Disability students learning in south africa education essay

Abstract

Disability students in many societies are facing debilitating quandaries, including physical, emotional and physiological degradation. As a result, empowering disabilities students to realize their self-esteem as well as to enhance their skills and employability represents an interesting and challenging task to government, industry, interest groups and individuals worldwide. In this research we propose to determine the " Impact of Assistive Technology (AT) on disabilities students learning in South African Higher Institutions, from a student's voice perspective." As a case study, we will validate our experimental design on randomly selected students with disabilities from University of Pretoria and Tshwane University of Technology, due to their closeness to the researcher, it makes the study cost-effective. The reasons for involving students in this research have its origins from two related subjects: (a) Participatory Research and (b) Participatory Study. The data collection tools that this research will use are; (a) questionnaire and (b) focus groups which will be used in phase two of this study. The results of this study will enable the understanding of various unresolved issues brought about by the disability students' needs for assistive technologies in South African Higher Institutions. We are hopeful that our design will be systemic enough to be easily extrapolated into other institutions.

Introduction

People with disabilities account for four (4) million of the total population of South Africa (SA) as contained in the Council for Scientific and Industrial Research (CSIR) report (reporter, 2009). This latest statistics significantly outgrows the previous Statistics of about 2 million in 2001 (Statistics South

Africa, 2001) of the total population of about 40 million. With the vast growth of Information and Communication Technology (ICT) in SA and the government's initiatives to have more people with disabilities empowered, particularly with education, implementing Assistive Technology (AT) in academic institutions is a necessity with no option. With careful planning and guidance, the vast number of AT devices and softwares can be beneficial to students with disabilities (Duhaney & Duhaney, 2000). In South Africa, the Ministry of Education emphasise that South African schools have to provide AT services and equipments for a students with disabilities to enable a " free and appropriate (balanced)" public education.

An Assistive Technology (AT) is technology used by individuals with disabilities in order to perform functions that might otherwise be difficult or impossible (Mirenda, 2001). Assistive technology can include mobility devices such as walkers and wheelchairs, as well as hardware, software, and peripherals that assist people with disabilities in accessing computers or other information technologies. For example, people with limited hand function may use a keyboard with large keys or a special mouse to operate a computer, people who are blind may use software that reads text on the screen in a computer-generated voice, people with low vision may use software that enlarges screen content, people who are deaf may use a TTY (text telephone), or people with speech impairments may use a device that speaks out loud as they enter text via a keyboard. With this in mind, the standard of education for these students will greatfull improve since there will be sustained information flow that all students will receive with much alteration onto the educational information.

Majority of universities in SA use online learning such as; (a) virtual learning environments, (b) discussion lists, (c) e-mail, (d) podcasts and (e) library information databases to provide information to their students. Students of today are being classified as " digital native" of the " net generation" Oblinger (2003), so they expect technology to be integrated into their learning environments. Oblinger (2003) argues that, this would need for the universities stakeholders to analyse just how well they know about the new students that are being enrolled into their universities.

Most of the literature that is available about the impact of ATs on students with disabilities in Universities comes from three sources;

Literature and Case Studies that have been developed from publicly funded studies;

Research studies that have explored the general education experiences of disabled students ;

Research studies that have explored the specific ICT (e-learning) experiences of disabled students.

What the conclusions from the studies have not made clear though, are whether their findings are true for all students, especially the students with disabilities who may need ATs to enable them to access learning materials that may be provided online or digitally or may need other forms of technology to access them?

The impacts of the use of ATs on students with disability in SA are enormous.

Not only are ATs beneficial in classroom environments, disabilities students'

social lives have also changed as well as improved with better communication between the disabilities students and their non-disabled peers. Life is all about communicating and interacting with one's environment. However, many issues and barriers impact on the successful use of ATs such as lack of AT knowledge, training, funding, poor coordination between service providers, technology developers and fear/avoidance of these technologies.

With the use of ATs, opportunities for students with disabilities are better enhanced. Some of the most significant changes in the education of disabilities students in South Africa has been the initiative to adapt the " inclusive education" theory into their education system (Patton, 1992). This form of initiative is mainly a collaborative setting which includes a content specialist paired with a learning specialist and then leads to sharing of the teaching responsibilities which will later benefit the education of both general and disability students. The use of inclusive education may change from institution to institution but it clearly indicates that it is extremely important in enabling those students archive their educational goals.

Problem Statement and Research Questions

Today, the greatest challenge confronting the South African disabilities students is to smoothly integrate into academics and at large the society, participate in a competitive educational system and be equipped for the professional economic world. A number of emerging technologies: assistive and adaptive technologies have been developed to cater for these students. However, very little literature has been written about these novel technologies and their impact on the students with disabilities from a "

students voice" . Moreover, the evaluation of their impact on the end-users has also not been widely researched and reported in the academic publications. One way to ensure best outcomes for disabilities students learning in South Africa would be to evaluate the effective usage of ATs on these groups of students. To do so, different types of ATs would have to be indentified and opinions of these students need to be sampled on the use of these emerging technologies. Thus, a participatory research is necessary to determine the impact of ATs on disability students learning in South Africa from the students' perspective because " we need to listen to students; with disabilities' views and ensure that technology meets their needs." The main research question we are addressing in this proposed study is:

How does AT usage impact disability students learning in South Africa Higher Educational Institutions?

To answer this question satisfactorily, first it is important to identify various ATs available and determine their contributions towards improving the academic performance of disabilities students learning in South Africa. As result, the following research sub-questions will be squarely addressed in order to solve the main research question.

What are the different types of ATs available to disability students learning in South Africa Higher Educational Institutions?

How do disability students feel about using AT to help them learn?

What support do disabilities students receive while use AT in their learning?

How compatible are the ATs provided to disability students to their needs?

What problems do disability students encounter while using AT and how is each solved?

How has the use of AT enhanced the academic performance of disabilities students?

1. 2. Goals and Objectives of the Study

Linked to the problem statement, this research has an overarching objective which is to promote the development of user-centred methodologies for studying the impacts of technology on disability students and to expose these widely so as to encourage a participatory approach to studying and designing disability students' use of technologies in South Africa Higher Institutions. This goal will be accomplished by implementing the following primary objectives.

To identify different types of ATs available to disability students learning in South African higher institutions.

To determine how disability students feel about using AT to help them learn.

To determine what support disability students receive while use AT in their learning. This can be from University, friends and family.

To determine whether the AT the disability students are using is compatible with their needs.

To determine what problems disability students encounter while using AT and how they are solved.

To determine whether the use of the AT improves academic performance of disability students learning in South African higher institutions.

1. 3. Expected Deliverables

Within a 2 year project leading to an award of MTec degree, it is important to ensure that there are clear expectations for what can be delivered in these time-scales. We hope to deliver the following outcomes.

A comprehensive account of disabled students learning experiences and a clear documentation of the impact of AT on disabled students.

A set of recommendations for practitioners, support staff, institutional managers and program developers on ways to manage the challenges of disability students.

A summary report detailing how the research questions have been addressed and drawing out lessons learned from the particular institutional context.

1. 3 Hypothesis

The hypothesis underpinning this study is that certain aspects of students with disabilities' academic performance (if not all) will and has improved due to the utilisations of ATs. With the main research question as a basis, this study's hypothesis implies that ATs create value addition. With this in mind, it must be said that only through the creation of general awareness can this be possible in South African Higher Institutions. Students that are fortunate enough to attend institutions that have existing ATs in place score higher

percentages, as a result of both, ATs and hard work. At the same time, AT users would report less difficulties in self-care, mobility issues.

1. 4 Limitations of the Study

This study is not intended to develop nor replicate any existing models, policies, schemes or plans pertaining to ATs usage, but merely evaluate, analyse and where possible critique their implication on students with disabilities learning in south African Higher Educational Institutions. Thus this research will not go into too much detailed studies nor delve into discussions around the elements of the main or sub-disciplines that it straddles and elected to engage. Furthermore, it is not the intention of this research to seek, to isolate nor to discuss in detail all the factors negating the full scope of ATs, but merely to highlight some of the impacts of ATs and the effects they have on those that are directly affected by them.

This research will therefore be limited to South African tertiary institutions namely, University of Pretoria and Tshwane University of Technology. Because of this, the research results cannot be generalised to other institutions. In addition, the study has got its own limitations and areas of potential bias as described hereunder. Many questionnaires will be distributed to a number of students with disabilities. Data will be primarily gathered by use of questionnaires, this study notes that not all are expected to be answered and returned. During interviews, interviewees might not be as expressive as hoped. Furthermore ATs are a new trend in South Africa Higher Educational Institutions and thus the lack of knowledge by people concerned i. e. teachers and bodies that regulate students with special needs within the institution might pose another limitation.

Thus, in respect of the limitations discussed above the findings in this study should not be concluded as absolute but guidelines for ATs usage improvement.

1. 6 Assumptions

This study is underpinned by assumptions that ATs do exist and are somewhat effective. However these fail to achieve desired outputs due to lack of general awareness inherit among the directly involved.

All principles and policies of ATs should therefore be improved. Any initiative that fails to do so should thus be subject to scrutiny.

1. 7 Significance of the Study

With the latter sections of this study explaining some of the aims of this study, it should be deduced that this study attempts to extremely explore the different forms of Assistive Technology and their impact on students with disabilities in south African learning institution, so as to increase understanding of the many complex issues and interactions introduced by disabled students requirements for better learning environments. With disabled people in South Africa accommodating a fair share of the population, recognising that disabled students are not a minority group. Students with a wide range of disabilities and access to Assistive technologies in South Africa schools were included in the study in order to:

Explore and describe how disabled students participate in learning in Technology-rich environments with the use of Assistive Technology;

Investigate the strategies, beliefs and intentions of disabled students who are effective in learning in this rich ICT world and identity factors that enable or inhibit effective use of Assistive Technology in learning.

Make recommendations to those stakeholders involved in designing Technology for disabled students based on our understanding of their preferences, experiences and diverse needs.

By this study exploring the issues relating to experience, this study hopes to develop a greater perspective and understanding of the skill levels of disabled students. For example, whether there is a relationship between a highly skilled Technologies based students without disabilities and a highly skilled Assistive Technology user; how disabled learners use technologies e. g. how they are involving some of the ' personal' Assistive technologies in their learning and what disabled students' experiences of interactions between Assistive and education technologies are.

By this study focusing on issues relating to strategies, this study sought to identify the choices disabled students make regarding how they use technologies to support their learning environments.

By this study seeking to understand issues relating to beliefs & intentions, this study hopes to develop an understanding of the impact that Technology use has on disabled students in terms of their feelings regarding the value and difficulties of using these kinds of Technology to support their learning and other aspects of their livelihood.

2. Literature Review

Most of the recent literature focusing on the impact of ATs on students in Universities across the world can be classified into three sources:

Literature and case studies that have been developed from publicly funded studies to determine the impact of AT in higher education exist in academic domains and are mostly inform of case studies (Shelvin, 2004)

Research studies that have explored the general education experiences of students with learning disabilities exist in both academic and non-academic domains. (Mortimer & Crosier, 2006), Shelving et al. 2004 and (Fuller et al. 2004).

Research studies that have explored the specific e-learning experiences o f disabilities students have generally been conducted in the UK, an example of this is Draffan et al. (2007) in a survey of the use of and satisfaction with AT by disabled students in UK higher institutions. Another survey by Cobham et al. (2001) also tried to explain the specific experiences of students with learning disabilities when using AT.

The important conclusion from these studies is whether their findings are true for all students, most especially the students with learning disabilities who may need emerging technology such as AT for effective learning.

The uniqueness and novelty of this study in relation to previous studies is positively different. With the use of participatory research methods, this study shall be a voice for all the students with disabilities who may need emerging technology such as AT effective learning. This enables us to

answer the paradigm of " nothing about me, without me" since the users will be involved in every phase of this study. Meaning that the deliverables of this study will be hands-on on what the impact of AT is on students with disabilities rather than assuming these outcomes or guessing.

3. Research Methodology

In this section we will describe how each objective was tackled, and then we will define participatory research in the context of this study; provide an overview of the participatory phases of this study and of the data collection tools and data analysis process.

The first objective of identifying different types of ATs that are available to disability students learning in South African higher institutions, we will design a template of various ATs from the literature. This AT template will be presented to research participants to choose which AT is relevant to them or write down in case we haven't listed what they are using.

The second objective to determine how disability students feel about using AT to help them learn, this study shall ask the students to explain their feelings about using technology to help them learn. Would the disability students sustain without the use of ATs?

The third objective to determine whether disability students get any support while using AT will be achieved by integrating questions in the interview that will ask. How the students are supported with regard to their on-line learning and if this different when compared to the support they have for the use of ATs? (E. g. university, friends, and family). The students will also be able to

answer what support provides most help and what kind of support would they like that is not currently available?

The fourth objective to determine if the AT they are using is compatible to their disability, a question will be asked to the disabilities students to explain in detail if this is true for them. This is done so as to determine if what they are using is what is needed. Under many circumstances, people in general life have tended to employ technology that isn't really necessary to their needs. So this objective will clarify that.

The fifth objective to determine if the disabilities students encounter any problems while using them. A question will be asked in the questionnaire that will ask the research participant to clearly identify that problem, explain what it is and also state if that problem was solved, they will also be asked to explain how that particular problem(s) was solved.

The sixth objective to determine whether the use of the AT improves academic performance, this study shall get records from the disability unit where academic performance of students with learning disabilities will be compared to non-disabled students using ratio of those who graduated (success rate). This method of comparison will normalize the dominance effect of performance of non-disabled students. For example suppose we have total enrolment of 20 students for ICT programme in a given year and 5 are disability students. If 3 of the students with learning disability graduated, then since 3/5 is greater than 5/15 students with learning disabilities of ICT perform better than their non disabled colleagues of that year. We can study

this for all years considered and the ratio of drop-out to determine the overall performance comparison

3. 1. Defining participatory research in the context of this study

Using the objectives of using participatory design and participatory research, students with disability' participation in this study will be defined as: Involving students with disabilities as partners and consultants and not just as research subjects. This is where students with disabilities students help to identify and (re)frame the research objectives and questions; work with this study so as to achieve a collective analysis of the research issues and bring the results of the study to the respective universities that they represent.

This helps to reflect the principle of " nothing about me, without me" (Nightingale, 2006; Nelson et al. 1998) and this principle involves:

Working directly with students with disabilities (research participants) in the evaluation of the impact of AT on their learning environments;

Continual participation of students with disabilities in order to produce improved teaching and support practices;

Engaging students with disabilities in the analysis conduct and design this research.

In analysing the participatory nature of this study like this, this study will map its approach against a methodology offered by Radermacher (2006) which defines six major types of student involvement in this study that range from non-involvement to participant-initiated, shared decisions with

researcher of this study. This study's' methodology falls into the type classified by Radermacher as " researcher-initiated, shared decisions with participants" where this study's researcher has the initial idea for the study, but students with disabilities (participants) are involved in all phases of the study.

3. 1. 1 Overview of the participatory phases of this study.

With regards to the participation of disability students in this study, there will be three key phases of participation:

Phase One (July-August): Consultation with the relevant research participants and stakeholders regarding proposed research questions and research methods, writing of the proposal;

Phase Two (September): Opportunity for the research participants (students with disabilities) to contribute own experiences of using AT to help them learn;

Phase Three (September-October): Opportunity for both the researcher of this study and the research participants and stakeholders to validate and interpret the results of the study and to contribute to the design, content and dissemination of project deliverables and outcomes.

In the first phase of this study, the research participants will be contacted and consulted to attain the relevance of the proposed research questions and the proposed data collection methods that this study intends to use, this is of course done after ethical approval has been granted. In the second phase of this study, participants will be interviewed and allowed to

contribute their own feelings and experiences of using AT. In the third phase of this study, participants will be invited to validate and advice on the analysis of the data collected from phase two. Each of these phases is will be described and evaluated in more detail in this study Methodology report.

In addition to developing approaches that enabled the participation of disability students' within the University of Pretoria and Tshwane University Of technology, this study will employ a range of approaches that will enable the participation of a wider group of stakeholders. These included:

Using the Student Support Services of the respective universities in the recruitment of participants;

The setting up of a project advisory group (mostly involving research participants teachers, the researcher and the coordinators) so as to deal with any distress that might be involved during phase two;

Involvement of senior members of the proposed universities during the life of the research.

3. 2 Overview of data collection tools

The data collection tools that will be used in this study consist of (a) questionnaire and (b) focus groups. Most research studies that employ a participatory approach use these tools. The benefit of using these data collection tools in this study is that participants (students with disabilities) will influence the way each tool is used.

3. 2. 1 Questionnaire

The questionnaire will consist of both demographic and questions related to this study. The research participant will be able to answer open and closed ended questions. Using the appropriate data collection tool, this study will be able to capture responses to these questions approprioately.

3. 2. 2 The focus group

A focus group will be held in phase three to which all the participants will be invited. During these focus group meetings, the researcher will explain to the participants the purpose of the focus group, which is to share with the research participants in this study the initial interpretations of the data that has been collected in earlier phases of participation.

The main findings in phase one and two will be summarised and presented to the research participants. For each of the findings, this study will ask the participants whether they expressed their own views and personal experiences and if this study misrepresented the findings or leaving out important contributions that they made in earlier phases of this study.

Though there are other data collection tools like observationnaire, case-studies and content analysis, though some of these methods are used in a brief extent in this study, they are not extensively used due to the fact that participatory researches don't usually employ them and the results obtained from them are what this study is trying to get away from. Making the data collection tools this study has taken far more appropriate when undertaking a participatory form of research.

3. 3. Research Data Analysis

In the phase two of this study; interviews and an Olympus recorder will be used to record the interviews with the participants. The resulting Windows Media Video (WMA) files will be transcribed into Word documents. For some of the interviews, speech recognition software will be used to assist transcription (e. g. a researcher plays the audio files into their head phones and verbally repeats what they hear from the files so that a speech recognition application can capture their words and convert it into written text). Once these transcripts are typed, this study will email the participants to read through and find out if there any corrections or additions that should be noted. These transcripts will then provide the basis from which issues are noted and strategies developed into artefacts. For those students who can write directly onto the interview sheet, the data from the interview sheet will be analysed and a methodological report of each of the accounts will be drawn out of those accounts.

In the phase three focus group, an Olympus recorder will be used to record the discussion. The resulting WMA file will be transcribed into a Word document. These discussions will be mainly to determine if all the students' voices have been collected correctly.

4. Ethical Considerations.

Formal ethical approval for this project will be received through the Ethics Committee of the respective Universities. Four key ethical issues will be identified as needing addressing:
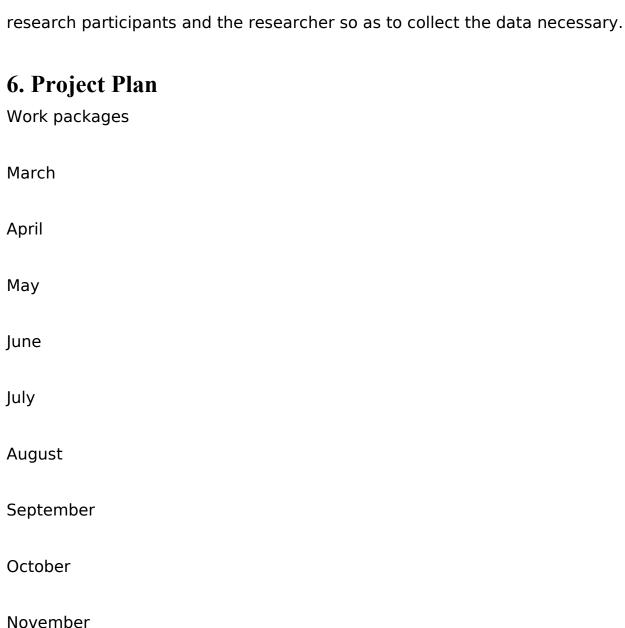
Issues relating to gaining access to the students; finding out which students in the university are disabled in order to contact them directly about the project, without breaking confidentiality and data protection rules. There is however key gate-keepers in the University, who are able to facilitate indirect access to disability students across the whole institution.

Issues relating to potential psychological distress; there is a very slight risk in this research that participants might experience distress if they chose to recount a particularly negative technology experience. There is also a potential that some participants might be stressed if they felt they are being excluded from taking part and prevented having their say. For this reason this study will deliberately make phase one all-inclusive in that this study will accept collated " responses" from any and all students who wished to contribute. For phase two, this study anticipate that, depending on how many replies we receive for the participation of this research, this study might need to be selective in order to get a " spread" of case studies.

Issues relating to anonymity and confidentiality are considered. Participants in phase one of the this study which aims to gain feedback on the relevance of our questions, are guaranteed full anonymity. For phase two of the this study, which aims to solicit accounts of the disability students, this study will negotiate with the students, whether or not they wish to be publicly identified; with the condition that if the participants choose for their contributions not be anonymous, those contributions must not publicly identify the identity of other.

5. Recruitment

After receiving ethical approval from the respective university departments. With the help the disabilities departments of the respective universities, an information sheet will be sent out to the students with disabilities about the existence of this study and asking for their willingness to participate in this study. There after interview dates are set between the research prospective research participants and the researcher so as to collect the data necessary.

6. Project Plan

Work packages

March

April

May

June

July

August

September

October

November

Startup/Project Planning

Communication

Questionnaire

Student recruitment Phase 1 – all inclusive

Phase 2 – purposive

Data collection

Data Analysis

Phase 3-Evaluation /Reporting

Table 1: Project Plan