expert in interdisciplinary subject in order to teach disciplinary content (Golding, 2014).

Similarly, by employing the interdisciplinary approach to integrating HIV and AIDS education, lecturers do not have to be experts in the medical field in order to be able to teach it in their respective engineering modules. This is because much interdisciplinary work does not require disciplinary depth (Golding, 2009). Similarly, engineering lecturers do not have to go in depth when teaching about HIV and AIDS education to students. This approach of interdisciplinary is ideal to use in electrical engineering since all students and lecturers are from one discipline. Teaching an interdisciplinary subject, especially to a cohort of students from different
disciplines, is more difficult than teaching one discipline (Golding, 2009). This is because interdisciplinary approach is complex and it needs to be explained to both students and lecturers within a particular cohort in order to be able to implement it effectively (Golding, 2014).

**Research Methodology**

The study was done using a mixed methods approach. It was mainly qualitative approach which informed the study while quantitative was complementing. Fraenkel and Wallen (2007) argue that both qualitative and quantitative approaches can complement each other in a single study. A qualitative approach within an interpretive paradigm was preferred to enable lecturers to express their perceptions about integrating HIV and AIDS into the curriculum. Creswell (2012) states that a qualitative approach enables participants to express their perceptions and provide rich textual data about a particular phenomenon. Interpretive position was preferred because of its compatibility with a qualitative approach. Lapan, Quartaroli and Riemer (2012) argue that all qualitative research has an interpretive perspective which focuses on uncovering participants’ perceptions. A quantitative approach was used in this study during data collection and analysis phases.

The study was done as a case study of the department of electrical, electronic and computer engineering at a university of technology in South Africa. A case study was ideal to use in this study because it seeks to understand people’s perceptions in a defined setting (Rule and John 2011). A case study was useful for an in-depth study of lecturers in their natural setting in order to understand their perceptions about integrating HIV and AIDS in electrical engineering. According to Punch (2009, p. 119) “The case study aims to understand the case in depth, and in its natural setting, recognising its complexity and its context.”

Twenty-five lecturers in the department of electrical, electronic and computer engineering were purposively selected to complete open and closed questionnaires over a period of a month. The number (25 lecturers) was preferred because it represented all lecturers in the department. Purposive sampling was used because researchers wanted the participation of all lecturers exclusively from the department of electrical, electronic and computer engineering where HIV and AIDS education was going to be integrated.

Qualitative data was analysed using content analysis whilst analysis of variables was used to analyse quantitative data. Respondents were requested to participate in the study voluntarily and were also informed about the purpose of the study. Confidentiality and anonymity were guaranteed to all participants. They were told that they were free to withdraw from the study at any point. Researchers avoided deception of any kind to respondents, but instead, guaranteed them maximum confidentiality, anonymity, non-identifiability and non-traceability. Pseudonyms were used to further enhance privacy and anonymity.

**Results**

Findings of this study are presented by showing quantitative data first and qualitative data second. Lecturers in an African University of Technology, in the department of electrical, electronic and computer engineering generally demonstrated a negative attitude towards integration of HIV and AIDS education into their curriculum.

There was a lack of interest and motivation in completing the questionnaire. The few that did answer the questionnaire started off as follow:
Figure 1. Views about integrating HIV and AIDS into the Engineering Curriculum

Although 50% felt it is a good idea to integrate HIV and AIDS education into the engineering curriculum, a total of 25% saw it as irrelevant (12.5%) or impossible (12.5%), but 12.5% would mean that’s only 1 lecture. The other “no comment” 25% can be seen as a negative and thus there is divided feelings on integration. Compounding this to the low number of staff that answered the questionnaire (only 32%) demonstrates the overall negative attitude towards integration of HIV and AIDS education into the engineering curriculum.

Next was to get the perceptions of staff that might explain their perceptions:
38% percent of participants perceived HIV and AIDS as a problem affecting everyone and should be taught by every lecturer including engineers. This contrasted with 50% of lecturers who indicated that students have been taught about HIV and AIDS in primary and secondary education, hence, no need to integrate the subject into the engineering curriculum. Similarly, 13% of lecturers indicated that they prefer concentrating on teaching exclusively engineering content knowledge. This gives a total of 63% of participants who negatively perceived integration of HIV and AIDS education.

Reasons for the resistance against integration might be that lecturers do not see a link between HIV and AIDS education and the engineering curriculum or that they lack skills on delivery and or content. When lecturers were asked whether they can link HIV and AIDS education to their teaching, they indicated as shown in figure 3.

**Figure 2.** Perceptions about integrating HIV and AIDS education
Figure 3. Perception on the link between engineering curriculum and HIV and AIDS content

As shown (on figure 3.) 37% see no link between what they teach and HIV and AIDS education. They do not want HIV and AIDS education to be integrated into their curricula. Added with 13% of participants who did not comment, the results point 50% of lecturers who do not see a link and not eager to learn. This contrasts with 12% of lecturers who felt that there is a way of linking HIV and AIDS education to their modules. 25% of participants indicated that although they do not see a link between what they teach and HIV and AIDS education, they are willing to learn how to integrate it in order to teach students more about the epidemic.

Generally, lecturers did not see a link and they were reluctant to learn about integrating HIV and AIDS education. They felt that HIV and AIDS education should be taught by a different department, not in engineering. This corresponds with 75% of lecturers who agreed that HIV and AIDS education should be taught in generic modules such as Life Skills, not in engineering modules. This point and others are detailed in qualitative data which follows.

When lecturers were asked what year they would prefer students learn about HIV and AIDS, majority indicated first year – a period when Life Skills module is taught at the university. Thus, lecturers support the idea of integrating HIV and AIDS education into the university curriculum, but, they do not want it in engineering as was echoed by one participant: “People know about HIV and AIDS, but, life styles expose them to risk. A Life Skills module should address the broader ‘life skills’, delivered by a specialist in the field”. Another respondent said, “I do not have a problem with integrating HIV and AIDS education, but, it makes me wonder where it will be done and if all students would be interested.” Lecturers want HIV and AIDS education to be introduced in a Life Skills module and be taught by trained personnel. Pushing
the teaching of HIV and AIDS to other departments is an indication of insecurity on skills on delivery and content.

Some lecturers were adamant against integrating HIV and AIDS into the engineering curriculum. One participant said, “this whole concept (of integrating HIV and AIDS in engineering) is preposterous, leave it.” Similarly, another lecturer said “integrating HIV and AIDS into the engineering curriculum might cause some students to lose focus.” The argument is, if HIV and AIDS education is integrated into the engineering curriculum, students will not concentrate on content knowledge, but, psychosocial effects of the epidemic.

The issue of time and difficultness of engineering modules was cited by some lecturers as a reason they do not want HIV and AIDS education to be integrated into their curriculum. A lecturer said “our students barely have time (to learn about HIV and AIDS). They struggle with our engineering modules in such a short period of time.” It is believed that students struggle to learn difficult content of electrical engineering, hence, no need of further compounding the modules with HIV and AIDS education which is also challenging. Another lecturer said “the syllabus is already full and time is limited, so at this stage, there is no way I can bring this into my syllabus.”

In spite of the fact that majority of lecturers disliked the idea of integrating HIV and AIDS education into the engineering curriculum, few saw the idea as noble. A respondent said “students might learn a lot about the epidemic, take it more seriously and start exercising more caution.” Lecturers who felt that integration has to be done in engineering were mindful of the fact that HIV and AIDS is a disease that affects every human regardless of his/her profession. As a result, it is sensible to educate students about the epidemic so that they learn how to handle the reality of HIV and AIDS cases which are prevalent in workplaces. A lecturer said “HIV and AIDS need to be addressed in all modules and should be relevant to all subject areas”. Another lecturer said, “it will help the student when they go into industry as they would know how to behave, act and react to situation that involves HIV and AIDS.” One lecturer linked brain functioning to good health: “since the brain functions better with sound health, it is essential to integrate HIV and AIDS education in engineering in order to create awareness in our students”. If a student is troubled with HIV and AIDS, he/she may not academically perform to the maximum.

Discussion

Data on lecturers’ perceptions indicate that there are three main themes: first is that students already did HIV and AIDS education in primary and secondary levels; second is that HIV and AIDS education should be done by a professional in a Life Skills module in first year level, and thirdly, it seems like a time management issue. These three themes indicate lecturers’ negative perceptions about integrating HIV and AIDS education into the electrical engineering curriculum.

Kosslyn and Rosenberg (2001) state that negative perception just like negative attitude influence people to have disbelief about something. Lecturers’ perceptions about integrating HIV and AIDS education in the engineering curriculum manifested mainly as negative which in turn influenced them to believe that the epidemic cannot be addressed in their disciplines. This confirms a view of Tanga et al. (2014) that integrating HIV and AIDS education in South African universities is not being done vigorously. The way HIV and AIDS is negatively affecting education in South Africa requires lecturers in all disciplines to rethink how they can make a difference in this era.
This calls upon every lecturer to find a way of addressing HIV and AIDS education in their respective disciplines in order to prepare students to be able to deal with the epidemic in workplaces (Youde, 2016; De Lange 2014). There is no way HIV and AIDS education cannot be spoken about in a particular discipline because the epidemic affects people in all professions. Van Laren (2014) and HEAIDS (2010a) integrated HIV and AIDS education in mathematics and agriculture curricula respectively. Such initiatives are testimonies which show that there is a way of integrating the epidemic in any field. The only thing that is needed for one to successfully integrate HIV and AIDS education in their discipline is a positive mind (Van Laren, 2012). A positive mind influences one to have a belief that if he/she tries something, it will work out even if people with negative perceptions claim it to be impossible (Kosslyn and Rosenberg, 2001).

The epidemic is too big and ubiquitous to be addressed by specialists only or for some lecturers to distance themselves and claim that they are not supposed to be teaching it (Van Laren et al., 2013). If the culture of claiming that HIV and AIDS should be addressed elsewhere prevails, it would be hard to attain Education for All (EFA) goals and the Millennium Development Goal (MDG) for education “cannot be achieved without urgent attention to HIV/AIDS” (UNAIDS 2002, p. 8).

A claim made by some lecturers that integrating HIV and AIDS education into the engineering curriculum consumes time and result in diluting discipline content knowledge reveals a misunderstanding of what integration entails. Wood (2011) postulates that lecturers misunderstand what it means to integrate HIV and AIDS education into their curriculum. They think significant changes have to be made which results in a shift of discipline focus. This is contrary to Golding’s (2009) theory of interdisciplinary approach which maintains that interdisciplinary content should not dominate discipline content. Lecturers do not have to teach in-depth knowledge about HIV and AIDS because focus is on engineering content. The little information about HIV and AIDS taught to students in a discipline might seem like a drop in an ocean, but, it makes a difference in the age of prevalent HIV and AIDS. Golding’s (2009) interdisciplinary approach to integration where lecturers do not have to go in-depth with integrated subject is very applicable to integrating HIV and AIDS education in the engineering curriculum.

**Conclusion**

The purpose of this paper was to present lecturers’ perceptions about integrating HIV and AIDS education into the curriculum of the department of electrical, electronic and computer engineering of an African University of Technology. Based on findings and a discussion made, this paper concludes that lecturers’ perceptions about integrating HIV and AIDS education into the engineering curriculum gives rise to a culture that is consequential. A culture that arises among engineering lecturers is that HIV and AIDS education should be addressed elsewhere. This culture is tantamount to claiming that teaching about the epidemic is irrelevant in some disciplines. Such a view does not help alleviate the rampant spread of HIV and AIDS in South Africa and beyond. There is always a way of integrating HIV and AIDS education into the curriculum (Van Laren, 2012). What one needs to do is to rethink how to do it, and believe that integrating HIV and AIDS education into any discipline is not time wasted, but, time invested into the future of graduates.

If one is committed and passionate about integrating HIV and AIDS education into the curriculum, there is always a way of successfully doing it. This is regardless of the nature of module. Initiatives made by some academics of integrating HIV and AIDS education in mathematics (Van Laren, 2014), engineering (Craig, Xia and Venter, 2004), agriculture
(HEAIDS, 2010a) and Information Technology (HEAIDS, 2007) curricula are testimonies of practicality in any discipline.

**Recommendations**

Lecturers’ negative perceptions about integrating HIV and AIDS education into the engineering curriculum are a result of a misunderstanding of what integration entails and a feeling of not being able to teach the subject. In that context, it is recommended that universities need to regulate staff academic development workshops with a twofold purpose: i) educate lecturers what integration entails. Majority of lecturers who demonstrated negative perceptions about integrating HIV and AIDS education into the engineering curriculum thought integration requires them to revise their current curriculum and add significant amount of information about HIV and AIDS. The Golding’s (2009) conceptualisation of interdisciplinary approach can be helpful in this regard.

ii) Provide comprehensive information to lecturers about HIV and AIDS. Teaching HIV and AIDS to university students requires one to have a good knowledge and up-to-date information about the epidemic. This calls for staff capacity development workshops to be conducted by people with expertise in the field. That helps obliterate lecturers’ fears of not being able to deliver HIV and AIDS content and subsequently minimise a claim that a specialist has to teach students.

**References**


HEAIDS, (2010b). *An Investigation of Graduate Competency for Managing HIV/AIDS in the


