

## CHAPTER 4

### Research Results

#### 4.1 Introduction

This chapter describes the findings that emerged from the research and attempts to answer the following research question:

*What factors and constraints need to be considered when using a course comprising a combination of media and technology for the teaching and training of nutrition and HIV and AIDS in a South African distance education university?*

Data concerning the use of a combination of media and technology for a distance education course was collected by means of three questionnaires. The questionnaires used were titled:

- Questionnaire A – Learner profile
- Questionnaire B – Formative evaluation of the website
- Questionnaire C – Summative evaluation of a combination of media and technology as mode of instruction

The questionnaires were distributed to all the learners who had attended the contact sessions during the academic year. The contact sessions were compulsory and only for exceptional reasons were learners exempted from attending the contact sessions. One learner from Cape Town did not attend contact sessions but completed the evaluation through e-mail. Ninety-five per cent of the learners returned their completed questionnaires. The findings are reported as they occurred per instrument. The results from the three questionnaires are reported below.

#### 4.2 Questionnaire A: Learner profile

Results relevant to the study are summarised in the following tables. Personal and demographic details about learners are shown in chapter 3 (Table 3.3).

Table 4.1 on the next page summarizes learners' final school qualifications as an indication of the educational level of the learners enrolled for the degree.

Table 4.1: Educational background of learners

		2002 (n=43)	2003 (n=64)	
Educational background		Percentage		Significance
Highest school qualification	Matriculation certificate with <b>university exemption</b>	60,0	61,9	The majority of learners have obtained a matriculation certificate with university exemption. However, on average, 32 per cent of the learners only passed the senior certificate examination without university exemption. These and the other learners were admitted on the grounds of their age.
	Senior certificate (without university exemption)	27,5	36,5	
	Grade 11	0,0	1,6	
	Grade 10	2,5	0,0	
	Other	10,0	0,0	

Table 4.1 listed the educational background of learners. The highest school qualification was listed followed by the percentages in each category and the significance thereof for the study. The next table gives information on the learners' professional background.

The professional background of learners relevant to the study including their current professions, their years of working experience, their most recently completed qualification, and the year in which they completed their most recent qualification. The significance of these facts is summarised in Table 4.2 on the next page.

Table 4.2: Professional background of learners

		2002 (n=43)	2003 (n=64)	
Professional background		Percentage		Significance
Current profession	Unemployed	20,5	21,9	More than half of the learners are teachers with some kind of tertiary education. More than 20 per cent of learners in both years are unemployed and have little or no working experience. The diversity reflected in these factors should be taken into consideration by the planners of educational material.
	Nursing	2,5	9,4	
	Teaching	56,4	50,0	
	NGO	0,0	3,1	
	Self-employed	7,7	0,0	
	Government	7,7	1,6	
	Other	5,2	4,7	
Years of working experience	No experience	6,3	17,0	Most of the learners have working experience in the field of education. There are, however, learners with no working experience at all. This variation in amount of work experience needs to be considered when the designer refers to work-related issues.
	1 - 5	9,4	7,6	
	6 - 10	25,0	22,6	
	11 - 15	31,3	13,2	
	16 - 20	21,7	22,6	
	21 and more	6,3	17,0	
Most recently completed qualification	Teaching diploma	31,6	8,1	The average (over two years) shows that 58,6 per cent of the learners has a bachelor's degree. It was found that learners with other qualifications, although on the same level in terms of NQF classifications, experienced difficulties in coping with the outcomes of this degree.
	Nursing diploma	0,0	1,6	
	Bachelor's degree	52,6	64,5	
	Honours degree	10,5	9,7	
	Other	5,3	16,1	
Year in which the most recent qualification was completed	2000 and after	15,8	57,4	Although most of the learners had completed their previous qualification recently, there were others who had not studied in the previous ten years. These learners are often uncertain about their studies and they need more support and guidance about what is expected from them in distance education study.
	1996 - 1999	31,6	27,9	
	1991 - 1995	28,3	9,8	
	1990 and later	23,7	4,9	

Table 4.2 listed the various categories of the professional backgrounds of learners. The percentage of the various categories was listed followed by the significance thereof for the study. The majority of

learners were teacher while more than 20 per cent of learners were unemployed and had no working experience. On average nearly 60 per cent of learners had a bachelor's degree while the remaining learners had other qualification on the same NQF level. Most learners had completed their previous qualification recently, however, there were others who had not studied in the previous ten years. When designing educational material on post graduate level where the majority of learners are older adult one should take into consideration factors such as professional background and how many years ago they have completed their previous qualification. These factors can have an influence on how easily learners can adjust to having to study again. The next table gives information on the learners' study methods.

Table 4.3 on the next page summarises whatever learners' study methods are relevant to the study, including learners' views on how suitable for study their home situations are, the location where they usually study, the average number of hours they spend each week on study, their opinions about their own levels of competency for study through the medium of English, their preferences with regard to assessment, and the significance of these factors.

Table 4.3: Study methods and circumstances

		2002 (n=43)	2003 (n=64)	
Study methods and circumstances		Percentage		Significance
Suitability of the home situation as a venue for study	Fairly difficult	20,5	10,9	The majority of learners assessed the suitability of their home situations for purposes of study between convenient and excellent. This should contribute to the successful completion of their studies.
	Convenient	30,8	43,8	
	Good	35,9	32,8	
	Excellent	12,8	12,5	
Location of study	At the dining room/kitchen table	12,8	28,1	38,5 per cent of the 2002 learners studied at the library. The number decreased in the 2003. However, the number of learners studying at the library is an indication that the University should provide the learners with access to Internet and computer facilities for their studies. The results indicate that the learners not studying at the library have limited space available to them for the pursuit of their studies and the accommodation of additional education material and equipment.
	In my bedroom	15,4	32,8	
	At work	10,3	7,8	
	At a friend's or relative's home	0,0	3,1	
	In a study at home	23,1	9,4	
	A library (other than my work place, e.g. public library, University library)	38,5	18,8	
Average number of hours spent on studies per week	5 Hours or less	38,9	50,9	The data shows that learners have limited time to spend on their studies since most of them are females who work full-time and who have to attend to the responsibilities of a home and family.
	Between 6 and 10 hours	19,5	22,4	
	Between 11 and 15 hours	11,1	12,7	
	Between 16 and 20 hours	8,3	9,1	
	More than 20 hours	22,2	10,9	
Learners' opinion about their level of competency for studying in English	Excellent	23,1	27,4	Although, on average, 50 per cent of the learners view their English competency as "good", only an average of 3,3 per cent (on average) have English as their mother tongue. Since all the study material is offered in English, the level of English should accommodate the learners' language competency.
	Good	48,7	46,8	
	Satisfactory	28,2	24,2	
	Poor	0,0	1,6	
Learner assessment preference	Complete assignments during the course and a competency assignment at the end of the course	76,3	82,3	There is a clear preference among learners for a more outcomes based approach to assessment. Learners prefer not to write tests and examinations. Assessment in the programme is outcomes based and does not use tests and examinations as a method of assessment.
	Writing tests during, and an examination at the end of the course	23,7	17,7	
Study practices	Learner memorises study materials	0,0	0,0	The majority of learners try to understand and then apply the content. None have indicated that they <i>only</i> memorise the content. The course content should be written systematically, clearly with enough detail to make the content comprehensible to all the learners.
	Learner tries to understand and then apply the study material	76,3	61,9	
	Learner both memorises and then applies the study material	23,7	38,1	

Table 4.3 listed the various study methods and circumstances of learners. The percentage of the various categories was listed followed by the significance thereof for the study. Most of the learners felt that their homes situation was suited for study purposes. However, nearly 60 per cent of learners indicated that they study at the University library which is an indication that the University should provide the learners with access to Internet and computer facilities for their studies. Learners have limited time to spend on their studies because of their work and home responsibilities. This factor should be considered when planning the assessment activities. As learners indicated that they prefer a more outcomes based approach of assessment. Applying this approach provides more flexibility for completion of an assessment than going through the stressful preparation and writing of an examination. Although, more than 50 per cent of the learners view their English competency as “good”, the majority of learners indicated that they try to understand the work and then apply it. The course content should therefore be written systematically and clearly to accommodate adult learners. The next table gives information on the learners’ computer and technology access.

Table 4.4 on the next page summarizes the availability of whatever computer and Internet facilities are relevant to learners’ study. Factors include access to computers for studies, their level of computer literacy and access to the Internet.

Table 4.4: Computer and technology access

		2002 (n=43)	2003 (n=64)	
Computer and technology access		Percentage		Significance
Access to computers for studies	Yes	51,3	28,6	Although only an average of 40 per cent of learners have access to computers, accessibility will in future be less of a problem. Twenty computers have been donated to the VUDEC library, and the learner support centres situated around the country are equipped with computers. Learners are not aware of these facilities and need to be made aware of their existence.
	No	48,7	71,4	
Computer literacy	I view myself as computer literate	46,2	14,5	Even if one takes into account the fact that, in 2003, 16,5 per cent more learners were computer illiterate than in 2002, the majority of learners are still able to use computers. Since one of the programme outcomes is for the learners to become more computer literate, a website provides them with the opportunity to achieve this outcome. Without computer skills it is difficult to compete in the job-market.
	I have enough computer skills to help myself	20,5	22,6	
	I feel that my computer skills are not adequate	25,6	38,7	
	I cannot use a computer	7,7	24,2	
Access to the Internet	No	46,1	60,3	Although Internet access is still a problem for many learners, increasingly learners are making use of Internet cafés or the facilities of their friends. VISTA University does also provide Internet access to post graduate learners.
	Yes, at work	15,4	12,7	
	Yes, at home	18,0	1,6	
	Internet café	2,6	12,7	
	Friend's home	2,6	6,4	
	Vista University	15,1	6,4	

Table 4.4 listed the various categories of learners' access to computers and technology. The percentage of the various categories was listed followed by the significance thereof for the study.

Although only an average of 40 per cent of learners have access to computers, learners will have access to more computers on campus and at the learner support centres at the new institution (see chapter 1). These venues will also provide Internet access. The new institution is planning on increasing the number of computers available to learners. This will increase the number of learners who have access to computers and the Internet.

The difference in percentage access to computers between the two year groups could be because of the larger group of younger learners (see chapter 3). Some of these learners as well as some of the older learners, are not employed and cannot afford computers and had no need for computers previously. Most of the undergraduate courses at VISTA, and it seem at a number of other institutions, do not require undergraduate learners to use computers. Many of the learners have not studied with VISTA previously and were not aware of the computer and Internet facilities available.

More than 60 per cent of learners view themselves as computer illiterate. The difference in computer literacy between the two year groups can be explained by the same reasons as given for access to computers. Giving learners the opportunity to use the Internet and the learning website for their studies gives learners an opportunity to gain and/or improve their computer skills. Without computer skills it is difficult to compete in the job-market. Media such as radio, television, audiotape and video recordings were not considered as media options for this programme since Vista University do not have the facilities nor the capacity to produce any of these media.

The data indicates that learners who enrolled for the Social Behavioural Studies and HIV and AIDS programme are older, working people, with women in the majority. Because learners are from diverse backgrounds and cultures, English is the language best suited for presentation of course content since most of the learners view their competency in English for study purposes as ranging between good and excellent. On average, 40 per cent of learners have access to computers and 47 per cent have Internet access (See Table 4.4). However, only 11 per cent of learners use the computer and Internet facilities available at the University library. The University provides computer and Internet facilities to postgraduate learners free of charge.

### **4.3 Questionnaire B: Formative evaluation of the website**

In this section, the results from the quantitative analysis of the formative evaluation of the website (Questionnaire B) are reported and discussed. Since there was no significant difference between the variables of the formative evaluation of the two year groups, the data was combined and the results are reported as such.

The first part of the questionnaire covers the design features of the website while the latter focuses on how the learners viewed the course. The questionnaire comprises a number of questions, each followed by a number of statements related the question. The learners had to respond by rating the statements on a 5-point Likert scale. The Likert scale ranges from:

- 1 = I totally agree with the statement (TA)
- 2 = I agree with the statement (A)
- 3 = I cannot decide (neutral) (N)
- 4 = I disagree with the statement (D)
- 5 = I strongly disagree with the statement (SD)



The results gathered from Questionnaire B are reported as a question followed by graphic representations which reflect how learners rated the statements, interpreted in terms of frequency percentages. A brief discussion follows each question.

As stated in chapter 3, an introduction on how to use the Internet was given to the learners during the contact sessions. The majority of learners had no difficulty in using the Internet. Only a small number of learners needed some time to find their way around on the Internet. After mastering the Internet the learners had no difficulty accessing the nutrition and HIV and AIDS website.

#### **4.3.1 How did you (the learner) experience the screen display of the website?**

The acceptability of the screen display to the learners is considered by me to be important since the screen display forms an important part of the website's interface. Since the majority of learners have no (or limited) e-learning experience, they had no (or very little) frame of reference that they could use to compare the screen display they encountered with that of a similar website. However I am of the view that notwithstanding their lack of exposure to other websites, the learners have the ability to evaluate the following screen display features, which are broadly grouped under the following headings:

##### **Visual impression**

- Visual presentation
- Fullness and overcrowding of screen
- Screen distraction

##### **Organisation of screens and information**

- Sequencing of screens
- Screen layout
- Organisation of information

##### **General screen features**

- Clarity of buttons, symbols and graphics
- Positioning of information
- Screen layout of assessments

Figure 4.1, Figure 4.2 and Figure 4.3 comprise statements and graphic representations of how the learners evaluated the screen display of the website in terms of the features listed above.

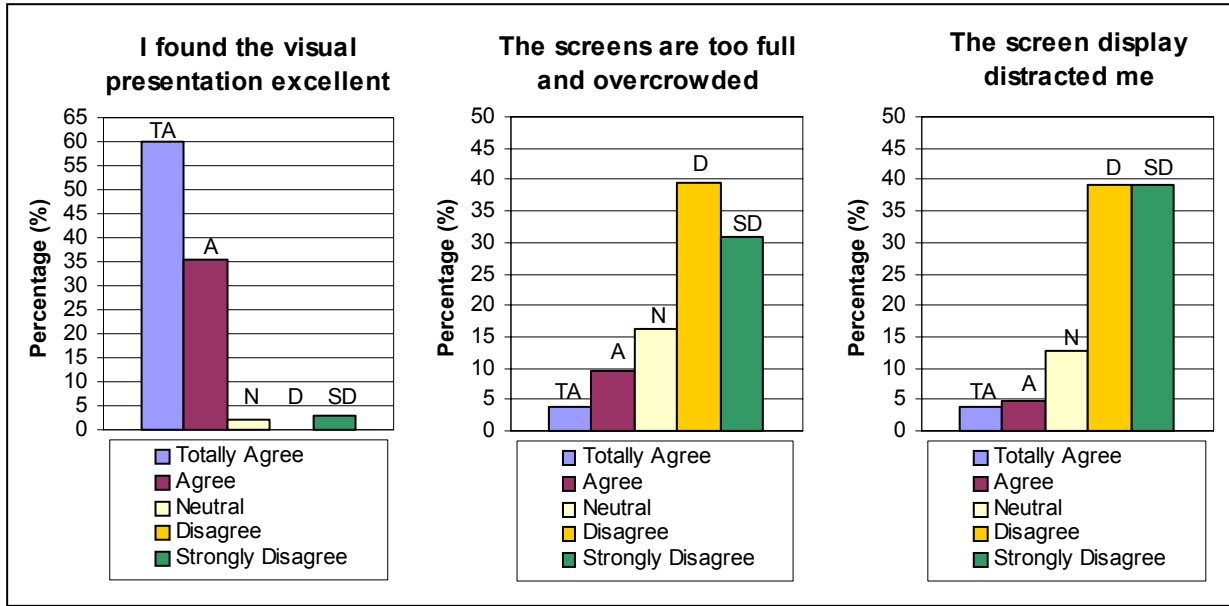


Figure 4.1: Screen display: Visual impression

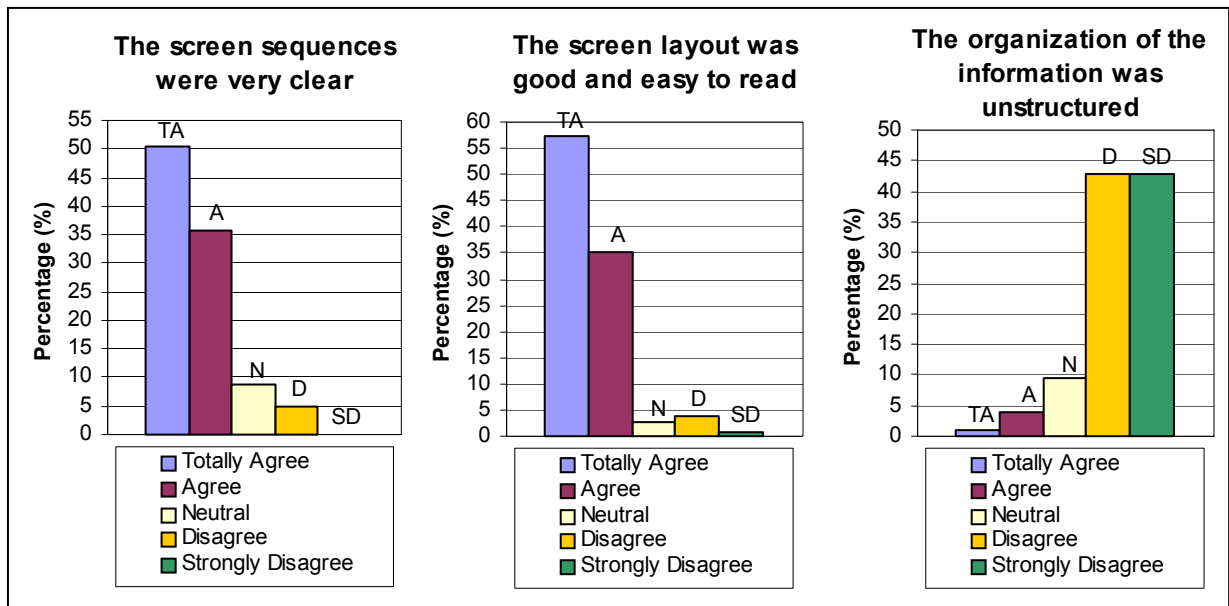


Figure 4.2: Screen display: Organisation of screens and information

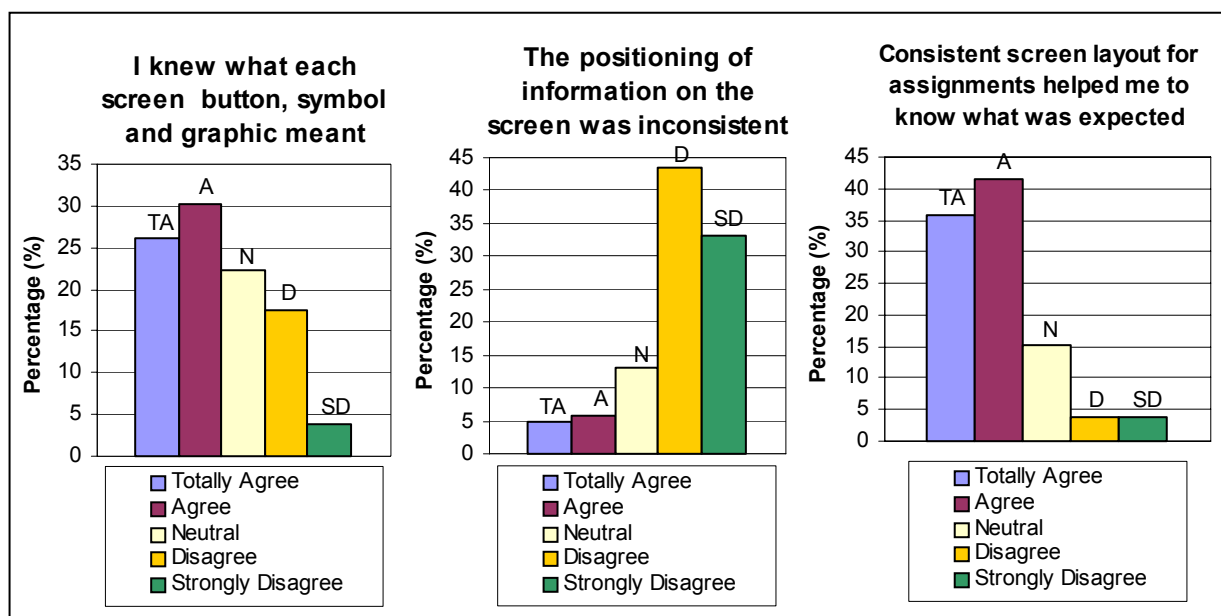


Figure 4.3: Screen display: General screen features

As illustrated in Figure 4.1, Figure 4.2 and Figure 4.3 above, the learners responded encouragingly to the screen display. Most learners rated the visual impression positively. The majority of learners (60,00 per cent totally agreed and 35,24 per cent agreed) rated the visual presentation as excellent (See Figure 4.1). Very few learners were neutral towards the screen display, and less than three per cent disagreed with the statement that the screen display was excellent. Most of the learners did not view the screens as too full and overcrowded (39,42 per cent disagreed and 30, 77 per cent strongly disagreed). Only a small number of learners (4,90 per cent agreed and 3,92 per cent totally agreed) rated the screen display as distracting, while 12,75 per cent were undecided.

The majority of learners rated the organisation of the screens and information positively (see Figure 4.2). Approximately 86 per cent of the learners rated the screens as clear (50,50 per cent totally agreed and 35,64 per cent agreed) and 92 per cent rated the screen layout as good and easy to read (57,14 per cent totally agreed and 35,24 per cent agreed). Most of the learners disagreed with the statement that the organisation of the information was unstructured (42,86 per cent disagreed and 42,86 per cent strongly disagreed).

The general screen features were mostly positively rated (see Figure 4.3). The learners rated the statement *I knew what each button, symbol and graphic on the screen meant* less positively than the other statements. Only 26,21 per cent totally agreed and 30,10 per cent agreed with the statement. A large percentage (22,33 per cent) rated the statement as neutral, and 21,00 per cent of the learners disagreed with the statement (17,48 per cent disagreed and 3,88 per cent strongly disagreed). These findings can be ascribed to the fact that more than half of the learners (53,2 per cent: see Table 4.4) do not have Internet access and are therefore unfamiliar with the meaning of terms such as *buttons* as well as the purpose of buttons, symbols and graphics utilised by Internet

Explorer and other Internet functionalities. Although the buttons, as displayed on the Internet Explorer browser screen, was explained to the learners during the contact sessions, the large volume of new information and the unfamiliarity of working with a computer and the Internet could have influenced the learners' ability to interpret and operate the system. The responses of the large percentage of learners who gave a neutral rating to the statement could be explained by the fact that the learners did not know the meaning of the terms used, especially in the context of the Internet and the website, and therefore were unable to evaluate the statement.

Most of the learners disagreed with the statement that the positioning of the information on the screen was inconsistent (42,86 per cent disagreed and 42,86 per cent strongly disagreed). The fact that 13,21 per cent of the learners rated the statement as neutral may be explained by the possibility that such learners are unfamiliar with what is implied by the statement *positioning of the information*, and the relevance it has to web-page design and other Internet functionalities. A high number of learners agreed (35,85 per cent totally agreed and 41,51 per cent agreed) that the screen layout of the assignments were the same and helped them to understand what was expected from them when they completed the assignments.

Since most of the learners rated the screen display positively, this display will be maintained during further development of the website. The principles applied in the screen design can serve as a template for the design and development of other inline courses for this degree. The next section will analyse text layout of the website.

#### **4.3.2 How did you (the learner) experience the text layout of the website?**

Text layout is an unobtrusive but important element in determining the readability and acceptability of the website. The following features were evaluated:

- Readability of text
- Appearance of the font
- Font size
- Colour coding of text
- Text density

Figure 4.4 and Figure 4.5 in the next page comprise statements and graphical representations of how the learners evaluated the text layout of the website according to the features listed above.

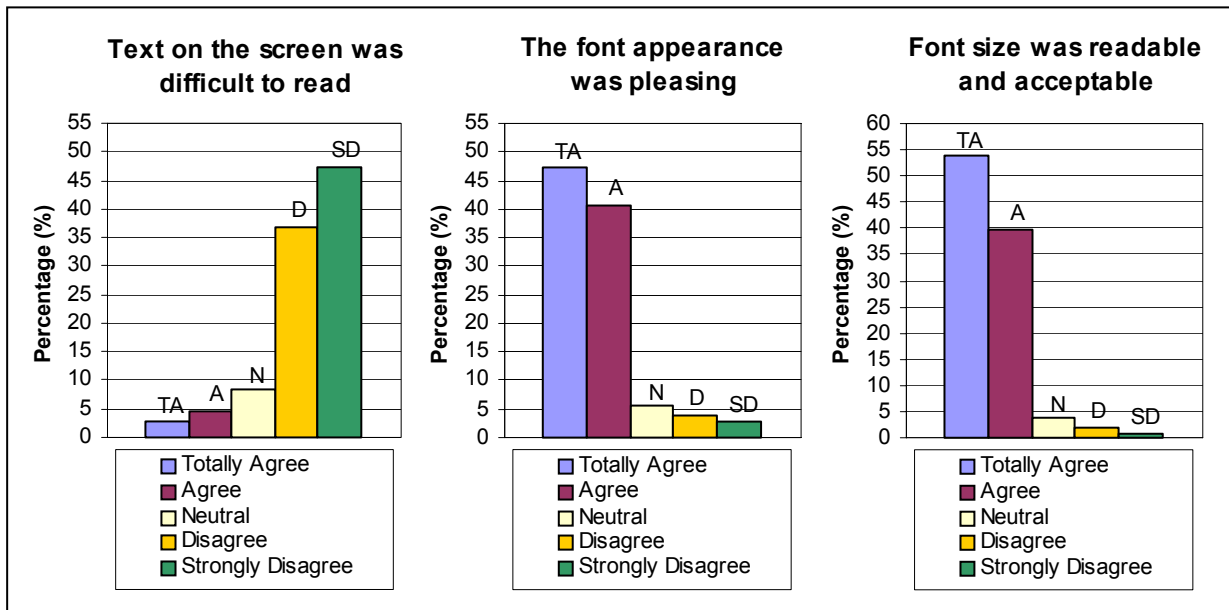


Figure 4.4: Text layout of website

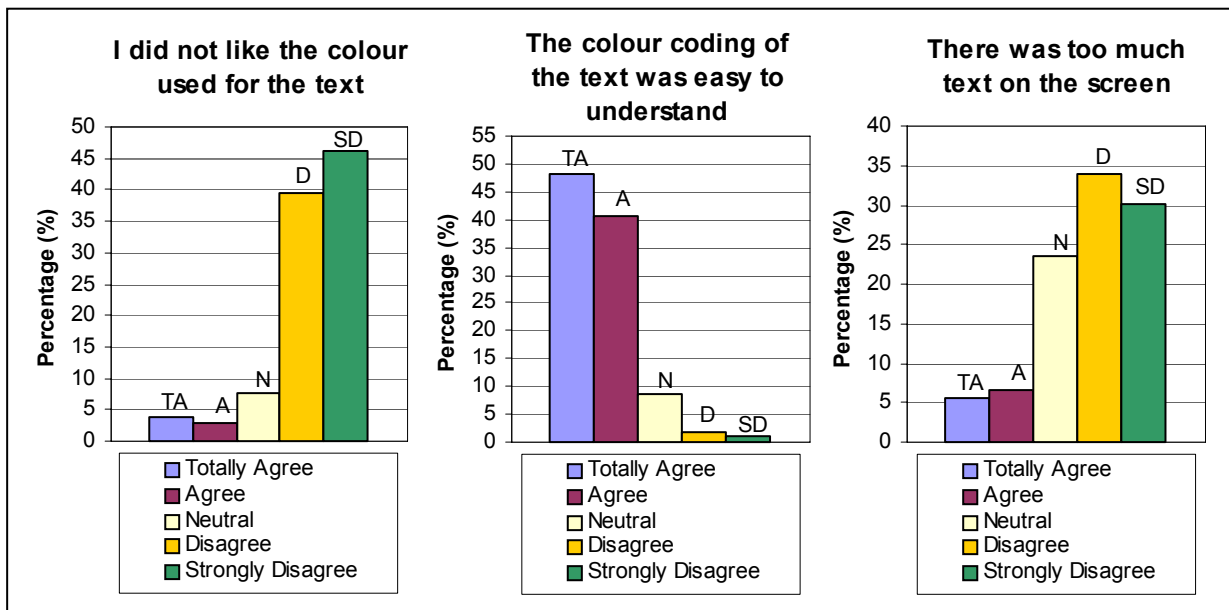


Figure 4.5: Text layout of website (continued)

Most of the learners reacted positively towards the text layout. Nearly 84 per cent of learners disagreed (36,79 per cent disagreed and 47,17 per cent strongly disagreed) with the statement that the text was difficult to read. It is noted that 7,55 per cent (2,83 per cent totally agreed and 4,72 per cent agreed) agreed with the statement, and 8,49 per cent of learners rated the statement neutral. This is not necessarily due to the fact that the text is difficult to read since the text font is *Arial*, which is highly readable. I subsequently found how many learners do not realise the extent to which their

eyesight has deteriorated and why they therefore have difficulty in reading. This is especially true for older learners. Nearly 16 per cent of learners in this group are 35 years old or older.

Most of the learners agreed with the following first three statements and disagreed with the last statement:

- The font appearance was pleasing on the eye (87,74 per cent agreed)
- The font size was readable and acceptable (93,39 per cent agreed)
- The colour coding of the text was easy to understand (88,68 per cent agreed)
- I did not like the colour used for the text (84,85 per cent disagreed)

Although 64,15 per cent of the learners disagreed with the statement that there was too much text on the screens (33,96 disagree; 30,19 strongly disagree), there was a high (23,58 per cent) choice of the neutral rating. This could probably be explained by the fact that many learners had little or limited exposure to the Internet (See Table 4.4) and had no frame of reference for what is really meant by *too much text on the screens*.

It is encouraging to see how positively learners rated the text layout features. These features can be maintained for the further development of the current website and serve as guidelines for the development of similar websites. The following section will analyse the language and terminology of the website.

#### **4.3.3 How did you (the learner) experience the language and terminology of the website?**

The use of language and terminology that is clear and understandable to the learners is very important since English (as indicated by the learner profile; see Table 3.3) is not the mother tongue of the majority of learners. The following features were evaluated in order to establish how acceptable the language and terminology were to the learners:

- Level of the language
- Consistent use of terminology
- Explanation of unfamiliar subject-related terminology
- Prompts for input
- The length of sentences

Figure 4.6 and Figure 4.7 on the next page comprise statements and graphical representations of how the learners evaluated the language and terminology of the website according to the features listed above.

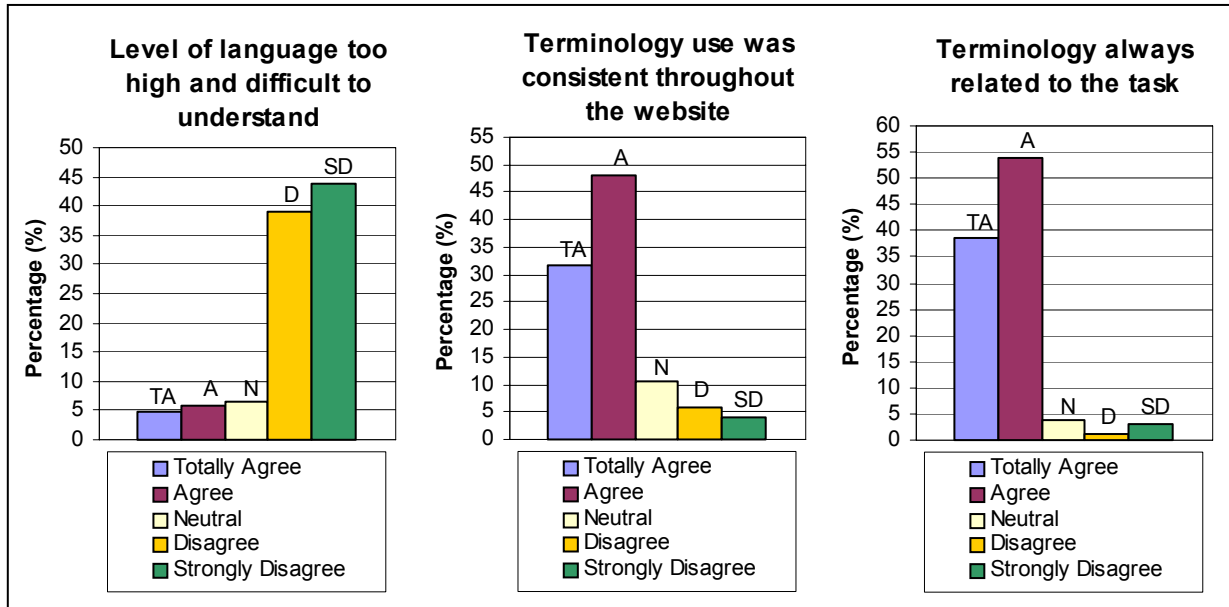


Figure 4.6: The language and terminology used in the website

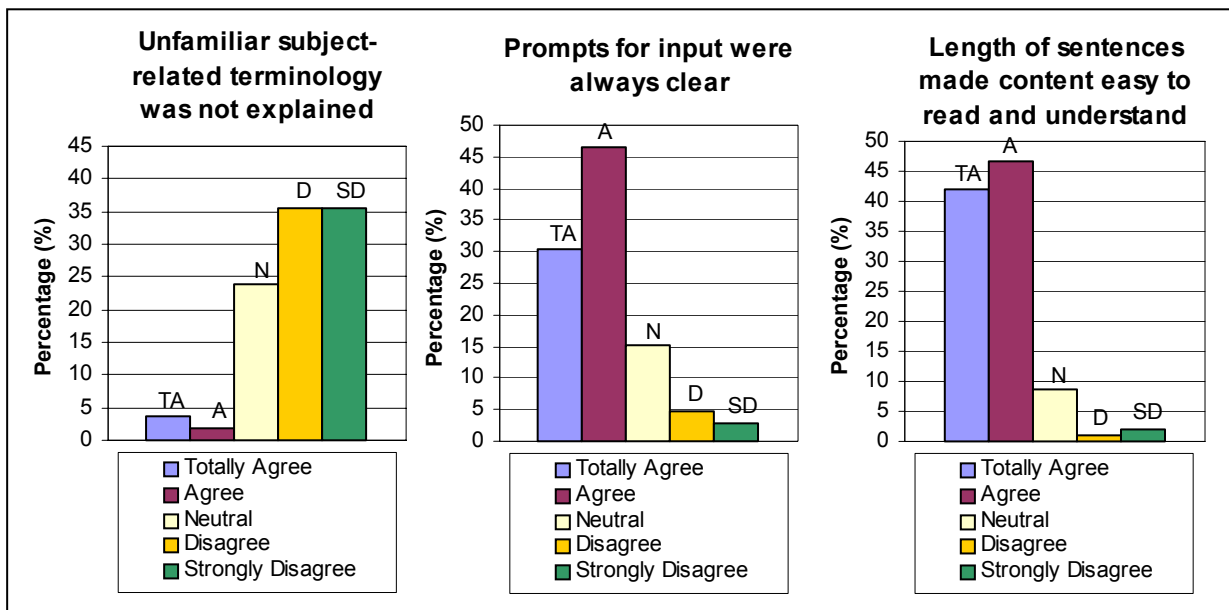


Figure 4.7: The language and terminology used in the website (continued)

Less than 11 per cent of learners agreed (4,76 per cent totally agreed and 5,71 per cent agreed) that the language level was too high and that this made it difficult to understand the content of the course. It is a matter of concern that 11 per cent of this postgraduate group of learners still have a problem with understanding content that is written in simple English. It might be the case that these learners have not yet mastered English at this simple level, or that the jargon of the subject matter is unfamiliar to them since the majority of learners come from backgrounds in which they have had no

experience or familiarity with science-related topics. I noted that a number of learners have difficulty in conveying information in writing. It may be the case that these same learners experience difficulties when it comes to interpreting the written language. However, the majority of learners (39,05 per cent disagreed and 43,81 per cent strongly disagreed) did not find the language level too high.

Nearly 80 per cent of learners (31,73 per cent totally agreed and 48,08 per cent agreed) agreed that the terminology used was consistent throughout the course, and 92 per cent agreed that the terminology related to the task (38,46 per cent totally agreed and 53,85 per cent agreed). Seventy-one per cent of learners (35,40 per cent disagreed and 35,40 per cent strongly disagreed) disagreed with the statement that unfamiliar subject related terminology was not explained. Nearly a quarter of the learners (23,89 per cent) rated the statement neutral. This high number could be accounted for if these learners had not worked through the course in depth and were therefore were unaware that there might be unfamiliar subject-related terminologies on the website.

Seventy-seven per cent of learners (30,48 per cent totally agreed and 46,67 per cent agreed) agreed that the prompts for input were always clear. The majority of learners (41,90 per cent totally agreed and 46,67 per cent agreed) found the length of the sentences acceptable – which (for them) made the content easy to read and understand.

#### **4.3.4 How did you experience the graphics and colour of the website?**

The choice of colour can play a role in the acceptability of the website. Graphics add to the appeal and effectiveness of the course and break the monotony of the text. The features listed below were evaluated to establish the how acceptable the colour and graphics of the course are:

- Effectiveness of graphics
- Whether the graphics distracted the learners' attention
- Acceptability of graphic colours
- Preference for graphics
- Acceptability of colours used for course

Figure 4.8 on the next page comprises statements and graphical representations of how the learners evaluated the graphics and colour of the website according to the features listed above.



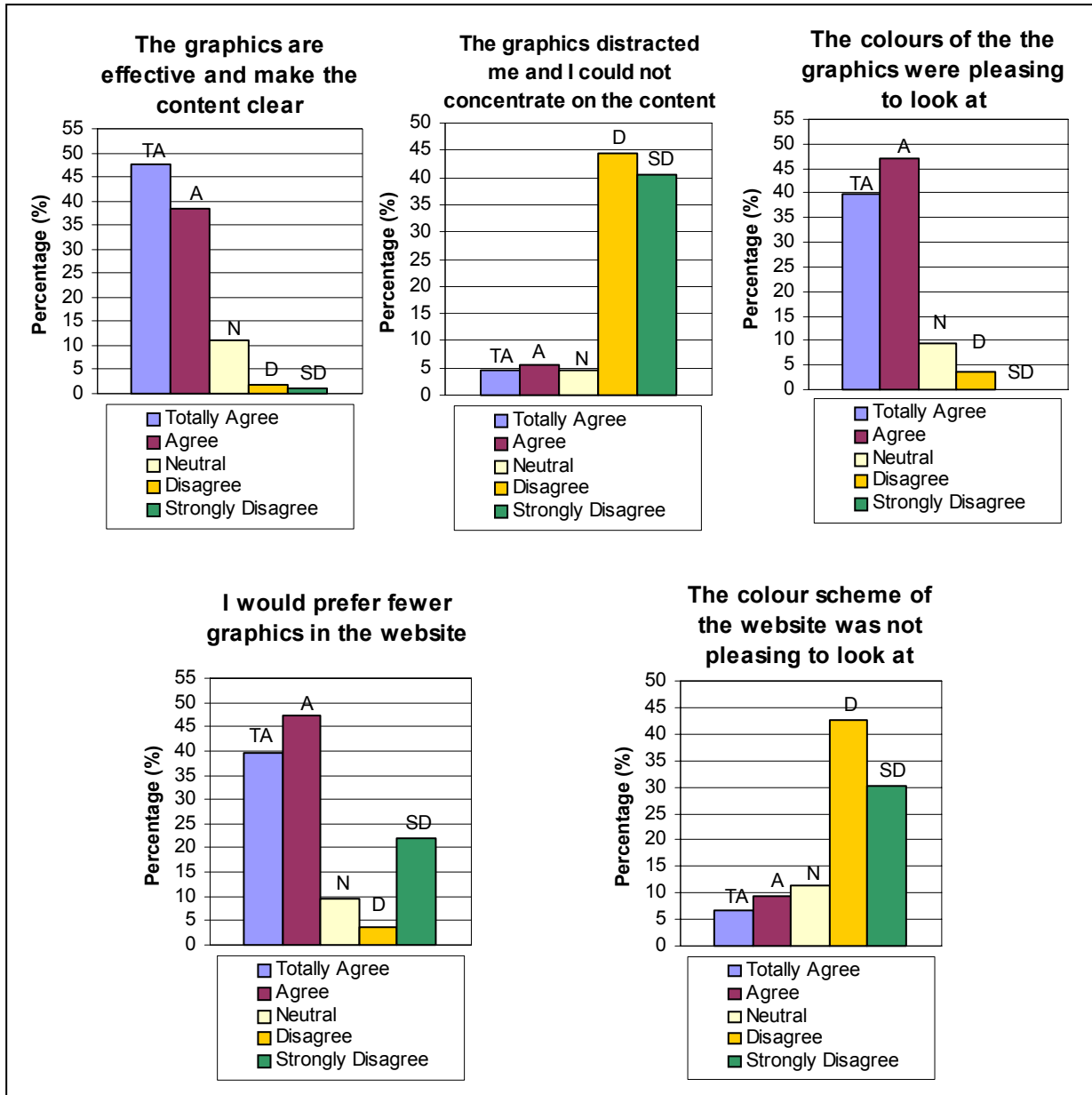


Figure 4.8: The use of graphics and colour in the website

In general the learners agreed (47,66 per cent totally agreed 38,32 per cent agreed) that the graphics are effective and clarify the content. Less than three per cent of learners (1,87 per cent disagreed and 0,93 per cent strongly disagreed) felt that the graphics had no effect. However, 11,21 per cent of the learners rated the statement neutral. These variations could be due to the various manners in which learners learn. For instance, some learners learn visually in a way that would be enhanced by the presence of colour, while others learn more effectively by auditory means.

Nearly 85 per cent of the learners (44,34 per cent disagreed and 40,57 per cent totally disagreed) did not feel that the graphics distracted them, nor did it interfere with their concentration. A number

of learners (4,72 per cent totally agreed and 5,66 per cent agreed) did however felt that the graphics distracted them, while 4,72 per cent of learners rated the statement neutral. Just over 12 per cent of learners also agreed with the statement that they would have preferred fewer graphic in the course. This negative and neutral rating concerning the graphics may also be ascribed (as above) to the idiosyncratic way in which some learners learn. If this is the case, it would be natural for them to find the graphics distracting.

A large number of learners (86,79 per cent) agreed that the colours of the graphics were pleasing to look at. More than 72 per cent of learners (42,45 per cent disagreed and 30,19 per cent strongly disagreed) disagreed that the colours used for the website were not pleasing to look at. Eleven per cent of the learners rated the statement on the colour scheme neutral while 16 per cent (6,60 per cent totally agreed and 9,43 per cent agreed) did not find the colours pleasing. The following comment was made on the colour scheme by one of the participants during an interview:

*"I do not like the look of the site. I hate green."* (Rabe, 2003).

Since the majority of learners viewed the colour scheme positively, it will be maintained for future development.

#### **4.3.5 How did you (the learner) experience the content of the website?**

The following content features were evaluated:

- The clarity and understandability of the content
- The difficulty level
- Learner satisfaction with the content
- The usefulness of the activities in each unit
- The guidance that the assessment criteria at the end of each unit provided to what was expected from the learners when completing their assessments

Figure 4.9 on the next page comprises statements and graphical representations of how the learners evaluated the content of the course according to the features listed above.

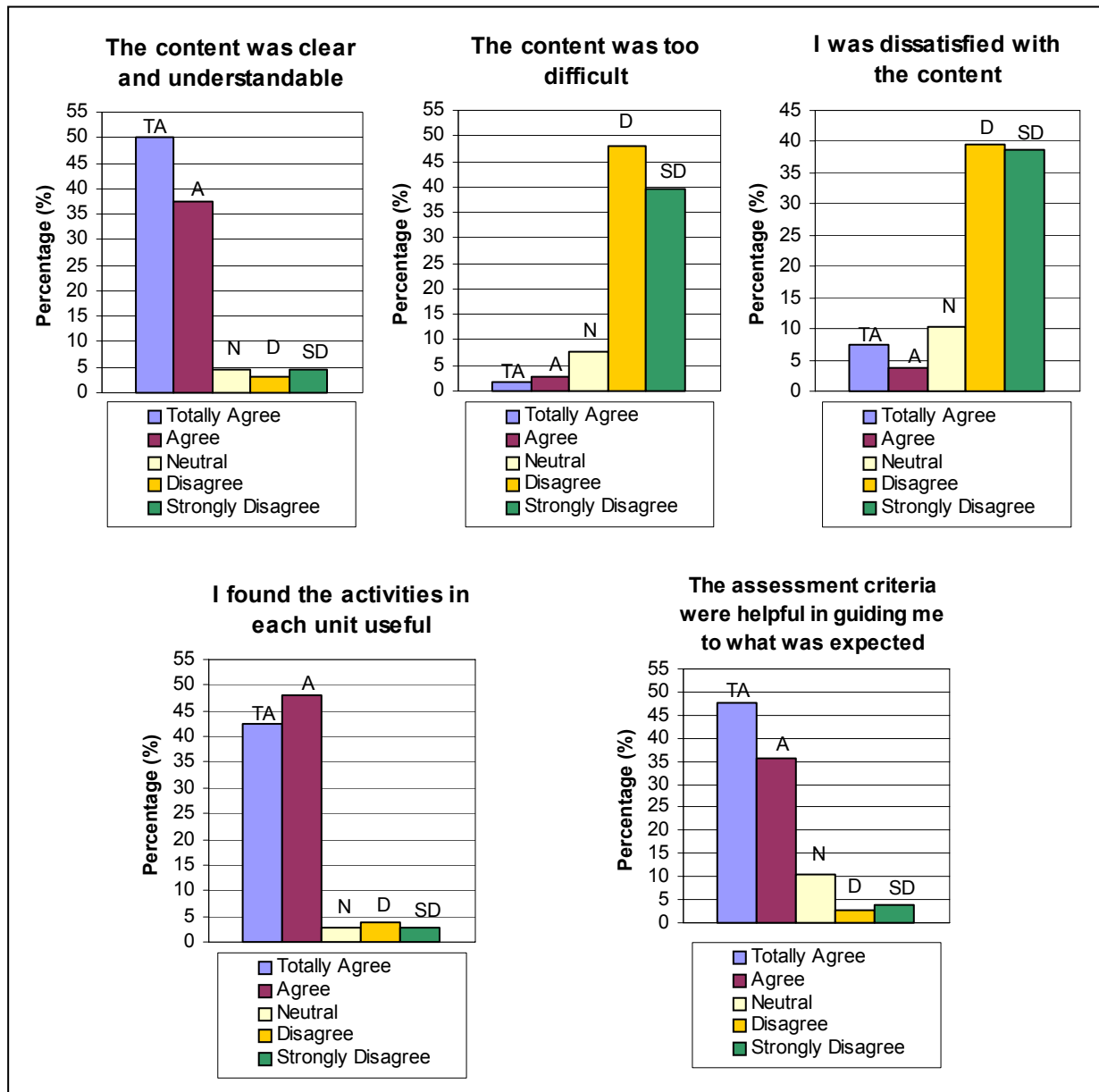


Figure 4.9: Content of the website

The majority of learners (50,00 per cent totally agree and 37,50 per cent agree) found the content of the course clear and understandable. Nearly five per cent of learners were neutral about the clarity and understandability of the content while less than eight per cent (3,13 per cent disagree and 4,69 per cent strongly disagree) viewed the content as unclear and did not understand it. It is to be expected that some learners would find the content unclear and not understandable since the subject content is unfamiliar to most of the learners. These learners need to interact and familiarise themselves with the content.

Most of the learners disagreed with the following two statements:

- The content was too difficult (a total of 87,73 per cent disagreed: 48,11 per cent disagreed and 39,62 per cent strongly disagreed).
- I was dissatisfied with the content (a total of 78,30 per cent disagreed: 39,62 per cent disagreed and 38,68 per cent strongly disagreed).

The majority of learners agreed with the following statements:

- I found the activities in each unit useful (a total of 90,56 per cent agreed: 42,45 per cent totally agreed and 48,11 per cent agreed).
- I found the assessment criteria after each unit helpful as a guide to what was expected from me when completing the assessment (a total of 83,17 per cent agreed: 47,66 per cent totally agreed and 35,51 per cent agreed).

#### **4.3.6 How did you (the learner) experience the navigation and interaction within the website?**

The ease with which the learners are able to navigate and interact with the content is a very important feature of an online course. The ease of navigation and interaction is one of the factors that will determine if learners will use the website or reject it as too difficult and troublesome to use. The features listed below were evaluated to establish how the learners experienced the navigation and interaction with the course:

- Whether the learners experienced the website as user friendly
- Whether learners felt the course addressed them personally
- Whether the introduction explained the purpose of the module
- Whether there was a clear explanation on how to use the website
- Whether the navigational indicators was clear and consistent
- Whether the learners always knew where they were in the website
- Whether the directions of the website were clear and easy to follow
- Whether it was always clear to the learners as to what they should do
- Whether learners felt they got lost in the content
- Whether learners knew what each button/icon meant and when they had to click on it
- Whether the learners found the option to make a printout of the screen useful

Figure 4.10 and Figure 4.11 on the next page comprise statements and graphical representations of how the learners experienced the navigation of and interaction with the website according to the features listed above.

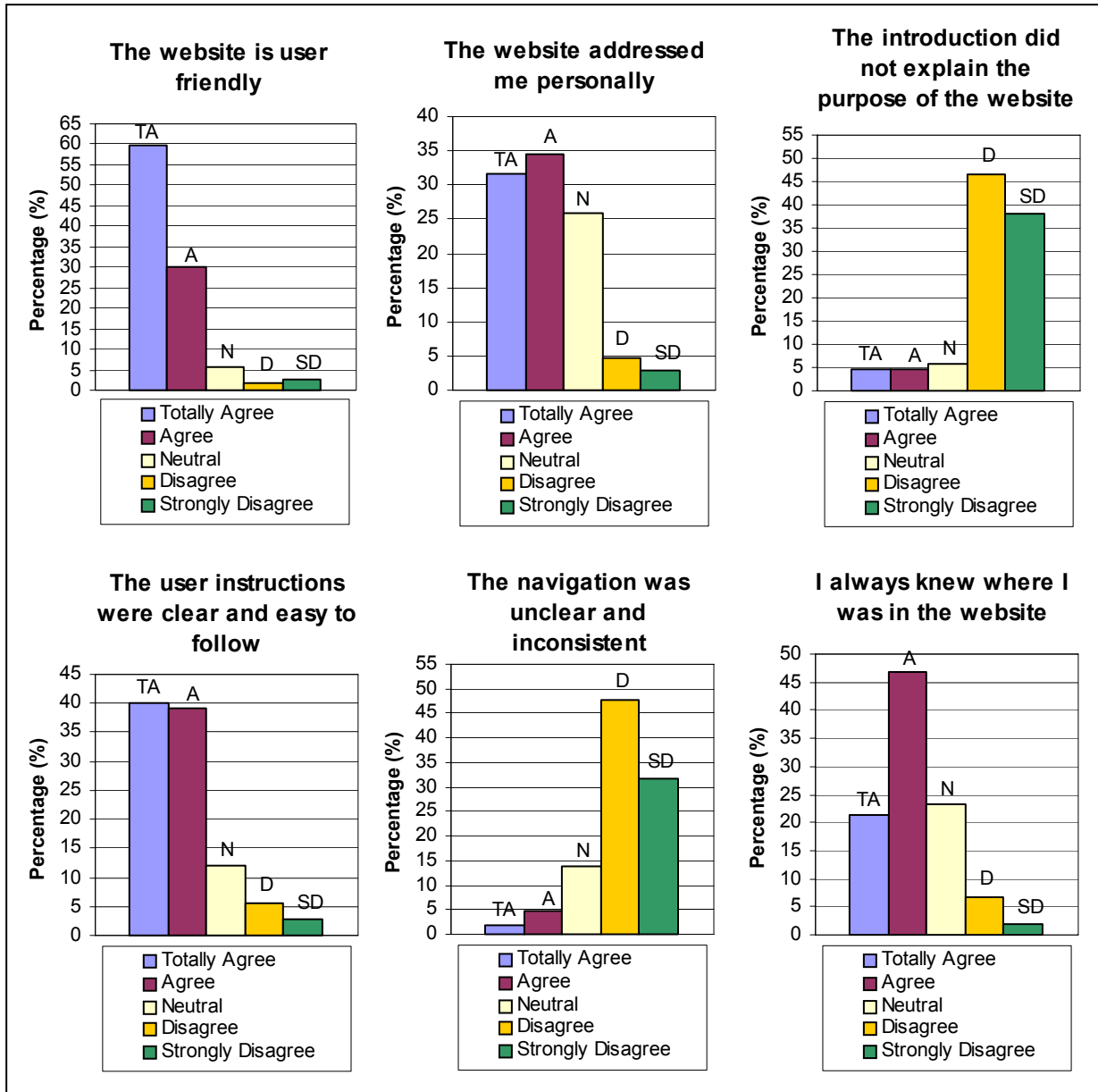


Figure 4. 10: Navigation and interaction of the website

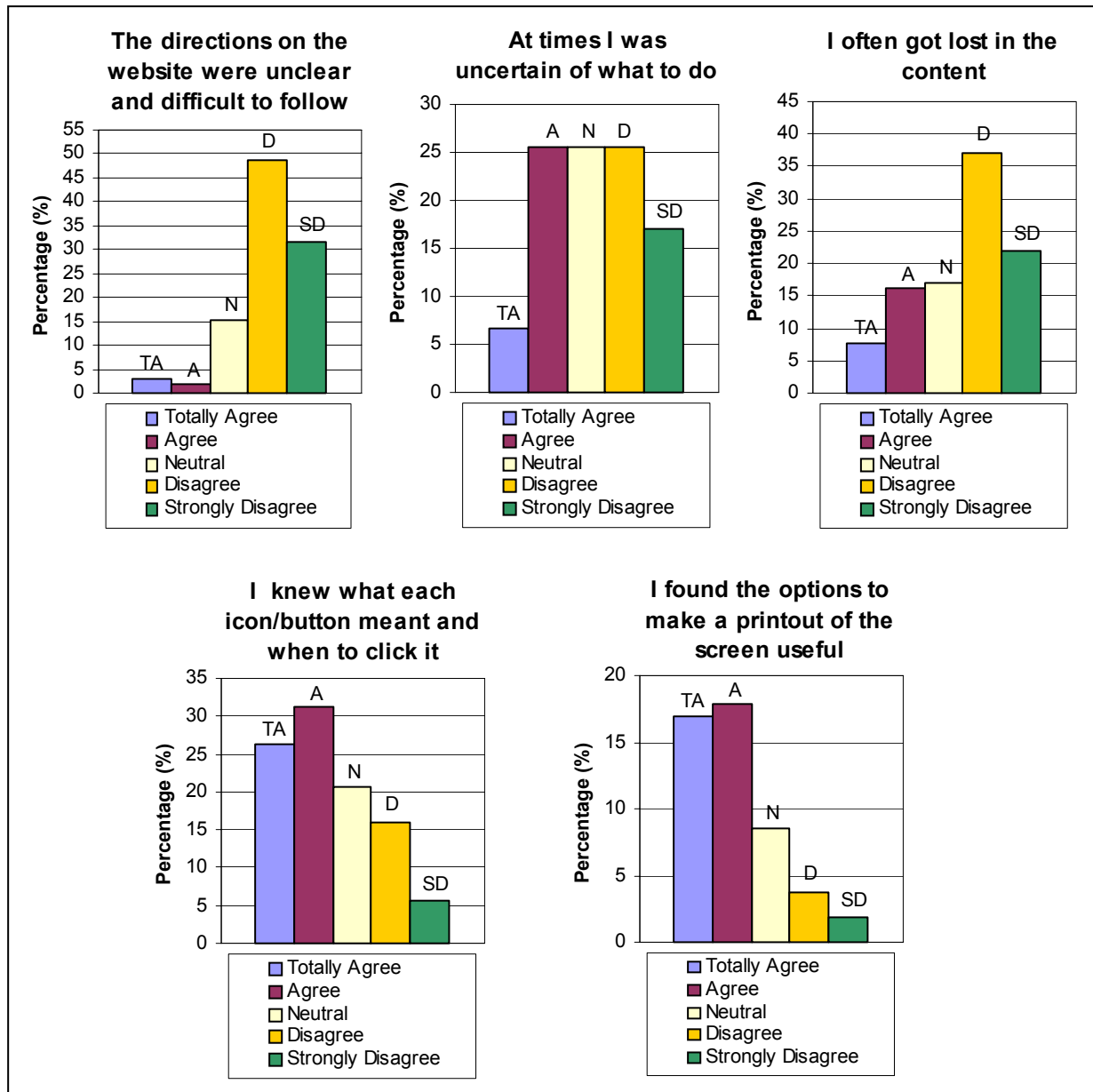


Figure 4.11: Navigation and interaction of the website (continued)

The results indicate that nearly 90 per cent of the learners (59,81 per cent totally agreed and 29,91 per cent agreed) agreed that the website was user friendly. Although 66 per cent of the learners felt (31,73per cent totally agreed and 34,62 per cent agreed) that the course addressed them personally, a large number of learners rated the statement neutral (25,96 per cent). When this website is further developed and revised, it should be written in a more personal manner.

A total of 85 per cent of the learners (46,67 per cent disagreed and 38,10 per cent strongly disagreed) disagreed with the statement that the introduction did not explain the purpose of the website. However, nearly ten per cent of the learners agreed with the statement (4,76 per cent totally agreed and 4,76 per cent agreed). The introduction should be critically evaluated and an attempt should be made to clarify sections that are not clear.

Although 79 per cent of the learners (40,19 per cent totally agreed and 39,25 per cent agreed) felt that the explanation of how to use the website was clear and easy to follow, a small percentage of learners (8,41 per cent) disagreed with the statement, while 12,15 per cent of the learners rated the statement neutral. The negative rating of the statement could be due to the fact that the use of computers and the Internet for study purposes are new concepts for most of the learners. Some learners may not have familiarised themselves with all the concepts of the website. Some may have experienced difficulty in reading a number of instructions and then executing them without another person to assist them in the execution of the process. When this website is further developed and revised, the explanation should be revised and unclear instructions must be clarified.

Less than seven per cent of the learners agreed (1,87 per cent totally agreed and 4,67 per cent agreed) with the statement that the navigation was unclear and inconsistent. Fourteen per cent of the learners rated the statement neutral. These learners most probably do not know what the term *navigation* means. These may be the same learners who have trouble using the website because they do not frequently use computers and the Internet.

A large number of learners (total 68,23 per cent: 21,50 per cent totally agreed and 46,73 per cent agreed) agreed that they always knew where they were in the course. Eight per cent of the learners did not agree with the statement while 23 per cent of the learners rated the statement neutral. Eighty per cent of the learners disagreed (48,57 per cent disagreed and 31,43 per cent strongly disagreed) with the statement that the directions in the course were unclear and difficult to follow. However, 15,24 per cent rated the statement neutral while nearly five per cent agreed (2,86 per cent totally agreed and 1,90 per cent agreed) with the statement. A larger number of learners (32,07 per cent) were uncertain about what to do at times and 25,47 per cent of the learners rated the statement "At times I was uncertain what to do" neutral. Some learners (23,81 per cent) also felt that they got lost in the content, while 59 per cent of the learners disagreed (37,14 per cent disagreed and 21,90 per cent strongly disagreed) with the statement "I often got lost in the content". Seventeen per cent of the learners rated this statement neutral.

More than half of the learners agreed (26,42 per cent totally agreed and 31,13 per cent agreed) with the statement "I knew what each icon or button meant and when to click on it". Nearly 21 per cent of the learners rated the statement neutral while 21,7 per cent disagreed with the statement (16,04 per cent disagreed and 5,66 per cent strongly disagreed).

The negative and neutral ratings accumulated by the five statements above can be explained by the fact that the learners have had very little exposure to Internet use and are not aware of the features that could assist them with their navigation and operation of the course. During the observation sessions, a number of learners were unsure of their location in the website. When it was pointed out to them that the arrow pointing to the words in the navigation bars are indications of where they are they reacted with amazement. In other instances learners were asked what the problem was when

they seemed stuck. When they were then asked to recall what was said during the introduction on the use of the website, they only then recalled the features such as what indicated their location or methods of using the navigation buttons. In other instances the learners indicated that they did not read the “Help” page before using the course. Often learners need constant reminders about the use of certain features and they need to get used to using a different medium for their studies.

It was noted in the self-assessment exercises that although there are clear instructions on how to complete the exercises, the “Help” feature is not available. During further development, the “Help” feature should be made available at all times.

Only 49 per cent of the learners responded to the statement “I found the options to make a printout of the screen useful”. From these, 34,90 per cent agreed (16,98 per cent totally agreed and 17,92 per cent agreed) with the statement, 8,49 per cent rated the statement neutral and 5,66 per cent disagreed with the statement. The low response to this statement could be due to the fact that the pages that are provide in a printable format are available in the study guide. Many of the learners also do not have access to a printer or because they have to pay a fee for having pages printed, they do not make use of such a facility.

#### **4.3.7 How did you (the learner) experience the learning of the website?**

The ease with which learners learn to use the website plays a role in determining whether learners will use the website or not. If learners find it difficult to learn how to use the website and do not master the skill, they will not use it. The features listed below were evaluated to establish how learners experienced the learning of the website:

- Whether they found it difficult to learn how to operate the website
- Whether they found it easy to explore the features by trial and error
- Whether it was easy for them to remember names and the use of commands
- Whether they found it difficult to perform tasks

Figure 4.12 on the next page comprises statements and graphical representations of how the learners experienced the learning of the website according to the features listed above.



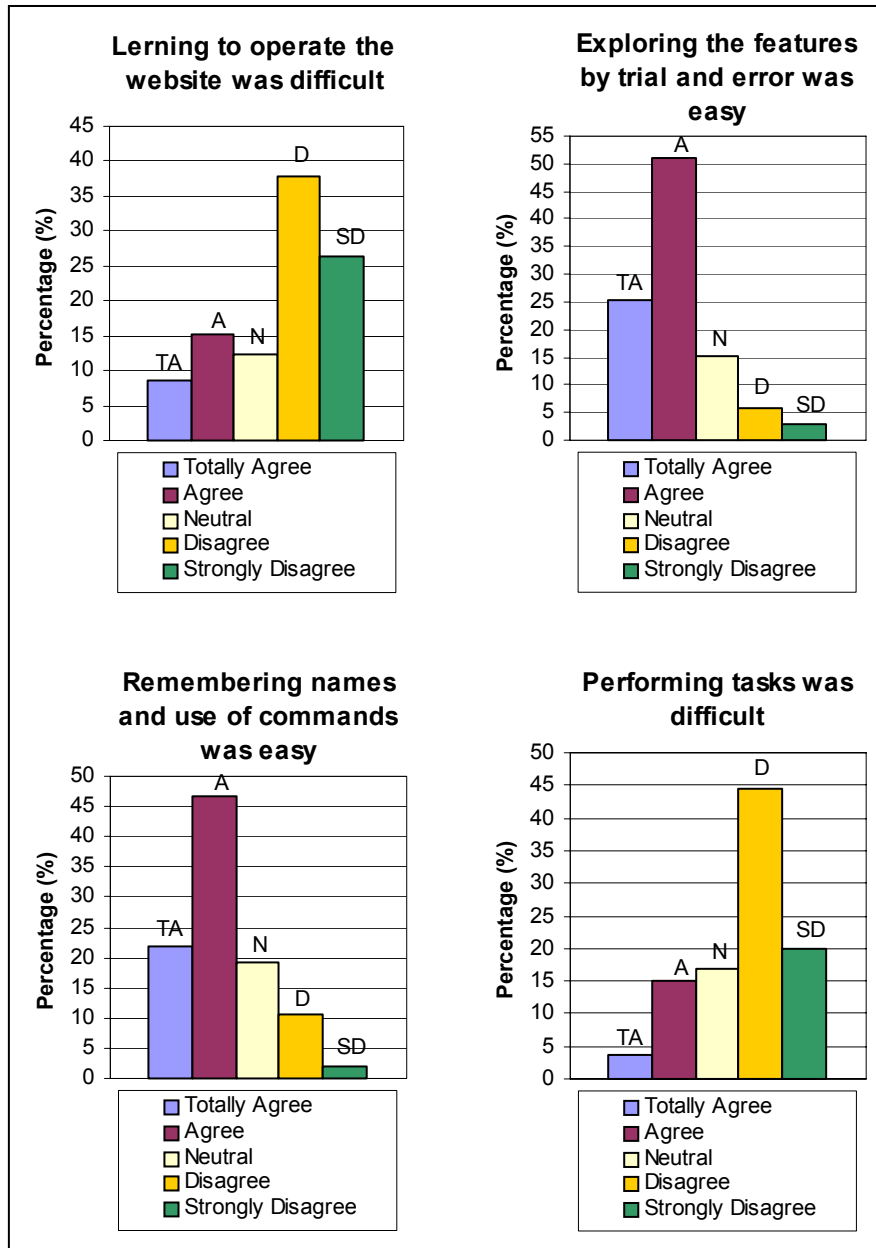


Figure 4.12: Learners' experience of learning the website

The majority of learners disagreed (total 64,16 per cent: 37,74 per cent disagreed and 26,42 strongly disagreed) with the statement "Learning to operate the website was difficult". Nearly 24 per cent of the learners agreed with the statement (17,92 per cent agreed and 16,98 per cent totally agreed), while 12,26 per cent rated the statement neutral. The difficulty learners experienced in learning to operate the website could be ascribed to the large number of learners who had no or little exposure to computers and/or the Internet. However, there were learners who were using the Internet for the first time and who experienced no real difficulties in operating it. After the introduction session one of the learners remarked:

"I cannot believe it. I have learned to work the Internet in such a short time and it was so easy!" (Snail, 2003).

Most of the learners agreed with the following two statements and disagreed with the third statement concerning with learning the website:

- Exploring the features by trail and error was easy (total 76,41 per cent: 25,47 per cent totally agreed and 50,94 per cent agreed).
- Remembering names and use of commands was easy (total 68,57 per cent: 21,90 per cent totally agreed and 46,67 per cent agreed).
- Performing tasks was difficult (total 64,15 per cent: 44,34 per cent disagreed and 19,81 strongly disagreed).

#### **4.3.8 Read the statements below and give your (the learner's) view on the website**

It is important to establish whether the learners feel that the website serves as a tool that can assist them in mastering the subject content. The features listed below were evaluated to establish whether the website met this criterion:

- Whether the website can assist them in understanding the subject content in the study guide better
- Whether the questions and activities in the website can assist them in understanding the subject principles better
- Whether working through the website made them more confident about answering their assignment questions better

Figure 4.13 on the next page comprises statements and graphical representations of how the learners viewed the website as a tool that can assist them in mastering the subject content according to the features listed above.

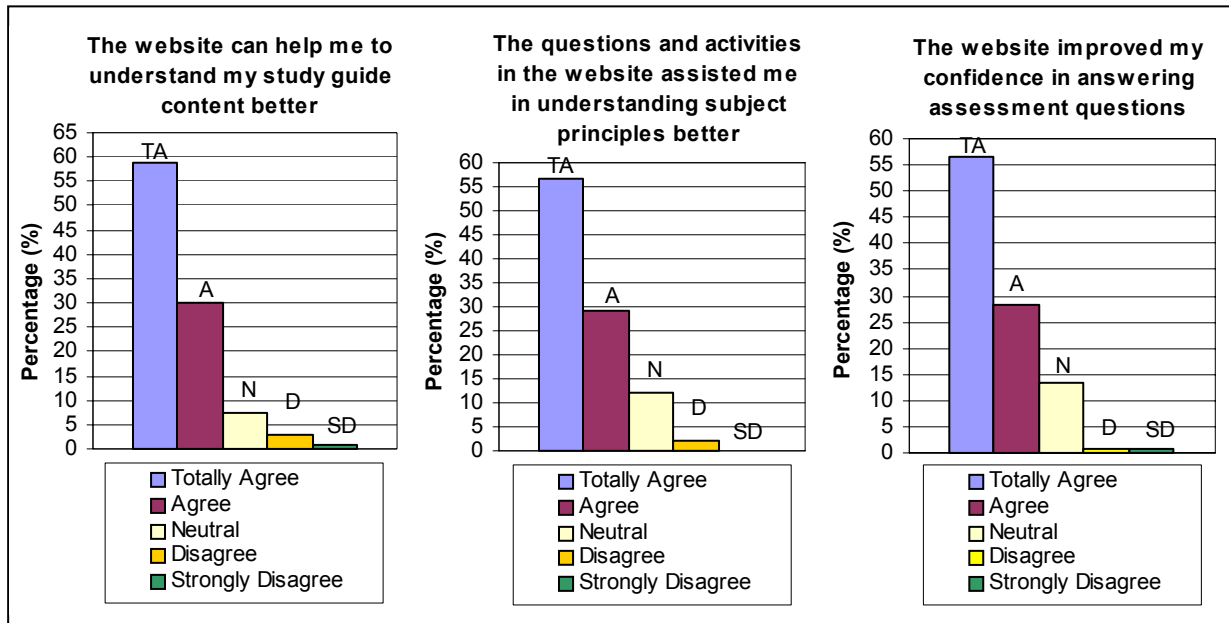


Figure 4.13: Learners' view of the website

A large number of learners reacted very positively to all three of the statements that revealed the extent to which the website had assisted them (or not) in mastering the subject content. The results were as follows:

- The website can help me to understand the subject content in my study guide better (total 88,79 per cent: 58,88 per cent totally agreed and 29,91 per cent agreed).
- The various questions and activities in the website can assist me in understanding the subject principles better (total 85,85 per cent: 56,60 per cent totally agreed and 29,25 per cent agreed).
- Working through the website makes me more confident about answering my assessment questions better (total 84,90 per cent: 56,60 per cent totally agreed and 28,30 per cent agreed).

From the results it is clear that the learners are of the view that a website can serve as tool to assist them in acquiring a better understanding and knowledge of the subject matter. During follow-up discussions the learners again confirmed that they viewed the website as a means that could help them to master the subject matter. They also viewed the website as a means of obtaining more background information about the subject matter because the subject is unfamiliar to most of them. The website also serves as a reliable source of correct information concerning nutrition. People are often misinformed about nutrition in general and – to an even greater extent – about the facts that are pertinent to nutrition and HIV and AIDS.

#### 4.3.9 How did you (the learner) experience the online format of the exercises?

Although a large number of the learners had had little or no exposure to the use of computers in their studies, they managed to execute the exercises with much less effort than had been expected. During the observation sessions it was encouraging to see how quickly the majority of the learners mastered the *example* exercise that comprised a *drag and drop* activity. The drag and drop approach was a totally new concept to most of the learners since those that were familiar with computers only possessed experience in basic word processing tasks. After they understood how to operate the mouse and read the exercise instructions, they completed the *example* exercise with little effort. There was much excitement amongst the learners when they completed the exercise and scored one hundred per cent. They had even less trouble executing the content exercises since they comprised typing activities or clicking check box activities. The features listed below were used to evaluate the online format of the exercises:

- Whether learners found it difficult to complete the online exercises
- Whether learners found the exercises easy to perform
- Whether learners would have preferred to do the exercises in a pen-and-paper format
- Whether the online format made the exercises more interesting
- The use of the mouse (the drag and drop activity)

Figure 4.14 on the next page comprises statements and graphical representations of how the learners experienced the online format of the exercises in terms of the features listed above.

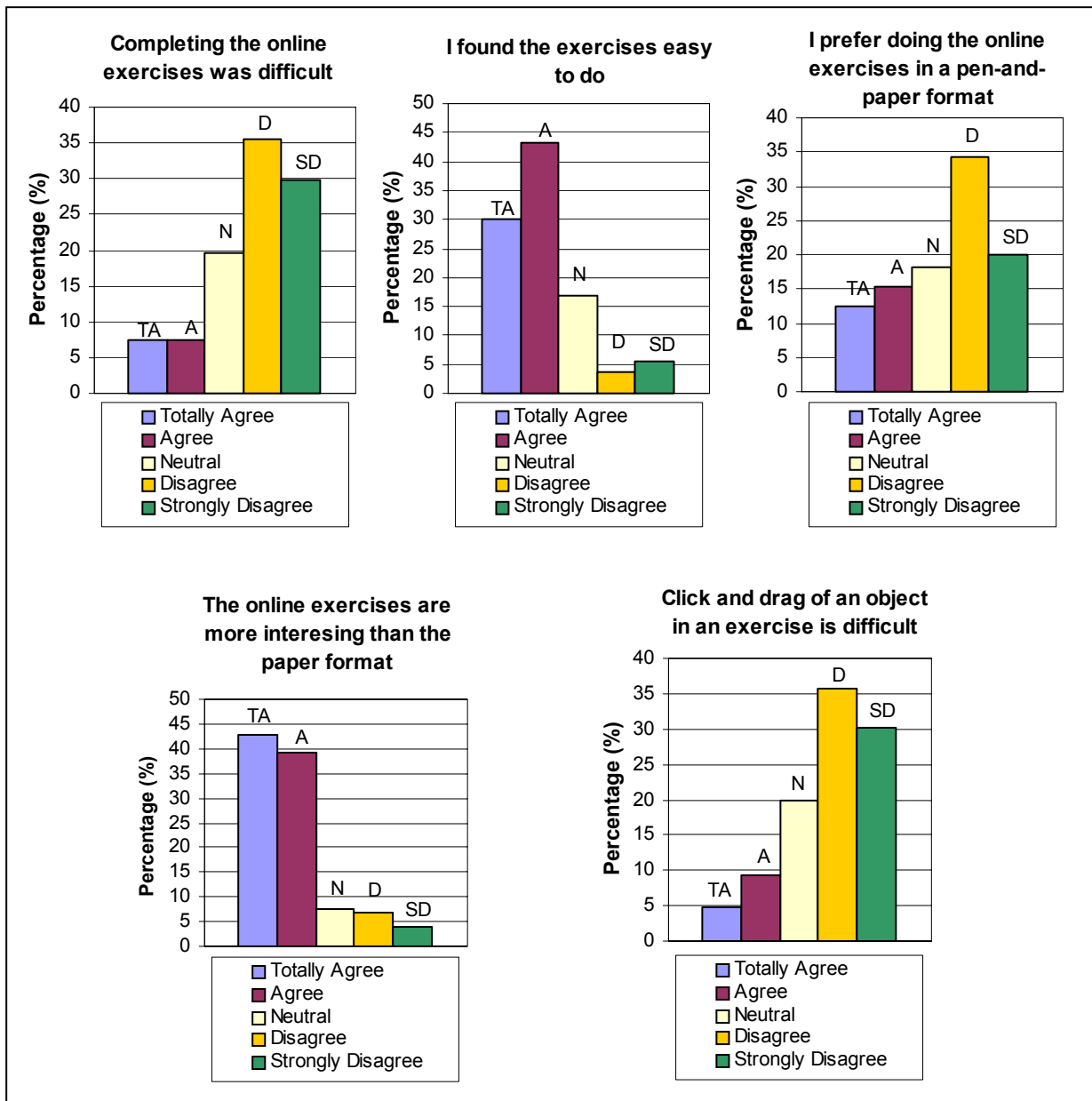


Figure 4.14: Learners' views of the online format of exercises

Most of the learners did not find it difficult to complete the online exercises (total 65,42 per cent: 35,51 per cent disagreed and 29,91 totally disagreed). Fifteen per cent of the learners agreed with the statement “I found it difficult to complete the exercises because of the online format”, while 19,63 per cent rated the statement neutral. The majority of learners also agreed that the exercises were easy to do (total 73,59 per cent: 30,19 per cent totally agreed, and 43,40 per cent agreed). Fewer than ten per cent of the learners found the exercises difficult.

It is encouraging to note that more than half of the learners preferred the online format of the exercises. Fifty-four per cent of the learners disagreed with the statement “I would have preferred to

do the exercises of the website in a pen-and-paper format” (34,29 per cent disagreed and 20,00 per cent totally disagreed). Nearly 28 per cent of the learners agreed with the statement while 18,10 per cent rated the statement neutral. The relatively high neutral rating could be interpreted to show that these learners did not mind in which format the exercises were presented and that they thus viewed the online format as acceptable.

Although a substantial number of learners would have preferred to complete the exercises in a pen-and-paper format, nearly 82 per cent of the learners agreed with the statement “The online format made the exercises more interesting than the equivalent pen-and-paper format” (42,86 per cent totally agreed and 39,05 per cent agreed). Only 10,48 per cent disagreed with the statement and 7,62 per cent rated the statement neutral.

Just more than 14 per cent of the learners agreed with the statement “In the activities I found it difficult to click on an object and drag it to another position”. Most of the learners disagreed with the statement (total 66,04 per cent: 35,85 disagreed and 30,19 totally disagreed) while nearly 20 per cent rated the statement neutral.

#### **4.3.10 General statements**

The following features were evaluated in order to establish the learners’ perceptions about the website:

- Whether the website enhanced and improved the learners’ skills
- Whether the website assisted them in improving the quality of their work
- Whether the website made a good impression
- Whether learners would tell their friends positive things about the website

Figure 4.15 on the next page comprises statements and graphical representations of the learners’ views concerning the website in terms of the features listed above.

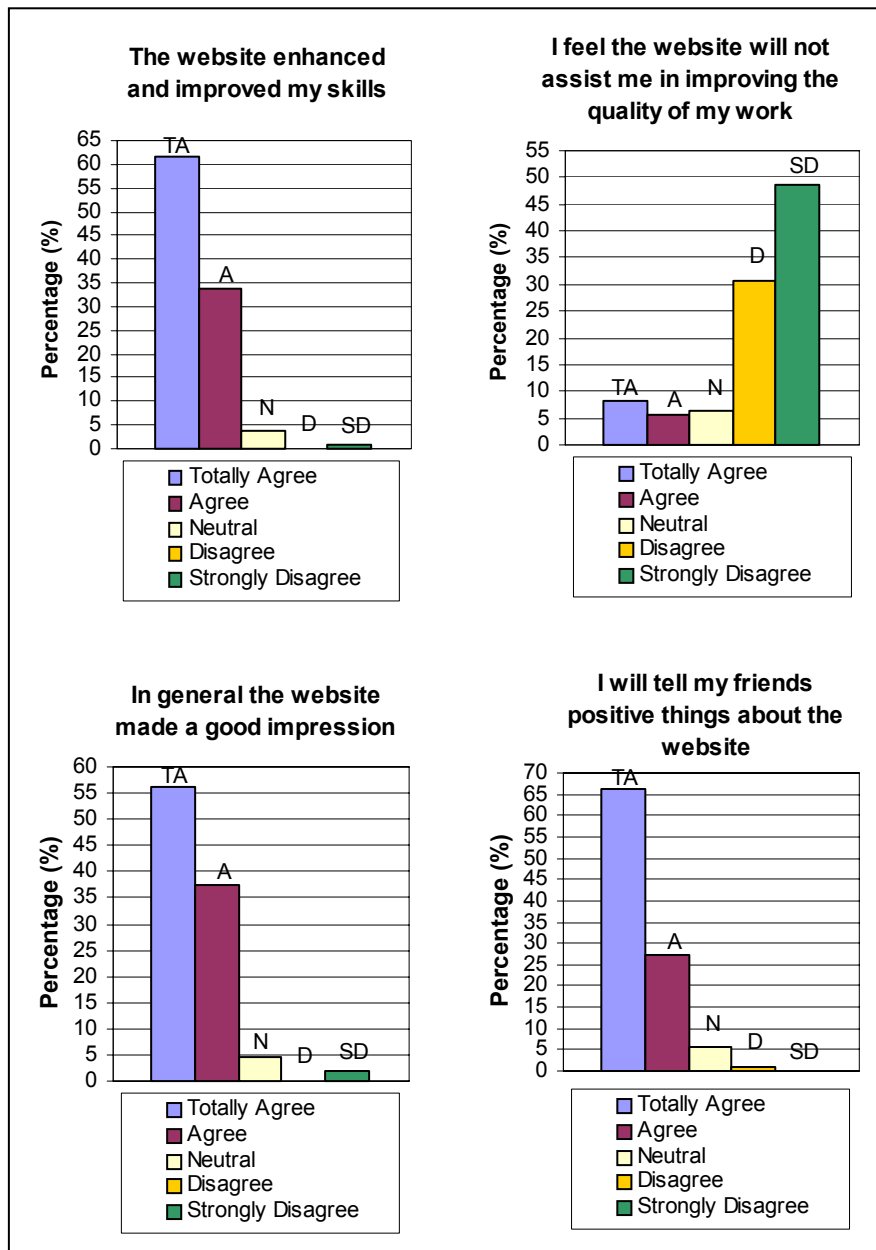


Figure 4.15: Learners' views on general statements concerning the website

A large number of the learners (95,32 per cent) agreed with the statement “I feel the website enhanced and improved my skills” (61,68 per cent totally agreed and 33,64 per cent agreed). Only 0,93 per cent of the learners disagreed with the statement and 3,74 per cent rated the statement neutral.

The majority of learners (79,44 per cent) disagreed with the negative statement “A website will not assist me in improving the quality of my work” (30,84 per cent disagreed and 48,60 per cent strongly disagreed). Fourteen per cent of the learners agreed with the statement (8,41 per cent totally agreed and 5,61 per cent agreed) and 6,53 per cent of the learners rated the statement neutral.

Most of the learners (93,45 per cent) also agreed with the statement “In general the online module made a good impression”. Only 1,87 per cent strongly disagreed with the statement while 4,67 per cent rated the statement neutral. The same percentage of learners (93,46 per cent) agreed with the statement “I will tell my friends positive things about the web-base”. A small number of learners (0,93 per cent) disagreed with the statement, while 5,61 per cent rated the statement neutral.

Because an overwhelming number of learners indicated that the website improved their skills, and felt that it would assist them in improving the quality of their work and said that they would tell their friends positive thing about the learning website, further e-learning development of the degree is viable and needs to be considered.

#### **4.4 Questionnaire C: Summative evaluation of the distance education course and the website**

In this section the results from the quantitative analysis of the formative evaluation of the distance education course and website (See Appendix D, Questionnaire C) are reported and discussed. Since there was no significant difference between variables of the summative evaluation of the two year groups, the data was combined and the results are reported as such.

The first part of the questionnaire covers how learners experienced working with the website while the latter focuses on how the learners viewed the course. The questionnaire comprises a number of questions; each is followed by a number of statements related the question. The learners had to respond by indicating which statement(s) are the most applicable to himself or herself. The results of Questionnaire C are reported as a question followed by graphic representations reflecting how learners rated the statements, and these are interpreted in terms of frequency percentages. A brief discussion follows each question.

##### **4.4.1 How did you experience working with the website?**

The website also functions as a supplement to the black-and-white paper-based study material to provide more visual and interactive content. The features listed below were evaluated to establish how learners experienced working with the website:

- Whether the learners were impressed with the website
- Whether they found website challenging
- Whether they found website stimulating
- Whether they enjoyed working with the website
- Whether they found the website easy to use
- Whether the website frustrated them
- Whether they felt using the website was a waste of time



Figure 4.16 and Figure 4.17 comprise statements and graphical representations of how the learners experienced working with the website according to the features listed above.

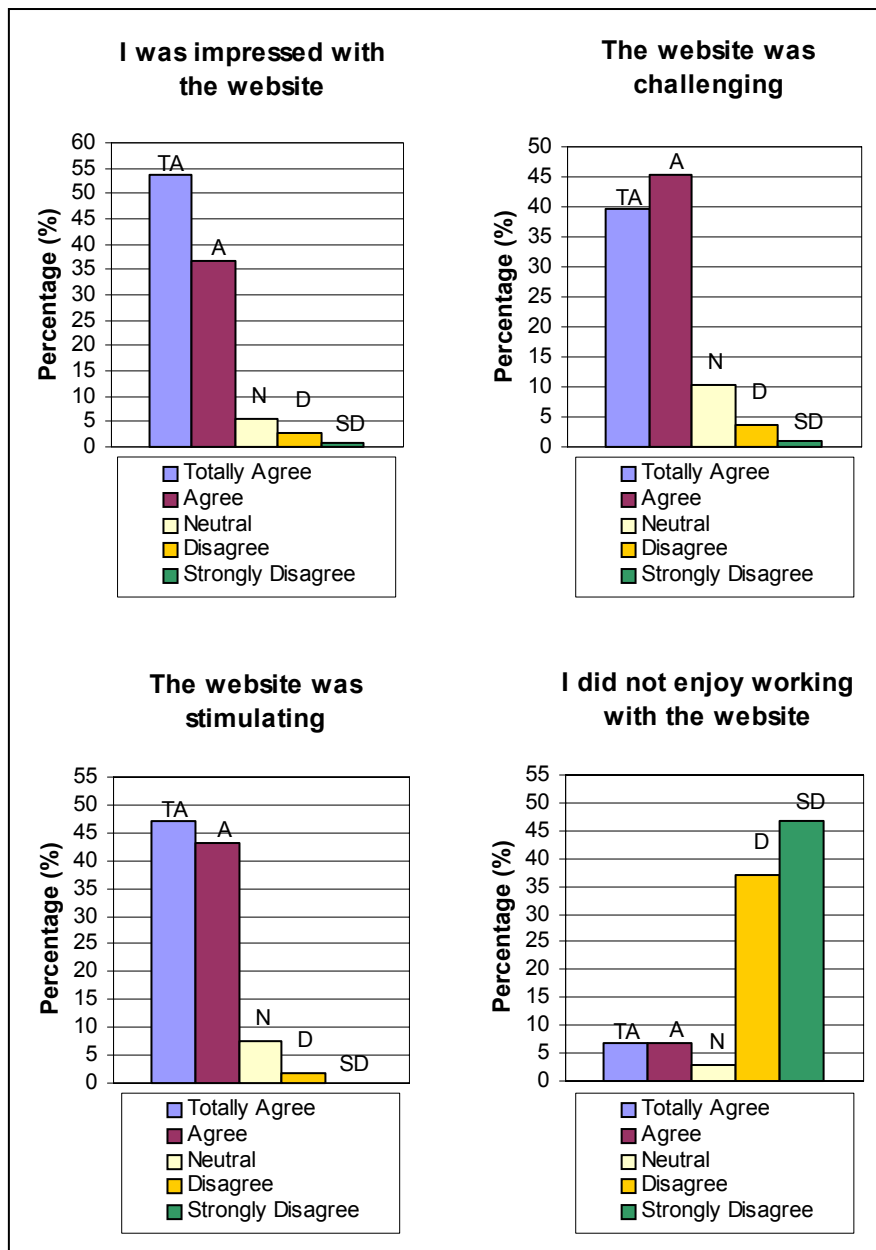


Figure 4.16: How learners experienced working with the website

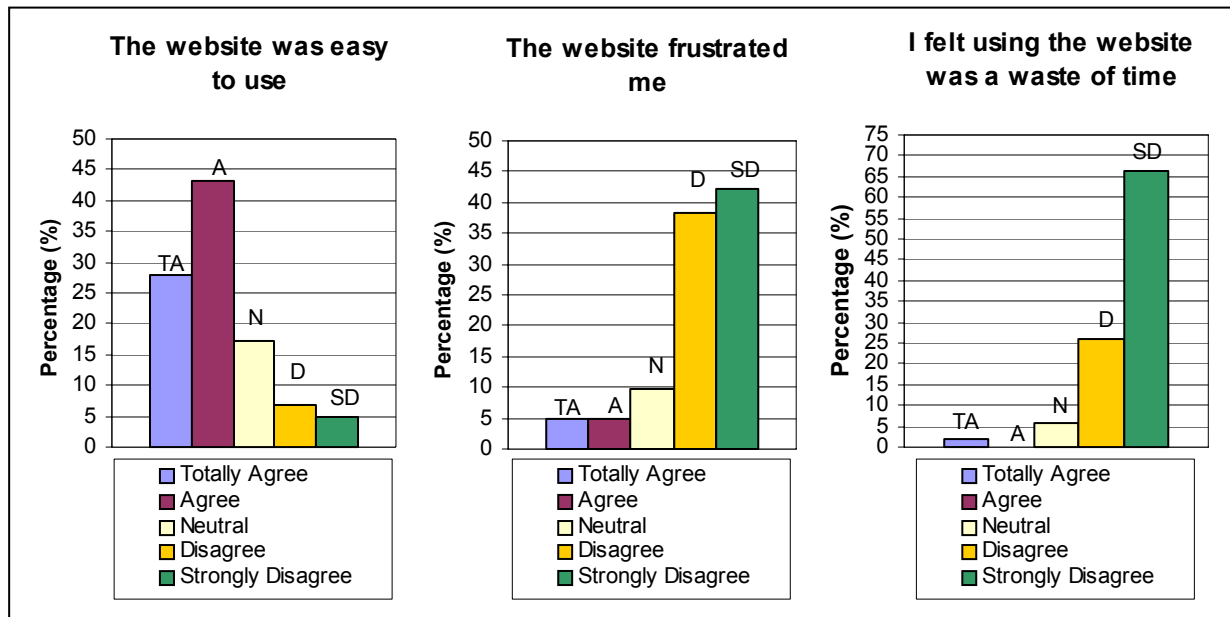


Figure 4.17: How learners experienced the website (continued)

The majority of learners reacted positively to the following three the statements concerning working with the website. The results were as follows:

- I was impressed with the website (total 90,56 per cent: 53,77 per cent totally agreed and 36,79 per cent agreed).
- The website was challenging (total 84,90 per cent: 39,62 per cent totally agreed and 45,28 per cent agreed).
- The website was stimulating (total 90,39 per cent: 47,12 per cent totally agreed and 43,27 per cent agreed).

A total of 83,81 per cent of the learners disagreed with the statement “I did not enjoy working with the website” (37,14 per cent disagreed and 48,67 per cent strongly disagreed). A small number (2,86 per cent) of learners rated the statement neutral while 13,34 per cent agreed with the statement. The relatively large number of learners who agreed with the statement is an indication that there are a number of learners who are not comfortable with using computer technology. This lack of ease might be attributable to the fact that the learners were computer illiterate and that the prospect of using an unfamiliar technology would make them feel uncomfortable. They may also feel that they are not able to master this “new” technology or that they do not think that it is really necessary (in the wider context) to master these skills. There may also be learners that just do not like with computers, or who just find it difficult to do so.

A large number of learners agreed (71,15 per cent) with the statement “The website was easy to use” (27,88 per cent totally agreed and 43,27 per cent agreed). However, a notable number of learners (11,54 per cent) did not agree with the statement, while 17,31 per cent of the learners rated

the statement as neutral. These relatively high percentages of negative and neutral responses to this question support the findings from the previous paragraph that indicated that learners who disagreed with this statement might be computer illiterate or might experience difficulties in mastering this “new” technology.

The majority of learners disagreed with the following two statements concerning working with the website. The results were as follows:

- The website frustrated me (total 80,77 per cent: 38,46 per cent disagreed and 42,31 per cent strongly disagreed).
- I felt using the website was a waste of time (total 92,31 per cent: 25,96 per cent disagreed and 66,35 per cent strongly disagreed).

It is encouraging to note that the majority of learners experienced working with the website as a positive experience.

#### **4.4.2 What is your (the learner's) view on the website?**

During informal discussions with learners and comments from learners it became apparent that learners did not know where to find appropriate and relevant information about the subject matter and that they experienced difficulty in finding the information. They were also not able to gain adequate background information. It was clear that the learners lacked the skills to find and use information from sources other than what was already present in their prescribed study material. The learners also experienced difficulty in adjusting to the increased personal input that the degree required from them. The website attempts to assist and guide learners on how to acquire and improve the skills they are lacking while functioning as a tool to support the distance education course. The features listed below were evaluated to establish how learners viewed the website:

- Whether they enjoyed working with the website
- Whether they would make use of the website when studying
- Whether they felt that the online content would help them to understand the printed study material better
- Whether they found the activities in each unit useful

Figure 4.18 on the next page comprises statements and graphical representations of how the learners experienced working with the website according to the features listed above.

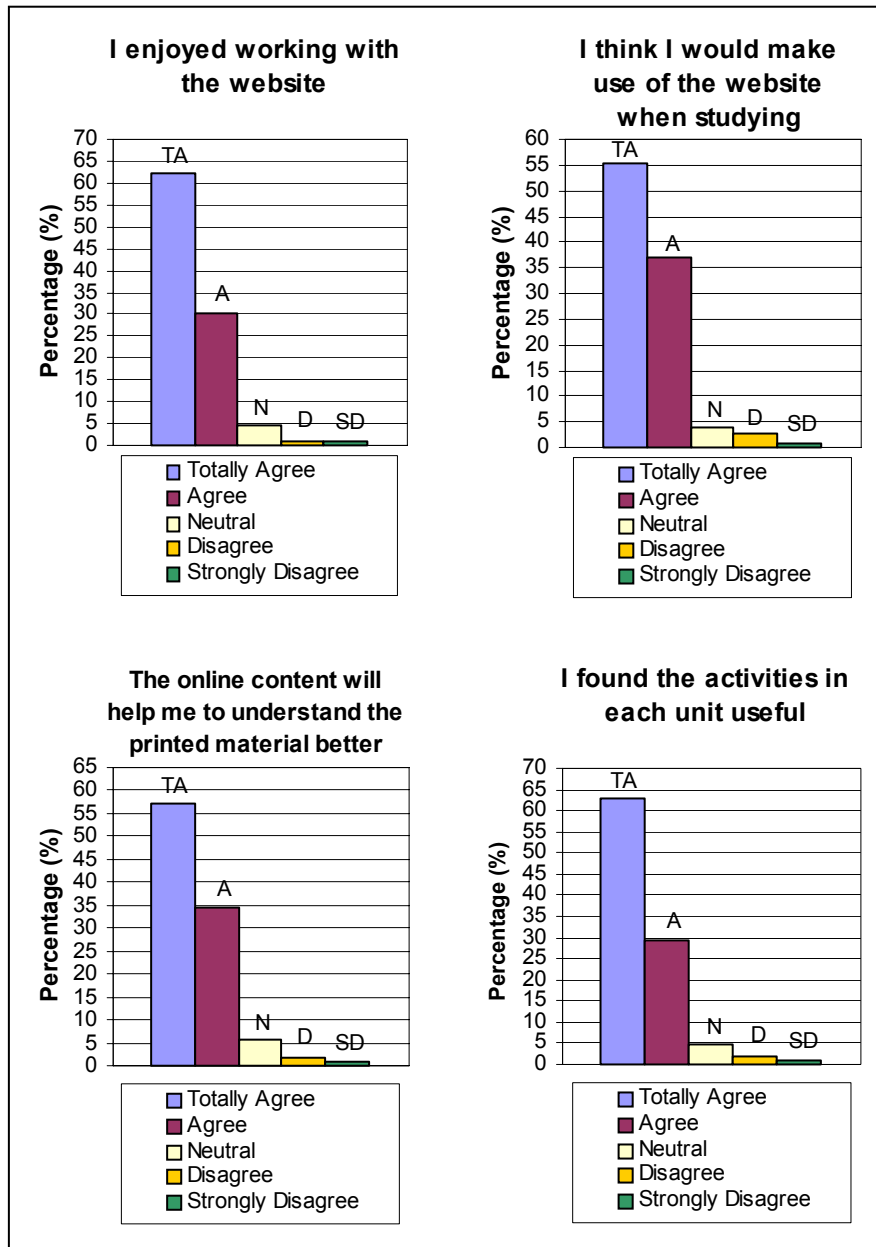


Figure 4.18: Learners' view on working with the website

The majority of learners agreed with the statements concerning their view on the website. The statements and the result are as follows:

- I enjoyed working with the website (total 92,45 per cent: 62,26 per cent totally agreed and 30,19 per cent agreed).
- I think I would make use of the website when studying (total 92,38 per cent: 55,24 per cent totally agreed and 37,14 per cent agreed).
- The online content will help me to understand the printed study material better (total 91,43 per cent: 57,14 per cent totally agreed and 34,29 per cent agreed).
- I found the activities in each unit useful (total 92,38 per cent: 62,86 per cent totally agreed and 29,52 per cent agreed).

It is encouraging to see that such a large number of learners reacted positively to the website and that they feel that the course will help them to understand the printed material better.

#### 4.4.3 Do you (the learner) use e-mail to communicate with your lecturers and fellow learners about your studies?

One of the objectives of the degree is to encourage the learners to make use of electronic media for their studies. VISTA University provided a facility for learners to have their own VISTA e-mail address. I needed to establish whether the learners did make use of e-mail to communicate with the lecturers and fellow learners.

Figure 4.19 comprises statements and graphical representations of learners' response to the question "Do you use e-mail to communicate with your lecturers and fellow learners concerning your studies?".

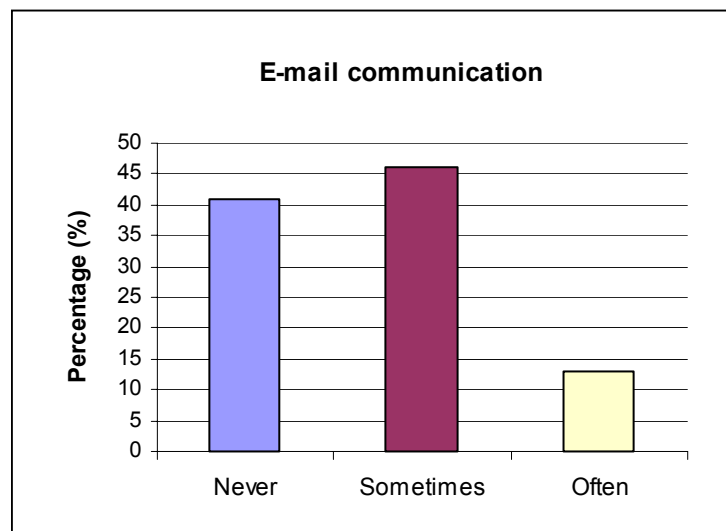


Figure 4.19: Learners' response on using e-mail as means of communication

Forty-one per cent of the learners indicated that they never use e-mail, 46 per cent use e-mail sometimes and only 13 per cent indicated that they use e-mail often for this purpose. It is unfortunate that so few learners make use of e-mail communication. During informal discussion the learners who did make use of e-mail indicated that they found e-mail a very convenient means of communication, especially when they could not get hold of the lecturer personally.

#### 4.4.4 Would you prefer to have your study guides and tutorial letters available online?

Although the learners are issued with **all** the printed study material after registration, the degree management committee felt that study material should also be available online. It was also necessary to determine how learners felt about having their study material available online.

Figure 4.20 is a graphical representation of the learners' response to the question "Would you prefer to have your study guide and tutorial letters available online?".

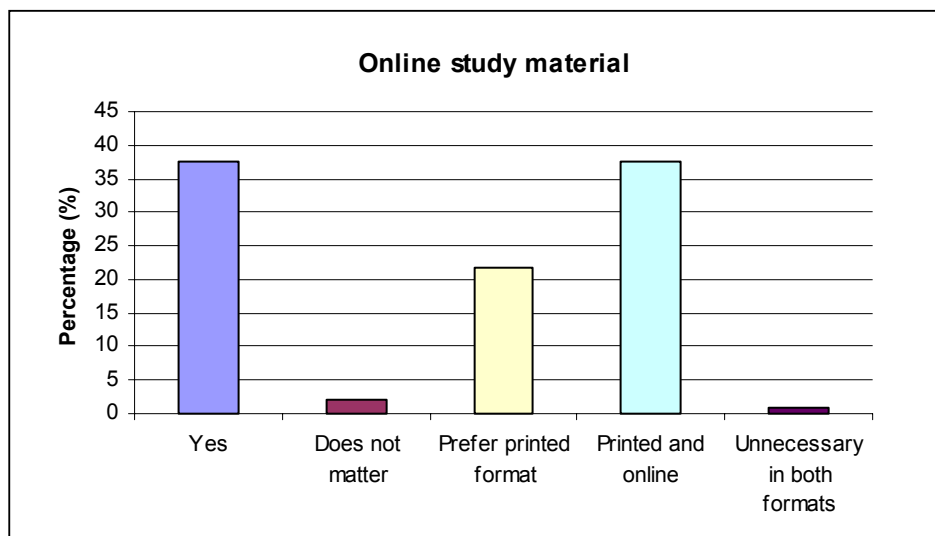


Figure 4.20: Learners' responses to having study material available online

The majority of learners either indicated that they preferred to have their study material available online (37,62 per cent) or to have their study material in printed *and* in online format (37,62 per cent). Nearly 22 per cent of learners preferred the printed format. Less than five per cent felt it did not matter in which format they receive their study material or that it is unnecessary to have both formats. It is encouraging to see that such a large number of the learners are in favour of the study material being available online.

It often happens that learners who register by post or register late receive their posted study material very late. Thus, if the study material is available online, such learners can access it immediately after registration and begin to complete the assignments. In some instances learners are issued with incorrect study material or incomplete study material. If the material is online they can also check if have the correct study material without having to contact the university. Learners also mislay their study material, especially their tutorial letters and assignments. Instead of applying for another copy and then waiting for the time-consuming issuing and posting process, learners can download another copy immediately.

#### 4.4.5 Would you (the learner) prefer to send your assessment activities by e-mail?

It was necessary to determine learners' attitude toward using e-mail to submit their assessment activities (assignments). Figure 4.21 is a graphical representation of the learners' response to the question as to whether they would prefer to send their assessment activities by e-mail.

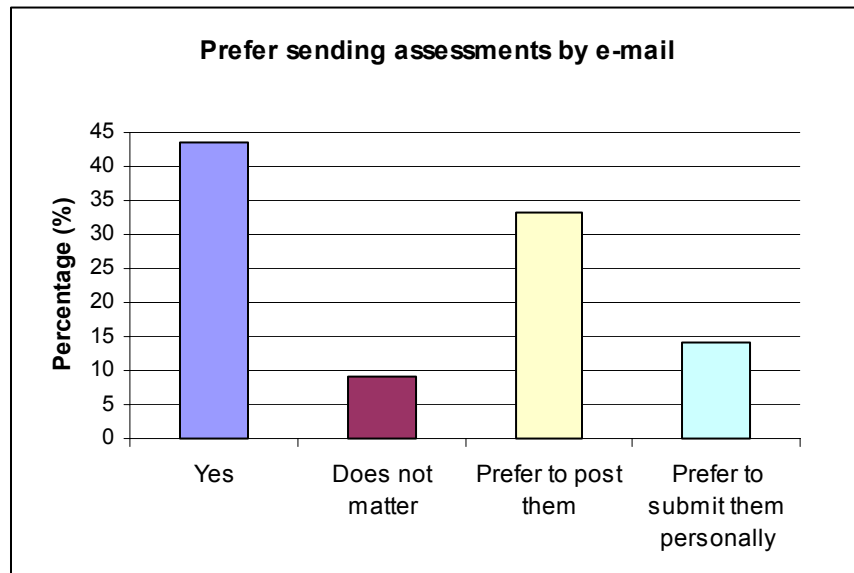


Figure 4 21: Learners' response on sending assessments by e-mail

A large number of learners (43,43 per cent) indicated that they would prefer to send their assessments by e-mail. Nearly 22 per cent of learners preferred to post their assessments while 14,14 per cent preferred to submit their assessments personally.

#### 4.4.6 Would you (the learner) prefer to receive the marked assessments back by e-mail?

I needed to establish learner preferences concerning the return of their marked assessments. Figure 4.22 is a graphical representation of the learners' response to the question as to whether they would prefer to receive their marked assessments back by e-mail.

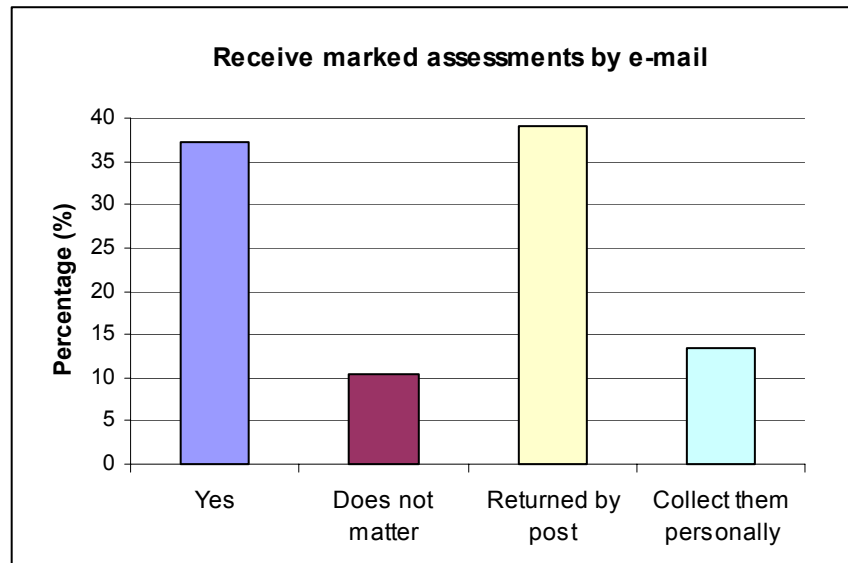


Figure 4.22: Learners' responses to receiving marked assessments by e-mail

A slightly lower percentage of learners (37,11 per cent) would prefer to receive their marked assessments back by e-mail than those that would prefer to send their assessments by e-mail. This could be due to the fact that quite a number of learners do not have their own e-mail address but use another person's e-mail address. They might not feel at liberty to use another person's e-mail address to receive their marked assessments back. This may explain why this number would rather receive the marked assessment back by post. Thirty-nine per cent of the learners prefer to receive their marked assessment back by post. A number of learners (13,40 per cent) would prefer to collect the marked assessment personally. The main reasons for learners delivering and collecting their assessments *personally* is because of the unreliable postage system, especially in the more rural areas.

A number of learners noted that they had not realized that e-mailing assessments were so effective. They were especially impressed with the fact that the assessments *did not get lost* and that they received the marked assessments back in a much shorter time than they would via the post. The lecturer (me) also arranged with the learners to receive a notification of receipt from the lecturer as soon as she had received the e-mailed assessment. This ensured that the learners knew that their assessment had arrived at the lecturer. If they did not receive a notification within 36 hours, they were asked to resubmit the assessment.



#### **4.4.7 Combination of media and technology learners would prefer for their studies**

To establish what combination of media and technology learners would prefer to use during their studies, the following features were evaluated:

- Whether learners preferred to use only their printed study material
- Whether learners would use other printed sources (e.g. library books)
- Whether learners would use the Internet to gather information
- Whether learners would use only telephone, fax and mail to communicate with the lecturers and fellow learners
- Whether learners would use e-mail and telephone to communicate with the lecturers and fellow learners
- Whether learners would only consult the lecturer in her/his office and prefer not to use other means of communication

Figure 4.23 on the next page comprises statements and graphical representations of what combination of media and technology learners would prefer to use according to the features listed above. (Learners were allowed to choose more than one option.)

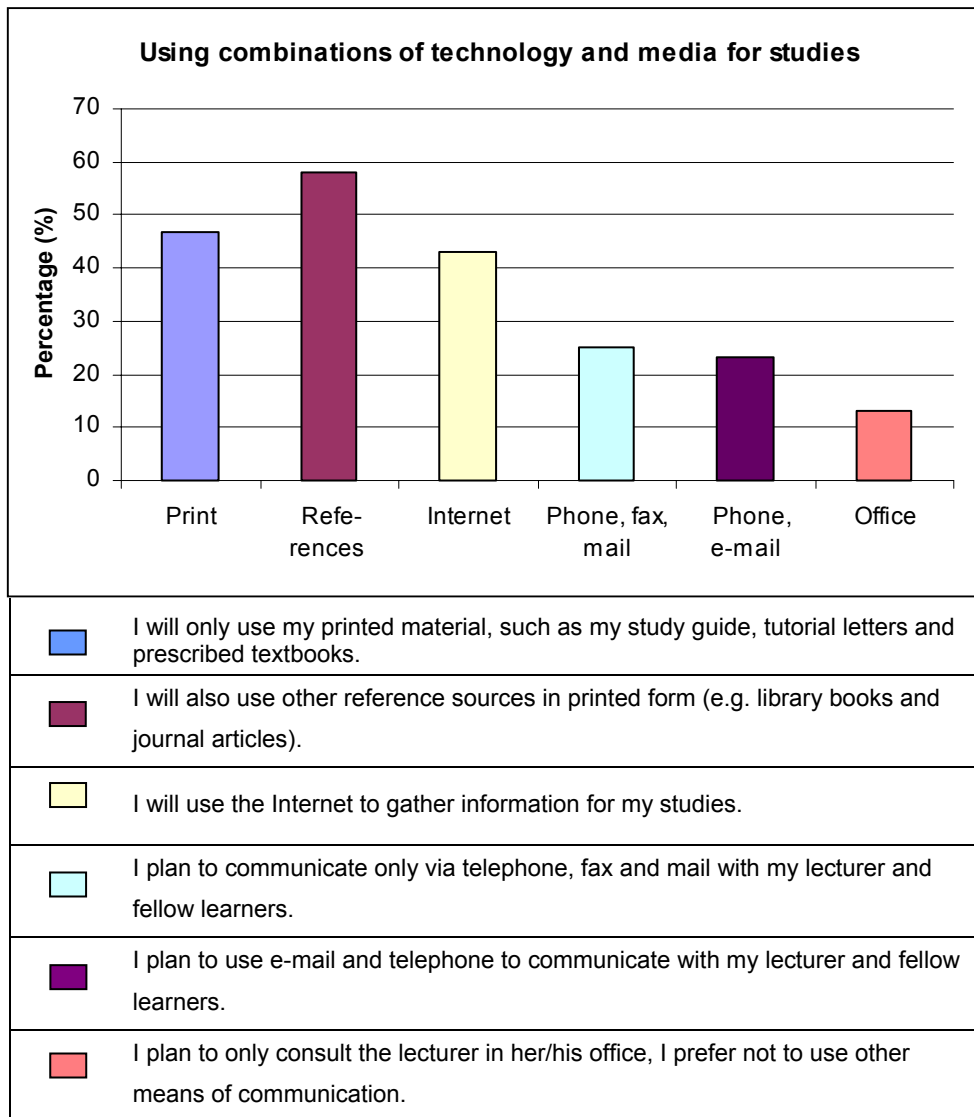


Figure 4.23: Media and technologies learners prefer to use during their studies

It was clear that the learners have a preference for using printed materials. It is disturbing to see from the results that such a large number of learners (46,73 per cent) at postgraduate level are of the opinion that their study guide and prescribed textbooks are sufficient sources for their studies. In a field of HIV and AIDS, in which new information is constantly being published, it is very important for learners to realize that they must consult other sources in order to be informed about the latest information concerning the subject matter. However, more than half of the learners (57,94 per cent) indicated that they would use other printed sources and 42,99 per cent indicated that they would also use the Internet to gather information.

Learners also showed a greater preference for using the telephone, fax and mail when it comes to matters concerning their studies. Twenty-five per cent of the learners indicated that they would prefer to use the telephone, fax and mail to communicate with the lecturers and fellow learners than

those that would use the telephone and e-mail (23,36 per cent). Thirteen per cent of the learners preferred to consult the lecturers in their offices.

#### 4.4.8 Preferred modes of communications

Learners were asked which modes of communication they would prefer to use. Figure 4.24 comprises the communication options and graphical representations of the various modes of communication offered. (Learners were allowed to choose more than one option.)

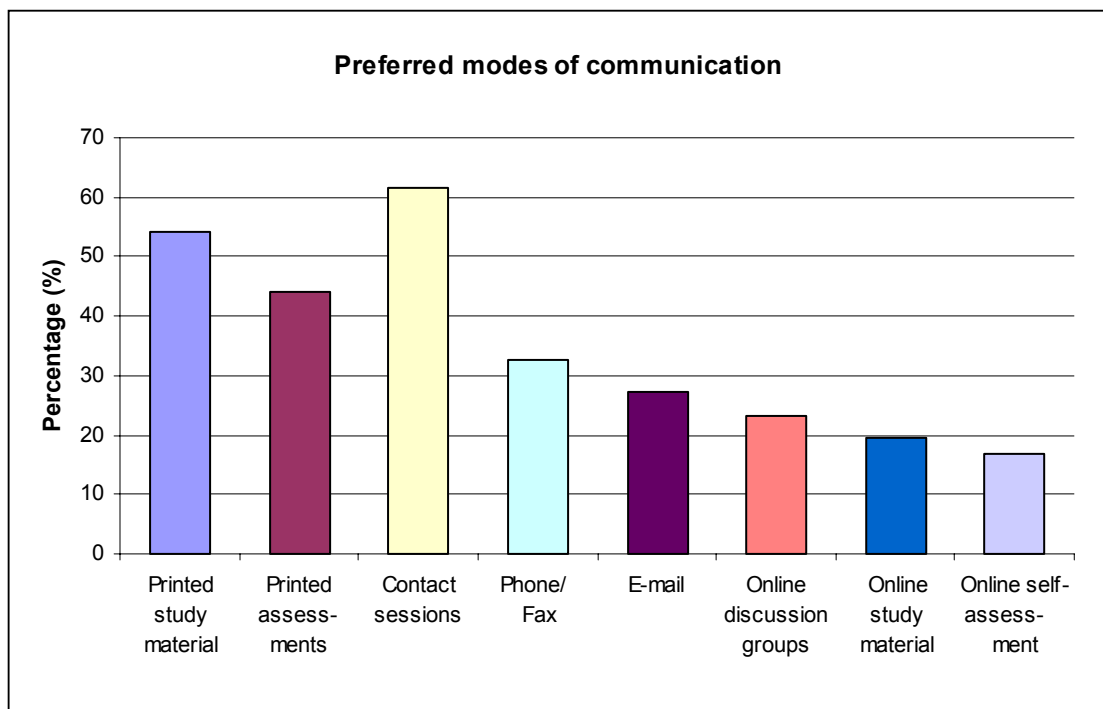


Figure 4.24: Learners' preferred mode of communication

From the results it is clear that the learners have a distinct preference for printed study materials and assessments (54,21 per cent and 43,93 per cent respectively) and contact sessions (61,66 per cent). It is noteworthy that although these learners are postgraduate students and the degree is offered in a distance education mode, they still have a strong preference for contact sessions. The preference percentages for the various electronic modes of communication were much less than for the printed media, and varied between 27 per cent and 16 per cent.

The lower incidence of preference for electronic communication could be explained by the fact that the learners are not familiar with the use of electronic communication. Learners also indicated that that they did not have e-mail and Internet facilities – or, in those cases where they have access to these facilities at work, they were not allowed to use them for private purposes. They were, however, permitted to use telephone and fax facilities (if they paid for such use) for private and study purposes. Learners and employers should be made aware of the fact that their employees might

need to use an e-mail facility on a limited basis to further their education and enhance their qualifications.

#### 4.4.9 Would you prefer to receive instruction through a combination of media and technology?

Learners were asked if they would prefer to receive instruction by means of a combination of media and technology. Figure 4.25 comprises the response options and graphical representations to the posed question.

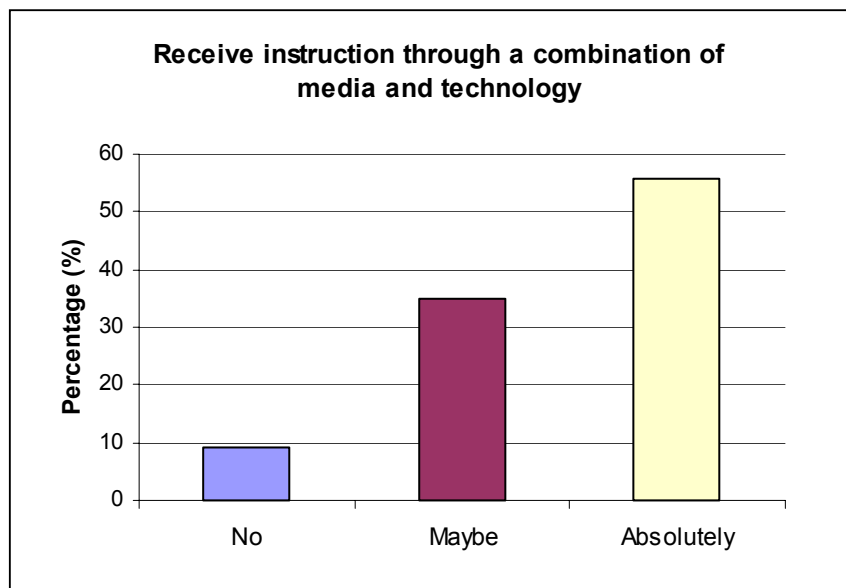


Figure 4.25: Instruction offered through a combination of media and technology

The majority of learners responded positively (55,67 per cent) to the idea of receiving instruction through a combination of media and technology. Thirty-five per cent of the learners were unsure about receiving instruction through a combination of media and technology. This may indicate that although learners are not opposed to the use of media and technology, the principle is still new and unfamiliar to them. Learners need to be informed about the use of various forms of media and technology, and time is needed to teach them how to use it in such a manner that it becomes a part their way of study.

I noticed an increase in the acceptance of e-mail among the learners and, to a lesser extent, the use of the Internet. However, it has become apparent that very few learners have been made aware of the importance of academic journal articles in their undergraduate studies. The idea of an electronic journal database is therefore very unfamiliar to them. Learners urgently need to be made aware of facilities such as these.

#### 4.4.10 Which of the following formats would you prefer to have available for instruction?

Learners were given a number of media and technology options to determine their views on the use of these facilities when offering instruction. (They were allowed to choose more than one option.)

Figure 4.26 comprises the media and technology options and graphical representation of their selections.

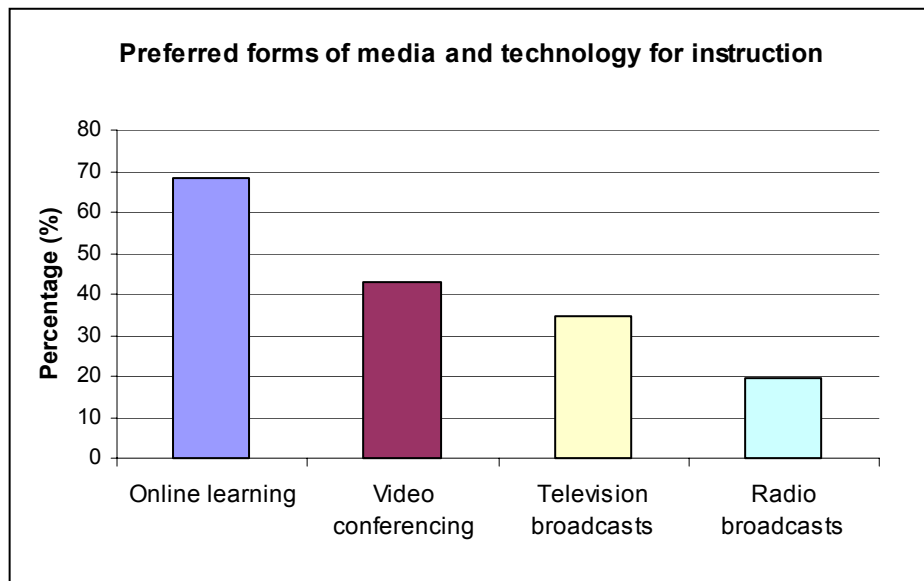


Figure 4.26: Preferred forms of media and technology used for instruction

It was encouraging to see that the majority of the learners (68,22 per cent) rated online learning the preferred option. Forty-three per cent considered video conferencing as a preferred option. Nearly 35 per cent considered television broadcasts as a preferred option, and nearly 20 per cent considered radio broadcasts as a preferred option.

During 2003 videoconferencing was used to accommodate learners in the Eastern Cape. However, we did experience a number of technical problems and some learners who indicated that they would attend the videoconference did not turn up. Videoconferencing is viewed as a viable option and will be used in future. Infrastructure for television broadcasts are not available at present but may be considered as an option for the future. Radio broadcasts are not considered at present since audiotapes are considered a better and cheaper option if the need arises.

From the results one can see that although some of the learners enrolled for the degree in Social Behavioural Studies in HIV and AIDS have no or little exposure to media other than the printed format the learners in general are willing to use other media and technology for their studies. The next section discusses results from hypotheses formulated concerning the e-learning website.

## 4.5 Hypothesis

A number of hypotheses concerning the learning website and the use of a combination of media and technology for adult distance education learners from previous disadvantaged communities were tested. Each hypothesis will be stated below. Each will be followed by a brief discussion on the findings concerning the hypothesis.

### 4.5.1 Methods of testing hypotheses

#### □ The Chi-square test ( $\chi^2$ )

The Chi-square test for two-way frequencies was used to test the two hypotheses stated in Table 4.5. In all cases the test was conducted at the 95% significance level. In the case of all the variables: if the probability value (p-value) was less than 0,05, there was a statistically significant relationship between the variables and the stated hypothesis was accepted.

The *Binomial Test* for proportions was used to test the hypotheses stated in Table 4.6. In all cases the test was conducted at the 95% significance level. For all the variables: If the p-value was less than 0,05 the stated hypothesis was rejected.

### 4.5.2 Hypotheses concerning the e-learning website

Table 4.5 on the next page lists the formulated hypotheses, the probability value, and the results from the Chi-square test. A brief discussion of the results follows Table 4.5.

Table 4.5: Hypotheses tested using the Chi-square test

Hypothesis	p-value	Result
There is no difference in the proportion of learners 29 years and younger who view themselves as computer literate when compared with the proportion of learners who are 30 years and older.	$p = 0,02$	There is a relationship between the age of the learners and their computer literacy; therefore the hypothesis is rejected.
There is no difference in the proportion of male learners who view themselves as computer literate when compared with the proportion of female learners.	$p = 0,96$	There is no relationship between the computer literacy of males and females; therefore the hypothesis is accepted.

The result stated in Table 4.5 concerning the hypothesis, namely, *There is no difference in the proportion of learners 29 years and younger who view themselves as computer literate when compared with the proportion of learners who are 30 years and older* indicates that there is a relationship between the age of the learners and the learners' view (perception) of their level of computer literacy.

Under the sub-heading *Age groups* in section 4.5.3 below, more information about this hypothesis that focuses on the role that age plays in the planning and development of e-learning courses, will emerge.

It is notable that there is no relationship between male and female levels of computer literacy. This is contradictory to what I expected and what has been reported in the literature concerning females that in general are less inclined to show interest in and use computers and related technology. The results indicate that it is not true in this case. I in fact noticed from working with these learners that the female learners made *more* of an effort to improve their computer skills. The work submitted shows that the female learners ranged in their skills from good to highly computer literate. This could be because older women have more life-experience (than the first year learners) which has changed their attitudes or in the case of these older women it is as Moore (1994:26) has indicated that when they started using computers their perception of computers become more positive.

Table 4.6 on the next page lists the hypotheses using the Binomial test for proportions. The table also comprises probability values, the obtained percentages and the results. A brief discussion on the results is given after Table 4.6.

Table 4.6: Hypotheses tested using the Binomial test for proportions

Hypothesis	p-value	Percentage	Result
Fifty per cent of the learners viewed themselves as computer literate	$p = 0,38$	48,51	The proportion does not differ significantly from the 50 per cent level; therefore the hypothesis was accepted.
Fifty per cent or less of the learners found the visual presentation of the screen display acceptable	$p < 0,0001$	95,24	The proportion is significantly more than 50 per cent; therefore the hypothesis was rejected.
Fifty per cent or less of the learners found the font size readable and acceptable	$p < 0,0001$	93,40	The proportion is significantly more than 50 per cent; therefore the hypothesis was rejected.
Fifty per cent or less of the learners found the graphics effective and clarified the content	$p < 0,0001$	85,98	The proportion is significantly more than 50 per cent; therefore the hypothesis was rejected.
Fifty per cent or less of the learners found the e-learning website user friendly and easy to use	$p < 0,0001$	89,72	The proportion is significantly more than 50 per cent; therefore the hypothesis was rejected.
Fifty per cent or less of the learners felt that the e-learning website will assist them in improving the quality of their work	$p < 0,0001$	79,44	The proportion is significantly more than 50 per cent; therefore the hypothesis was rejected.
Fifty per cent or less of the learners enjoyed working with the e-learning website	$p < 0,0001$	83,81	The proportion is significantly more than 50 per cent; therefore the hypothesis was rejected.

The results from Table 4.6 indicate that only the first hypothesis concerning the percentage of learners who view themselves as computer literate, was accepted. It was not expected that such a large number of learners (48,51 per cent) would view themselves as computer literate. Although this number is still low, it is encouraging to see that nearly 50 per cent of the learners regard themselves as computer literate. Learners who are not computer illiterate must be encouraged to become computer literate. I noted in discussions with learners that a number of learners attempted to improve their computer skills. I noticed this improvement with the submission of each successive group of assignments. More learners submitted their assignments in the printed format. The quality



of their typing skill improved, less typing errors were made, the structure and presentation also improved.

The hypotheses on the visual presentation of the screen display, the font size and the graphic display were all rejected. This indicates that the majority of learners viewed these features positively. These results support the results obtained in sections 4.3.1, 4.3.2 and 4.3.4.

The hypotheses on the extent to which the learners experienced the website as user friendly and easy, on how much they enjoyed working with the website, and whether or not they felt that the website would assist them in improving the quality of their work, were all rejected. This indicates that the majority of learners viewed these features positively. These results support the results obtained in sections 4.3.6, 4.3.10 and 4.4.1.

#### **4.5.3 Differences between sub-groups**

This section describes the findings that emerged from analysing the following selected sub-groups in an attempt to establish whether these groups differed in their responses to a number of variables from the questionnaires. The variables investigated were:

- I have access to a computer for my studies
- I view myself as computer literate
- I have access to the Internet
- The screen layout was good and easy to read
- The font appearance was pleasing to the eye
- The font size was readable and acceptable
- The graphics were effective and clarified the content
- The navigational indicators was clear and consistent
- I enjoyed working with the website
- The website was easy to use
- The online format made the exercises more interesting than the equivalent pen-and-paper format
- I would make use of the website when studying
- The website will assist me to improve the quality of my work
- I will never use e-mail to communicate with a lecturer and fellow learners
- I would prefer to have their study material made available online
- I would prefer to receive instruction through a combination of media and technology

The variables listed above were investigated in terms of:

- Whether the two age groups differ significantly in their responses to the variables. The ages of the learners ranged from 21 years to 53 years. I decided to analyse the relationship between the younger age group (21 to 29 years) and the older age group (30 to 53 years) in terms of the dependent variables listed above.
- Whether there was a significant difference between the responses of males and females in terms of the variables listed above.
- Whether there was a significant difference between the responses of those learners with access to computers for study purposes and those without access to computers for study purposes in terms of the variables listed above.
- Whether the responses of those learners who regarded themselves as computer literate and those who did not regard themselves as computer literate differed significantly in terms of the variables listed above.
- Whether the group of learners with access to the Internet and the group without Internet access differed significantly in terms of their responses to the variables listed above.

I used the Chi-square test ( $\chi^2$ ) for testing independence and differences between variables. The test was conducted at the 5% significance level. For all the variables: if the probability value (p-value) was less than 0,05, a significant difference existed between the variables. In those instances where the variables indicated a significant difference, a more detailed discussion follows.

#### □ **Age groups**

Table 4.7 on the next page shows the results from the Chi-square test, and tests for significant differences between the responses to the listed variables of the age groups 29 years and younger and 30 years and older. The percentages for each age group are given as well as the p-values. The p-value indicated as bold type phase in Table 4.7 is the response that tested a significant difference of a value  $<0,05$ .

Table 4.7: Chi-square test results for significant differences between the responses to the listed variables of the age groups 29 years and younger and 30 years and older.

Variables	Age group (%)		p-value
	≤ 29 yr (n=19)	≥ 30 yr (n=65)	
I have access to a computer for my studies	55,56	31,75	0,06
I view myself as computer literate	73,68	46,77	<b>0,039</b>
I have access to the Internet	57,89	39,68	0,16
The screen layout was good and easy to read	94,74	92,19	0,58
The font appearance was pleasing to the eye	84,21	87,50	0,81
The font size was readable and acceptable	89,47	93,75	0,82
The graphics were effective and clarified the content	78,95	87,69	0,52
The navigational indicators was clear and consistent	89,47	76,92	0,37
I enjoyed working with the website	89,47	85,71	0,73
The website was easy to use	70,59	73,44	0,65
The online format made the exercises more interesting than the equivalent pen-and-paper format	78,95	81,25	0,81
I would make use of the website when studying	84,21	93,75	0,37
The website will assist me to improve the quality of my work	63,16	83,08	0,13
I will never use e-mail to communicate with a lecturer and fellow learners	38,89	41,27	0,47
I would prefer to have their study material made available online	27,78	36,51	0,73
I would prefer to receive instruction through a combination of media and technology	55,56	57,38	0,80

With reference to Table 4.7, the independent variables (age groups) indicate a significant difference in the rating of the statement: Learners' view on their computer literacy.

Table 4.8 and Figure 4.27 on the next page show the results in percentage responses of the p-value <0,05 as indicated in Table 4.7 as a significant difference. These results indicate a significant difference only in percentage responses in the categories age group equal and younger than 29 years and age group equal an older than 30 and learners' view on their computer literacy.

Table 4.8: Percentage responses for categories age groups ( $\leq 29$  years and younger and  $\geq 30$  years and older) and learners' views on their computer literacy

<b>Statement:</b> Learners view themselves computer literate/illiterate						
<b>Response</b>	<b>Age group: <math>\leq 29</math> yr</b>		<b>Age group: <math>\geq 30</math> yr</b>		<b>Row Total</b>	
	<b>Frequency</b>	<b>Percentage</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Frequency</b>	<b>Percentage</b>
Computer literate	14	73,68	29	46,77	43	53,09
Computer illiterate	5	26,32	33	53,23	38	46,91
Col total	19	100	62	100	81	100

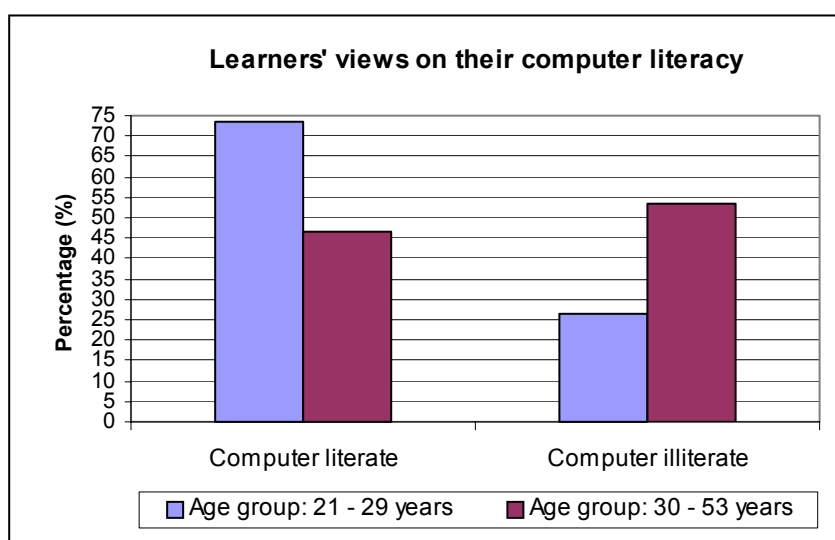


Figure 4.27: Percentage responses for categories age groups ( $\leq 29$  years and younger and  $\geq 30$  years and older) and learners' views on their computer literacy

Table 4.8 and Figure 4.27 illustrate the responses (expressed in percentages) of the categories age group equal and younger than 29 years and age group equal an older than 30 years and their views on their computer literacy. With reference to Table 4.8 and Figure 4.27, a significantly larger percentage of learners in the younger age group view themselves as computer literate (73,68 per cent) than in the older age group (46,77 per cent). The results indicate that the majority of learners (76,54 per cent) who enrol for the Social Behavioural Studies in HIV and AIDS Honours Programme fall in the age group 30 years and older. It may be assumed that this trend will continue in future since this is a postgraduate qualification and learners often stop studying for a period of years after graduating before commencing with postgraduate studies.

Since a large number of learners in the older age group indicated that they are computer illiterate (53,23 per cent), this factor should be taken into consideration when planning and designing computer-based and Internet-based study material. E-learning websites should be kept simple and easy to use, and should be planned in such a way that they will accommodate older adult learners with limited computer literacy skills. However, these learners should also be encouraged to improve their computer and Internet skills. Computer illiterate learners are advised to take an introductory computer course for non-degree purposes offered by the department of Computer Science at VISTA University. Computer and Internet literacy are increasingly viewed as indispensable skills, and it is often merely *assumed* that people *do* possess these skills (the contrary often being regarded as unthinkable).

The responses from the two sub-groups (age groups) did not differ significantly in their rating of the other variables. These results contradicted what I expected to find. I expected the older learners to have difficulty with the unfamiliar format of the website and its use because computers – and especially the Internet – were not so widely used when they were undergraduates. However, this sample of learners shows that there was no significant difference between younger and older learners and how they experienced the website.

#### □ Sex

The next section illustrates the results from the Chi-square test. It analyses the responses for significant differences between male and female learners with regard to the variables listed on the next page in Table 4.9. The percentages for each group are given as well as the p-values. The p-values indicated as bold type phase in Table 4.9 are the responses that tested a significant difference of a value  $<0,05$ .

Table 4.9: Chi-square test results for significant differences between the responses of male and female learners with regard to the listed variables.

Variables	Sex		p-value
	Male (%) (n=31)	Female (%) (n=76)	
I have access to a computer for my studies	37,93	36,11	0,86
I view myself as computer literate	44,83	49,30	0,68
I have access to the Internet	41,38	45,83	0,68
The screen layout was good and easy to read	86,67	94,52	0,28
The font appearance was pleasing to the eye	93,33	85,14	0,27
The font size was readable and acceptable	93,33	93,24	0,97
The graphics were effective and clarified the content	86,67	85,33	0,51
The navigational indicators was clear and consistent	76,67	80,00	0,19
I enjoyed working with the website	89,66	83,78	0,10
The website was easy to use	68,97	72,60	0,15
The online format made the exercises more interesting than the equivalent pen-and-paper format	82,76	82,43	0,99
I would make more use of the website when studying	96,67	90,41	0,41
The website will assist me to improve the quality of my work	86,67	77,33	0,55
I will never use e-mail to communicate with a lecturer and fellow learners	39,29	42,25	0,43
I would prefer to have their study material made available online	28,57	40,28	<b>0,009</b>
I would prefer to receive instruction through a combination of media and technology	73,08	48,57	<b>0,04</b>

With reference to Table 4.9, the independent variable (sex), indicates a significant difference in the rating of the two following questions as stated in the questionnaire:

- Would you prefer to have your study material made available online?
- Would you prefer to receive instruction through a combination of media and technology?

The responses from the two sub-groups did not differ significantly in respect of the rating of the other variables.

Table 4.10 below and Figure 4.28 on the next page show the results and indicate a significant difference in percentage responses by sex category to the question: Would you prefer to have your study material made available online?

The options put to the learners were:

- Yes
- It does not matter
- No, I prefer a printed format
- It would be handy to have the study material in both printed format and on the Internet
- It is unnecessary to have study material in both printed format and on the Internet

Table 4.10: Percentage responses for the sex categories and the question concerning availability of study material online

<b>Question: Would you prefer to have your study material made available online?</b>						
<b>Response</b>	<b>Male</b>		<b>Female</b>		<b>Row Total</b>	
	<b>Frequency</b>	<b>Percentage</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	8	28,57	29	40,28	37	37,00
Does not matter	0	0,00	2	2,78	2	2,00
No, prefer printed format	12	42,86	10	13,89	22	22,00
Yes, both formats	7	25,00	31	43,06	38	38,00
No, not both formats	1	3,57	0	0,00	1	1,00
Col total	28	100	72	100	100	100

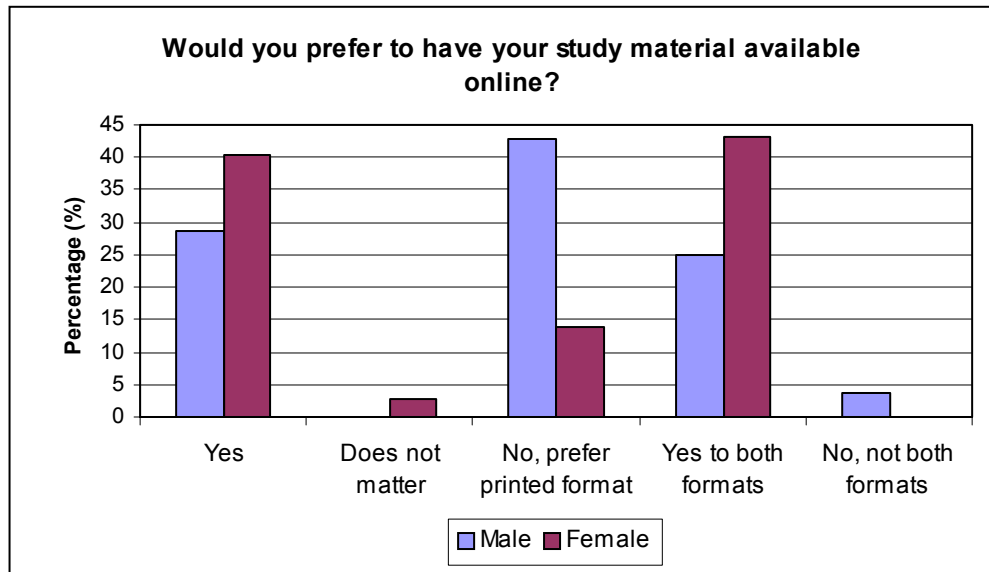


Figure 4.28: Percentage responses for the sex categories and the question concerning mode of presenting the study material

Table 4.10 and Figure 4.28 illustrate the responses (expressed in percentages) of male and female learners to the question about online study material. With reference to Table 4.10 and Figure 4.28, a larger percentage of female learners (40,28 per cent) would prefer online study material than male learners (28,57 per cent). There are also more female learners (43,06 per cent) who would prefer to have the study material available in both printed format and on the Internet than male learners (25,00 per cent). For this sample of learners, the results contradict what I expected. A perception exists that females are *less* inclined to use “new” technologies. However, in this case, it is the female learners who are more willing to use the new format of learning than are the male learners.

Table 4.11 and Figure 4.29 on the next page represent the results, and indicate a significant difference in percentages of the responses by sex category to the question: Would you prefer to receive instruction through a combination of media and technology?



Table 4.11: Percentage responses for the sex categories and the question concerning instruction through a combination of media and technology

<b>Question:</b> Would you prefer to receive instruction through a combination of media and technology?						
<b>Response</b>	<b>Male</b>		<b>Female</b>		<b>Row Total</b>	
	<b>Frequency</b>	<b>Percentage</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Frequency</b>	<b>Percentage</b>
No	3	11,54	6	8,57	9	9,38
Maybe	4	15,38	30	42,86	34	35,42
Absolutely	19	73,08	34	48,57	53	55,21
Col total	26	100	70	100	96	100

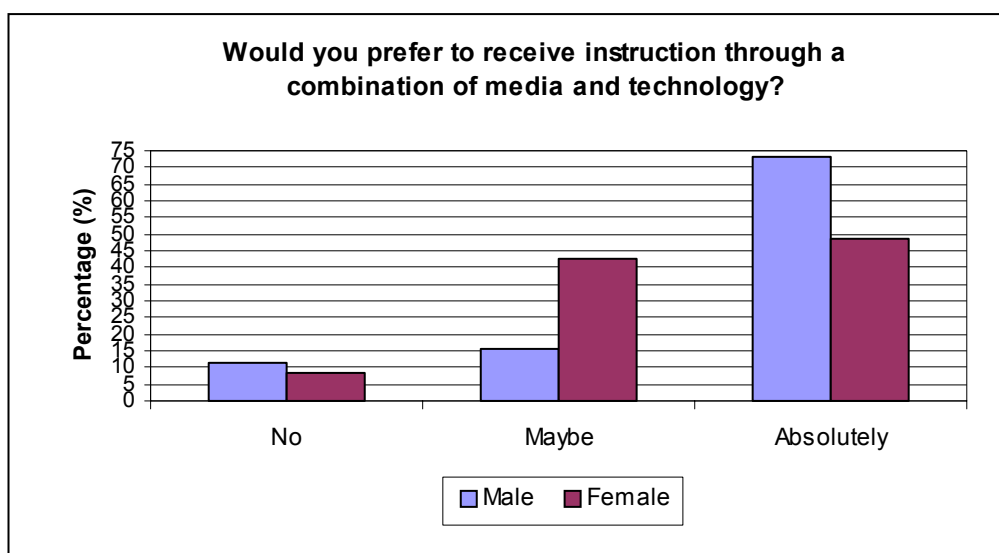


Figure 4.29: Percentage responses in the sex categories to the question concerning instruction through a combination of media and technology

Table 4.11 and Figure 4.29 illustrate the responses (expressed in percentages) of male and female learners to the question regarding receiving instruction through a combination of media and technology. Table 4.11 and Figure 4.29 show that a larger percentage of male learners (73,08 per cent) would prefer instruction through a combination of media and technology than female learners (48,57 per cent). A large percentage of female learners (42,86 per cent) were unsure and indicated a *maybe* to the question. The result may indicate that the female learners were unsure or did not know what was meant by the statement a *combination of media and technology*. The female learners might also have had less exposure to media and technology other than to printed formats – and this may account for their uncertainty and their lower positive rating on the question. The female learners might also have had little experience of modes such as video-conferencing.

## ❑ Computer access

The next section illustrates the results from the Chi-square test, and analyses the responses for significant differences between learners with access to a computer for their studies and those without access, with reference to the variables listed in Table 4.12. The p-values indicated as bold type phase in Table 4.12 are the responses that tested a significant difference of a value  $<0,05$ .

Table 4.12: Chi-square test results for significant differences between learners with access to a computer for their studies and those without access, with regard to the listed variables

Variables	Computer access (%) (n=38)	No computer access (%) (n=64)	p-value
I have access to the Internet	81,58	22,22	<b>0,0001</b>
The screen layout was good and easy to read	94,74	90,32	0,68
The font appearance was pleasing to the eye	86,84	87,30	0,32
The font size was readable and acceptable	94,74	92,06	0,17
The graphics were effective and clarified the content	89,47	84,38	0,24
The navigational indicators was clear and consistent	89,47	71,88	0,89
I enjoyed working with the website	83,78	85,71	0,27
The website was easy to use	91,89	59,68	<b>0,003</b>
The online format made the exercises more interesting than the equivalent pen-and-paper format	81,08	80,95	0,14
I would make use of the website when studying	97,37	88,71	0,23
The website will assist me in improving the quality of my work	73,68	81,25	0,66
I would prefer to have their study material made available online	44,74	33,33	0,20
I would prefer to receive instruction through a combination of media and technology	78,95	37,50	<b>0,0003</b>

With reference to Table 4.12, the independent variables (computer access and no computer access) indicate a significant difference in the respective rating of the statements:

- I have access to the Internet
- The website was easy to use
- I would prefer to receive instruction through a combination of media and technology

The responses from the two sub-groups did not differ significantly in respect to the rating of the other variables.

Table 4.13 and Figure 4.30 below represent the results and indicate a significant difference in percentage responses in the categories computer access and no computer access to the statement: I have access to the Internet.

Table 4.13: Percentage responses in the categories computer access and no computer access and the statement: I have access to the Internet

Statement: I have access to the Internet						
Response	Computer access		No computer access		Row Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Yes	31	81,58	14	22,22	45	44,55
No	7	18,42	49	77,78	56	55,45
Col total	38	100	63	100	101	100

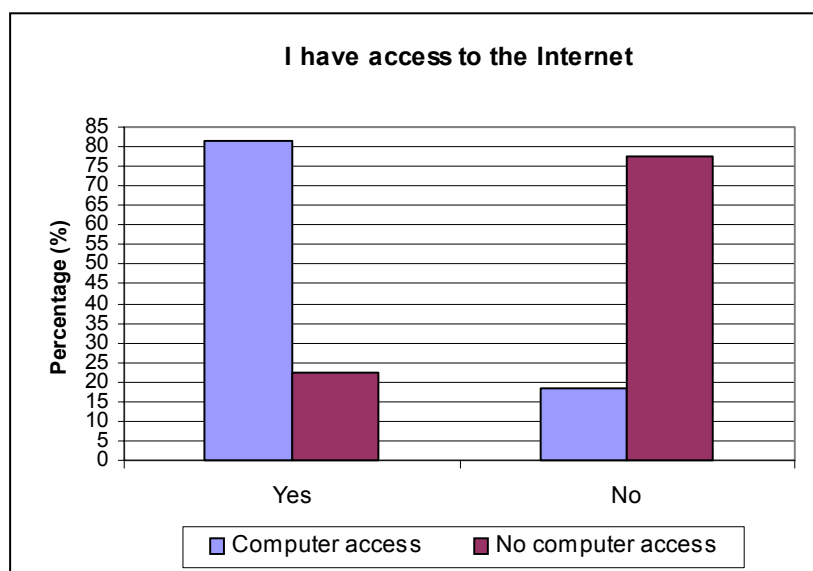


Figure 4.30: Percentage responses for categories computer access and no computer access and the statement: I have access to the Internet.

Table 4.13 and Figure 4.30 illustrate the percentage responses for the categories computer access and no computer access and the statement: I have access to the Internet. Table 4.13 and Figure 4.30 show that the majority of learners with access to computers for their studies *also* had access to the Internet (81,58 per cent), while 18,42 per cent of learners with access to computers did *not* have access to the Internet. It is encouraging to note that there are a number of learners that access the Internet although they do not have access to computers for their studies (22,22 per cent). These learners indicated that they accessed the Internet mainly from work, from a friend’s computer, or in an Internet café. A large number of learners that did not have access to computers for their studies also indicated that they do not have Internet access (77,78 per cent). These learners should be

made aware that ways do exist to access the Internet even if they do not possess their own computers.

The results in Table 4.14 and Figure 4.31 below show that there are significant differences in responses in the categories computer access and no computer access to the statement: The website was easy to use.

Table 4.14: Percentage responses in categories computer access and no computer access to the statement: The website was easy to use.

<b>Statement:</b> The website was easy to use						
<b>Response</b>	<b>Computer access</b>		<b>No computer access</b>		<b>Row Total</b>	
	<b>Frequency</b>	<b>Percentage</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Frequency</b>	<b>Percentage</b>
Agree	34	91,89	37	59,68	71	71,72
Neutral	2	5,41	14	22,58	16	16,16
Disagree	1	2,70	11	17,74	12	12,12
Col total	37	100	62	100	99	100

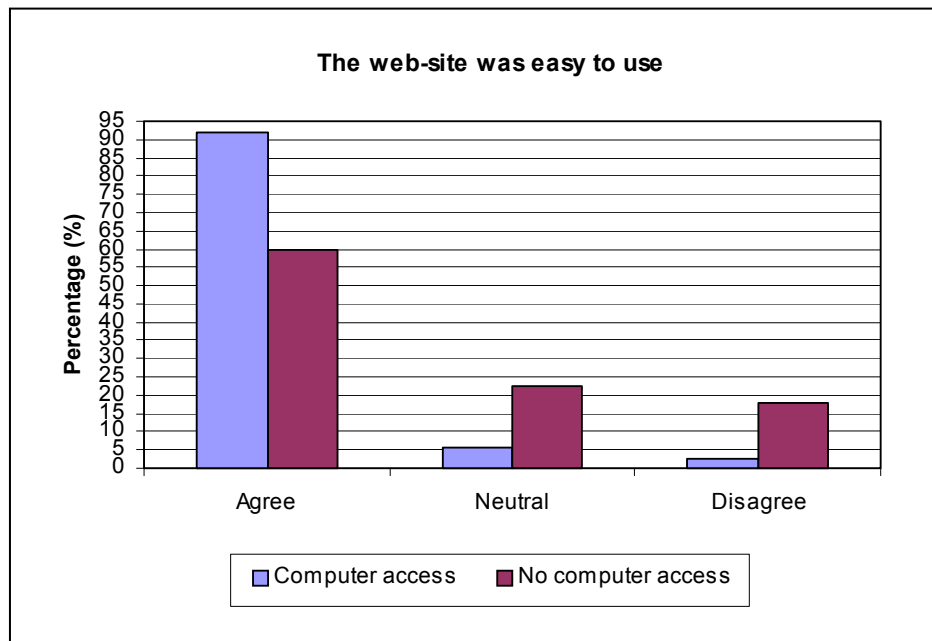


Figure 4.31: Percentage responses in the categories computer access and no computer access to the statement: The website was easy to use.

Table 4.14 and Figure 4.31 illustrate the responses (expressed in percentages) of learners with or without computer access to the statement regarding ease of use of the website. Table 4.14 and Figure 4.31 show that the majority of learners with access to computers for their studies agreed that the website was easy to use (91,89 per cent), while a smaller number of learners without computer

access agreed with the statement (59,68 per cent). A relatively large number of learners without access to computers rated the statement as neutral (22,58 per cent). These results are not surprising because one might expect that learners without access to computers would find it more difficult to use the website or would find it difficult to evaluate whether or not it is easy to use the website.

Table 4.15 and Figure 4.32 below show a significant difference in percentage responses in the categories computer access and no computer access to the statement: I would prefer to receive instruction through a combination of media and technology.

Table 4.15: Percentage responses in the categories computer access and no computer access to the statement concerning instruction through a combination of media and technology

<b>Question: I would prefer to receive instruction through a combination of media and technology.</b>						
<b>Response</b>	<b>Computer access</b>		<b>No computer access</b>		<b>Row Total</b>	
	<b>Frequency</b>	<b>Percentage</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Frequency</b>	<b>Percentage</b>
Absolutely	30	78,95	21	37,50	51	54,26
Maybe	7	18,42	27	48,21	34	36,17
No	1	2,63	8	14,29	9	9,57
Col total	38	100	56	100	94	100

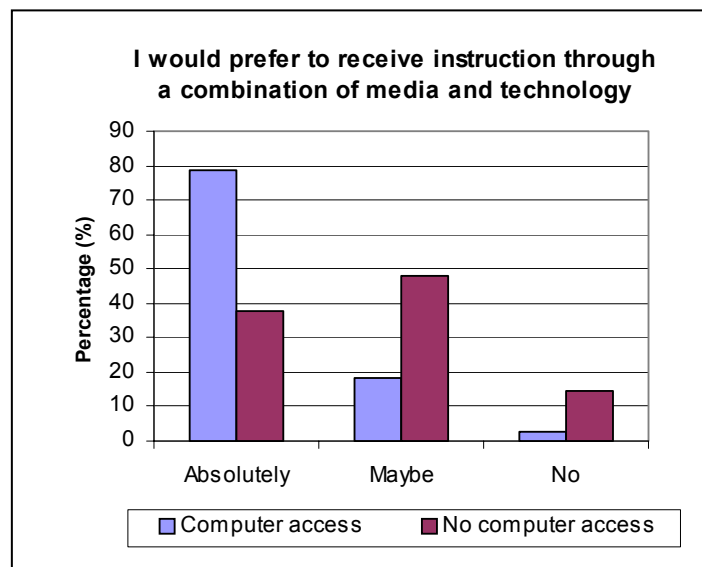


Figure 4.32: Percentage responses in the categories computer access and no computer access to the question concerning instruction through a combination of media and technology.

Table 4.15 and Figure 4.32 illustrate the responses (expressed in percentages) of learners with or without computer access to the question about receiving instruction through a combination of media

and technology. Table 4.15 and Figure 4.32 show that the majority of learners with access to a computer would prefer to receive instruction through a combination of media and technology (78,95 per cent) while a smaller number of learners without computer access responded positively (37,50 per cent). A large number of learners without access to computers rated the statement as neutral (48,21 per cent). As in the previous case, such results are not unexpected. It is probable that learners without access to computers assumed that receiving instruction through means other than a paper-based mode would infer that the “other means” refer to computers and the Internet. Such learners could also not be expected to be aware that there are modes of instruction other than those that involve computers and the Internet.

#### □ Computer literacy

The next section shows the results obtained from applying the Chi-square test, and from analysing the responses for significant differences between learners who are computer literate and those who are computer illiterate, with reference to the variables listed in Table 4.16. The p-values indicated as bold type phase in Table 4.16 are the responses that tested a significant difference of a value  $<0,05$ .

Table 4.16: Chi-square test results for significant differences between learners with access to a computer for their studies and without access, with regard to the listed variables

Variables	Computer literate (%) (n= 49)	Computer illiterate (%) (n= 52)	p-value
I have access to a computer for my studies	66,67	11,54	<b>0,0001</b>
I have access to the Internet	71,43	21,15	<b>0,0001</b>
The screen layout was good and easy to read	93,88	90,00	0,34
The font appearance was pleasing to the eye	87,76	86,27	0,14
The font size was readable and acceptable	91,67	94,23	0,12
The graphics were effective and clarified the content	85,71	86,54	0,80
The navigational indicators was clear and consistent	85,71	73,08	0,13
I enjoyed working with the website	89,58	84,31	0,36
The website was easy to use	85,11	60,78	<b>0,009</b>
The online format made the exercises more interesting than the equivalent pen-and-paper format	81,25	82,35	0,63
I would make use of the website when studying	95,92	88,00	0,12
The website will help me to improve the quality of my work	75,51	80,77	0,80
I will never use e-mail to communicate with a lecturer and fellow learners	37,50	45,83	0,30
I would prefer to have the study material available online	45,83	30,61	0,07
I would prefer to receive instruction through a combination of media and technology	68,75	42,22	<b>0,03</b>

In Table 4.16, the independent variables (computer literate and computer illiterate) indicate a significant difference in the respective rating of the statements:

- I have access to a computer for my studies
- I have access to the Internet
- The website was easy to use
- I would prefer to receive instruction through a combination of media and technology

The responses from the two sub-groups did not differ significantly in respect of how the other variables were rated.

The results tabulated in Table 4.17 and Figure 4.33 on the next page show that was a significant difference in responses in the categories computer literate and computer illiterate to the statement: I have access to a computer for my studies.

Table 4.17: Percentage responses in the categories computer literate and computer illiterate to the statement concerning learners that have access to a computer for their studies

<b>Statement: I have access to a computer for my studies</b>						
<b>Response</b>	<b>Computer literate</b>		<b>Computer illiterate</b>		<b>Row Total</b>	
	<b>Frequency</b>	<b>Percentage</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	32	66,67	6	11,54	38	38,00
No	16	33,33	46	88,46	62	62,00
Col total	48	100	52	100	100	100

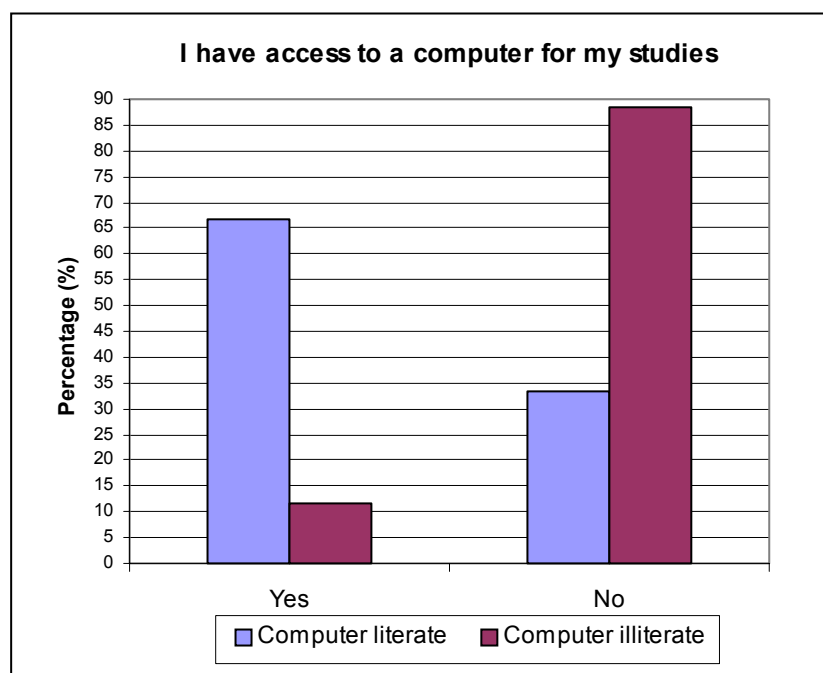


Figure 4.33: Percentage responses in the categories computer literate and computer illiterate to the statement: I have access to a computer for my studies.

Table 4.17 and Figure 4.33 illustrate the responses (expressed in percentages) of learners that are computer literate and computer illiterate to the statement about having access to computers for their studies. Table 4.17 and Figure 4.33 show that the majority of learners who view themselves as computer literate also have access to computers (66,67 per cent). It is notable that there are a small number of learners who view themselves as computer *illiterate* although they have access to computers (11,54 per cent). As might be expected, a large number of learners that do not have access to computers are computer illiterate (88,46 per cent). Such learners should be urged to become computer literate since computer literacy is an indispensable skill, especially for postgraduate learners. However, there are a number of learners who view themselves as computer literate even though they do not have access to computers (33,33 per cent). Learners should be encouraged and supported to use and improve their computer skills. The University should accommodate such learners by providing them access to computers on campus and at the tutor centres.

Table 4.18 below and Figure 4.34 on the next page indicate a significant difference in percentage responses in terms of the categories computer literate and computer illiterate to the statement: I have access to the Internet.

Table 4.18: Percentage responses in the categories computer literate and computer illiterate to the statement: I have access to the Internet

<b>Statement:</b> I have access to the Internet						
<b>Response</b>	<b>Computer literate</b>		<b>Computer illiterate</b>		<b>Row Total</b>	
	<b>Frequency</b>	<b>Percentage</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	35	71,43	11	21,15	46	45,54
No	14	28,57	41	78,85	55	54,46
Col total	49	100	52	100	101	100



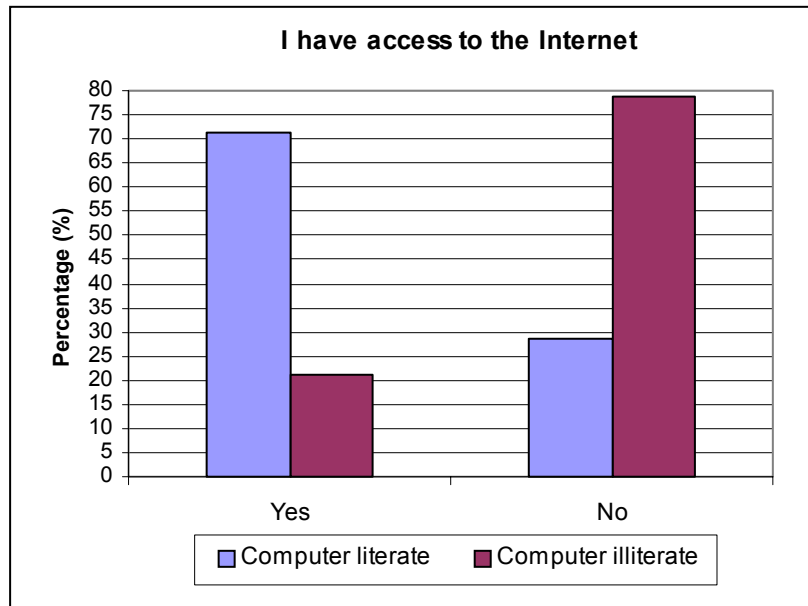


Figure 4.34: Percentage responses in the categories computer literate and computer illiterate to the statement: I have access to the Internet.

Table 4.18 and Figure 4.34 illustrate the responses (expressed in percentages) of learners that are computer literate and computer illiterate to the statement in which they say that they have access to the Internet or not. Table 4.18 and Figure 4.34 show that the majority of learners that view themselves as computer literate have access to the Internet (71,43 per cent), although there are a number of computer literate learners that do not have Internet access (28,57 per cent). As expected, a large number of computer illiterate learners do not have access to the Internet (78,85 per cent), although some of these learners do have access (21,15 per cent). Learners should be made aware of where they can access the Internet – especially in the case of university learners for whom the university makes such facilities available.

Table 4.19 and Figure 4.35 on the next page show that there is a significant difference in percentage responses in the categories computer literate and computer illiterate to the statement: The website was easy to use.

Table 4.19: Percentage responses for the categories computer literate and computer illiterate to the statement: The website was easy to use

Statement: The website was easy to use						
Response	Computer literate		Computer illiterate		Row Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Agree	40	85,11	31	60,78	71	72,45
Neutral	6	12,77	10	19,61	16	16,33
Disagree	1	2,13	10	19,61	11	11,22
Col total	47	100	51	100	98	100

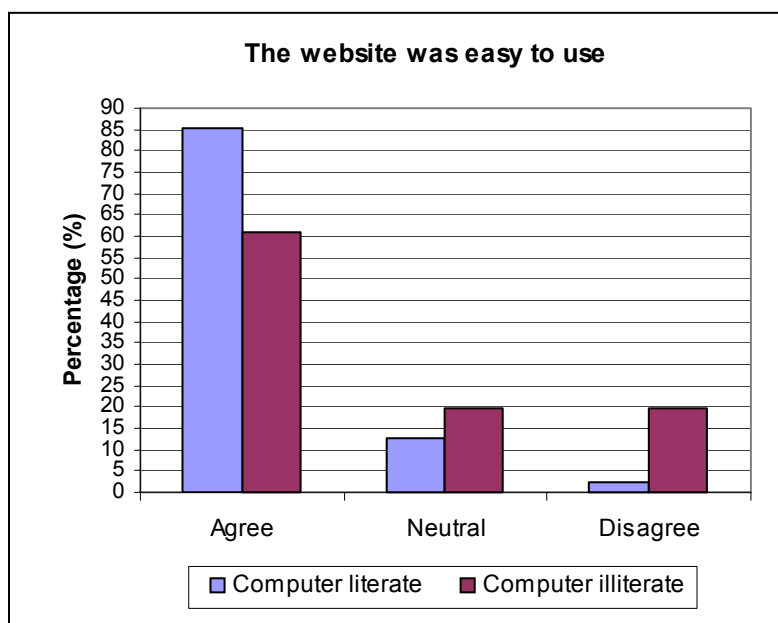


Figure 4.35: Percentage responses in the categories computer literate and computer illiterate to the statement: The website was easy to use

Table 4.19 and Figure 4.35 illustrate the responses (expressed in percentages) of learners that are computer literate and computer illiterate to the statement: The website was easy to use. Table 4.19 and Figure 4.35 show that the majority of learners that view themselves as computer literate agreed that the website was easy to use (85,11 per cent), while a small number (2,23 per cent) disagreed with the statement. Of the computer illiterate learners, 60,78 per cent agreed that the website was easy to use while 19,61 per cent disagreed with the statement. It is not surprising that the computer illiterate learners did not feel that the website was easy to use since they most probably did not have any previous exposure to the Internet – and even less to a learning website. These learners should be encouraged to acquire some basic computer and Internet skills.

Table 4.20 and Figure 4.36 show a significant difference in percentage responses in the categories computer literate and computer illiterate to the statement: I would prefer to receive instruction through a combination of media and technology.

Table 4.20: Percentage responses in the categories computer literate and computer illiterate to the statement: I would prefer to receive instruction through a combination of media and technology

<b>Statement:</b> I would prefer to receive instruction through a combination of media and technology						
<b>Response</b>	<b>Computer literate</b>		<b>Computer illiterate</b>		<b>Row Total</b>	
	<b>Frequency</b>	<b>Percentage</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Frequency</b>	<b>Percentage</b>
Absolutely	33	68,75	19	42,22	52	55,91
Maybe	11	22,92	21	46,67	32	34,41
No	4	8,33	5	11,11	9	9,68
Col total	48	100	45	100	93	100

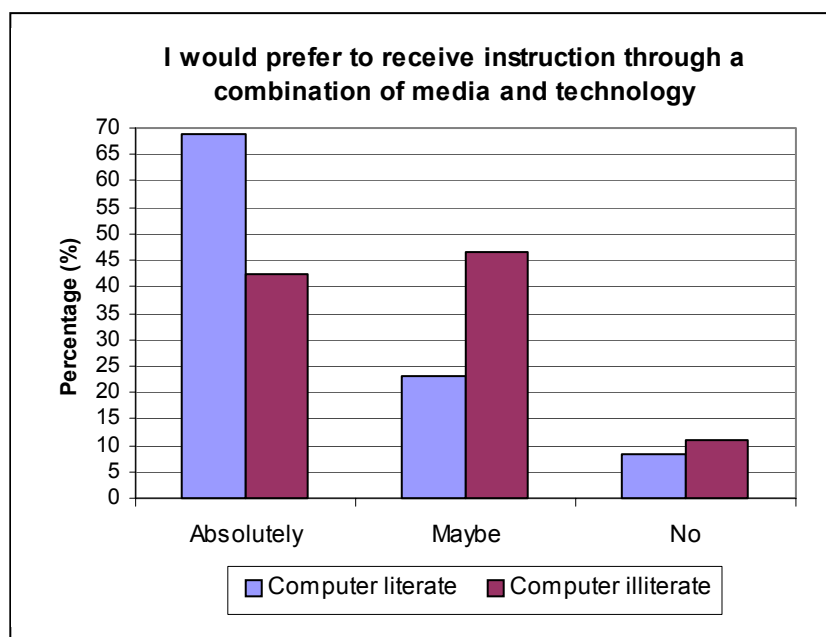


Figure 4.36: Percentage responses in the categories computer literate and computer illiterate to the question: I would prefer to receive instruction through a combination of media and technology.

Table 4.20 and Figure 4.36 illustrate the responses (expressed in percentages) of learners that are computer literate and computer illiterate to the statement: I would prefer to receive instruction through a combination of media and technology. Table 4.20 and Figure 4.36 show that 68,75 per cent of the learners that view themselves as computer literate indicated that they would prefer to receive instruction through a combination of media and technology – compared to 42,22 per cent of

computer illiterate learners. Although a combination of media and technology encompasses more than computer technology alone, the smaller number of computer illiterate learners that would prefer to receive instruction through a combination of media and technology was expected since a great deal of education nowadays involves the use of computers and the Internet. A large number of learners in both categories are undecided. This may indicate a degree of learner inexperience when confronted by media and technology other than printed and computer formats.

The next section illustrates the results from the Chi-square test that analysed the responses to find significant differences between learners with access to the Internet and without Internet access, with reference to the variables listed in Table 4.21. The p-values indicated as bold type phase in Table 4.21 are the responses that tested a significant difference of a value <0,05.

Table 4.21: Chi-square test results for significant differences between learners with access to the Internet and those without Internet access, with regard to the listed variables

<b>Variables</b>	<b>Internet access (%) (n=46)</b>	<b>No Internet access (%) (n=56)</b>	<b>p-value</b>
The screen layout was good and easy to read	95,56	89,09	0,46
The font appearance was pleasing on the eye	84,78	89,09	0,31
The font size was readable and acceptable	95,56	91,07	0,15
The graphics were effective and clarified the content	89,13	83,93	0,36
The navigational indicators was clear and consistent	82,61	76,79	0,73
I enjoyed working with the website	82,61	88,89	0,65
The website was easy to use	91,11	57,41	<b>0,0008</b>
The online format made the exercises more interesting than the equivalent pen-and-paper format	80,43	83,33	0,59
I would make use of the website when studying	95,65	88,89	0,46
The website will help me to improve the quality of my work	76,09	80,36	0,34
I will never use e-mail to communicate with a lecturer and fellow learners	28,89	51,92	<b>0,01</b>
I would prefer to have their study material made available online	45,65	30,77	0,27
I would prefer to receive instruction through a combination of media and technology	67,39	43,75	0,05

Table 4.21 shows that the independent variables (Internet access and no Internet access) indicate a significant difference in the rating of the following statement and question:

- The website was easy to use
- Will you use e-mail to communicate with lecturers and fellow learners?

The responses from the two sub-groups did not differ significantly in respect of the rating of the other variables.

Table 4.22 and Figure 4.37 show significant percentage differences in the responses in the categories Internet access and no Internet access to the statement: The website was easy to use.

Table 4.22: Percentage responses in the categories Internet access and no Internet access to the statement: The website was easy to use

<b>Statement: The website was easy to use</b>						
<b>Response</b>	<b>Internet access</b>		<b>No Internet access</b>		<b>Row Total</b>	
	<b>Frequency</b>	<b>Percentage</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Frequency</b>	<b>Percentage</b>
Agree	41	91,12	31	57,40	72	72,73
Neutral	2	4,44	14	25,93	16	16,16
Disagree	2	4,44	9	16,67	11	11,11
Col total	45	100	54	100	99	100

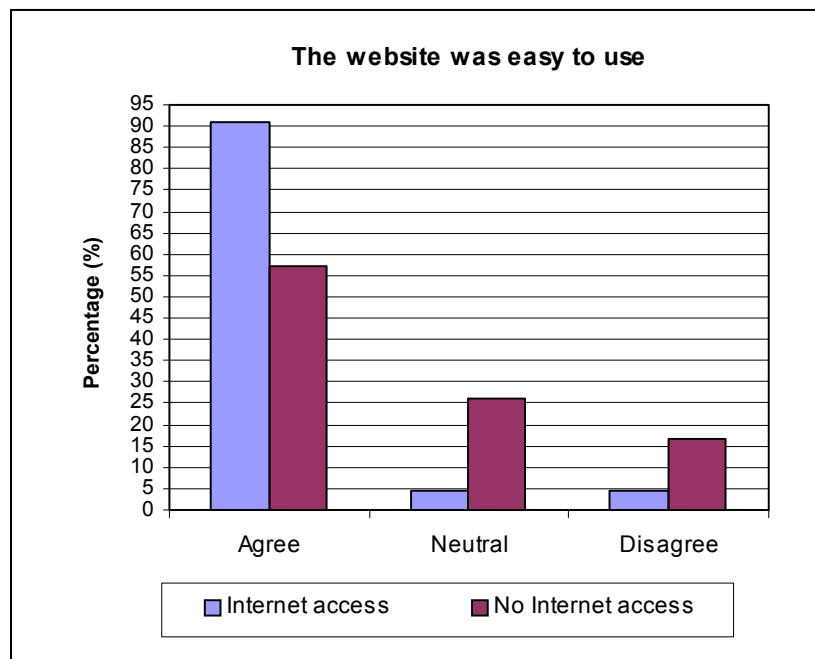


Figure 4.37: Percentage responses in the categories Internet access and no Internet access to the statement: The website was easy to use.

Table 4.22 and Figure 4.37 illustrate the responses (expressed in percentages) of learners with and without Internet access to the statement regarding ease of use of the website. Table 4.22 and Figure 4.37 show that the majority of learners with access to the Internet agreed (91,12 per cent) that the website was easy to use while a smaller number of learners without Internet access agreed with the

statement (57,40 per cent). A relatively large number of learners without Internet access rated the statement as neutral (25,93 per cent). I expected that some of the learners who did not have Internet access would find it more difficult to master the website or would have difficulty in evaluating the level of ease of use of such a website. These learners had no or very little exposure to the Internet and therefore are most probably not familiar with the use of the Internet. They also did not have any exposure to other e-learning websites so that they could compare the website under evaluation with other e-learning websites.

Table 4.23 and Figure 4.38 on the next page indicate a significant percentage difference in of the responses in the categories Internet access and no Internet access to the statement: I will never use e-mail to communicate with lecturers and fellow learners.

Table 4.23: Percentage responses in categories Internet access and no Internet access to the question: Will you use e-mail to communicate with lecturers and fellow learners?

<b>Question: Will you use e-mail to communicate with lecturers and fellow learners?</b>						
<b>Response</b>	<b>Internet access</b>		<b>No Internet access</b>		<b>Row Total</b>	
	<b>Frequency</b>	<b>Percentage</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Frequency</b>	<b>Percentage</b>
Never	13	28,89	27	51,92	40	41,24
Sometimes	22	48,89	22	42,31	44	45,36
Often	10	22,22	3	5,77	13	13,40
Col total	45	100	52	100	97	100

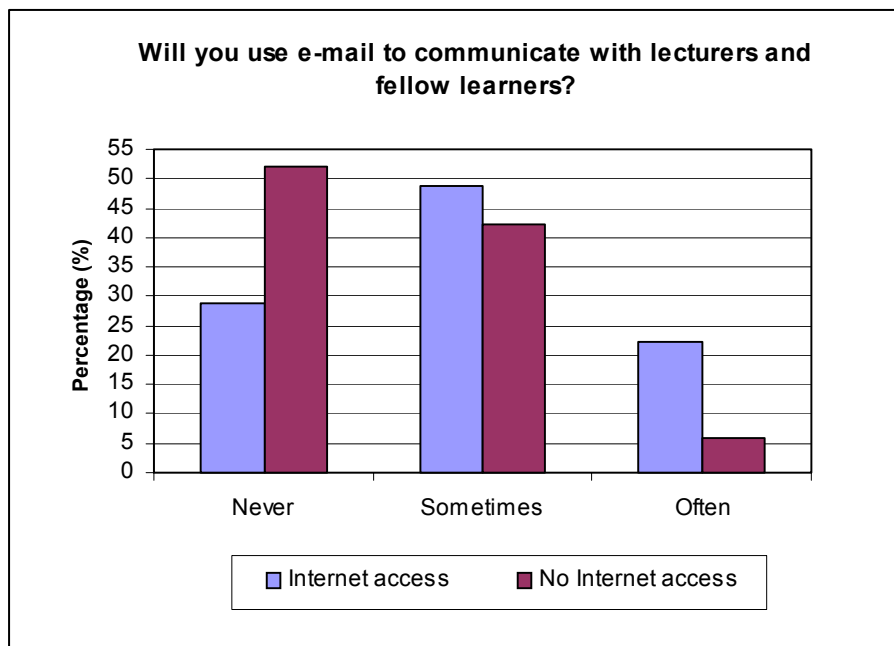


Figure 4.38: Percentage responses in categories Internet access and no Internet access to the question: Will you use e-mail to communicate with lecturers and fellow learners?

Table 4.23 and Figure 4.38 illustrate the responses (expressed in percentages) of learners to the question about whether or not they will use e-mail to communicate with lecturers and fellow learners. Table 4.23 and Figure 4.38 show that only a small number of learners with Internet access (22,22 per cent) indicated that they would use e-mail to communicate with lecturers and fellow learners *often*. The majority of learners with Internet access (48,89 per cent) as well as those without Internet access (42,31 per cent) indicated that they would use e-mail to communicate with lecturers and fellow learners only *sometimes*. Some learners, although they have Internet access, indicated that they would *never* use e-mail as a means of communication (28,89 per cent). These results are an indication of the small number of learners who have adapted to using e-mail as a cheap and easy form of communication. Although learners have e-mail access, the concept is still unfamiliar to them and they have not yet made the mind shift that will enable them to use e-mail rather than another means of communication. Some learners may also still prefer the more personal touch of speaking directly to their lecturers or fellow learners.

#### □ Summary

This chapter reported on the results from the evaluation of a website as part of an e-learning distance education course developed for learners studying nutrition and HIV and AIDS. The goal of this chapter was to report on the usability and instructional effectiveness of a website as part of a distance education course employing a combination of media and technology.

One of the main problems encountered when it comes to teaching learners by means of distance education in nutrition and HIV and AIDS is their lack of background knowledge about the subject matter. This is caused by the learners' diverse educational backgrounds as well as by their varied levels of background knowledge. The website was developed to serve as a tool to help these adult learners to acquire additional information and background knowledge in a more stimulating and interactive manner.

The website was evaluated at various stages by means interviews and discussions, focus groups, observations, expert reviews, think-aloud procedures, and questionnaires. Data was analysed quantitatively and qualitatively to ascertain how the website addressed the issues stated in the main research question and in the sub-questions. Empirical statistics based on the questionnaires were reported with the aid of tables and charts. A search for significant differences between various sub-groups and their responses to certain statements and questions from the questionnaires was conducted. The purpose of this was to find additional answers to the research questions or (in some cases) to substantiate the previous findings.

It was noted that a large percentage of learners in the age group older than 30 years of age did not regard themselves as computer literate. Factors such as learners' age and their level of computer literacy need to be considered when planning and developing e-learning supported courses.

Interestingly, there was no significant relationship between the computer literacy of males and females. This finding is contradictory to the perception that females in general are less inclined to show interest in and use of computers and related technology.

Although the learners had no or little previous exposure to e-learning, they had little trouble adjusting to this *new* mode of delivery and found it easy to operate the website. The results indicated that the learners responded positively towards the website and appreciated its value in assisting them to gain new knowledge and information. These results were unexpected since it was thought that this *new* mode of offering distance education material would be difficult for learners to adjust to, and that they would show more resistance to using it.

The learners indicated that the quizzes on nutrition were stimulating and that the immediate feedback helped them to ascertain what progress they had made. They also enjoyed working with the website. Learners found it easy to access information through the site and they indicated that the site provided them with means to access information which they would otherwise not have been able to access. The majority of learners felt that the website would help them to understand the subject content better and to improve the quality of work that they submitted for assessment.

The majority of learners indicated that they preferred to receive their study material in a printed format. Learner preferences such as these as well as other constraints or preferences need to be considered in the planning and development of a distance education course. Thus, for example, the course could be planned to accommodate learners who are totally dependent on printed materials while it might at the same time be designed to use media and technology to support and enhance the paper format for those others who are not totally dependent on the printed format. Learners should also be encouraged to widen their horizons and explore other avenues of media and technology for information – especially since they are studying at a postgraduate level.

I recommend that the following suggestions be implemented in website design in such circumstances because their viability has been ascertained by her research into the questions that were investigated in this chapter. These suggestions are summarised in Table 4.24 on the next page.



Table 4.24: A summary of the suggestions indicated by the research questions and the research

No	Question	Attribute	Suggestions
2	How can e-learning and the Internet be implemented in such a way so as to add value to a distance education course in nutrition and HIV and AIDS?	New development	<ul style="list-style-type: none"> <li>• Increase courses</li> <li>• Provide current information and knowledge</li> <li>• Provide inexpensive communication facilities</li> </ul>
4	What interface design principles would best facilitate the communication of nutrition knowledge to learners in the field of HIV and AIDS?	Appropriateness of applied interface design principles as experienced by learners	<ul style="list-style-type: none"> <li>• User-centred design: consideration of learner profiles during design and development</li> <li>• Involving learners during design/development phases</li> <li>• Maintaining simplicity and consistency</li> <li>• Legibility</li> </ul>
5	To what extent does the learning website conform to general web usability principles?	Usability as experienced by learners	<ul style="list-style-type: none"> <li>• They had little difficulty in learning to execute basic tasks</li> <li>• They were able to use the site efficiently</li> <li>• They made good progress</li> <li>• They enjoyed their experiences on the website.</li> <li>• They enhanced their skills</li> </ul>
7	What media and technology are best suited for delivering distance education and what are the advantages and limitations of these modes for the delivery of distance education to learners in the field of nutrition and HIV and AIDS?	Media preferences of learners Advantages and limitations as experienced by learners	<p>Computer and Internet technology, video conferencing, group and individual contact sessions</p> <p>Advantages</p> <ul style="list-style-type: none"> <li>• Motivation</li> <li>• Access to current information</li> <li>• Interactivity</li> <li>• Increased confidence</li> <li>• Enjoyment</li> <li>• Challenging</li> </ul> <p>Limitations</p> <ul style="list-style-type: none"> <li>• The need to learn to use the technology effectively before they can focus on content</li> <li>• They have difficulty in accessing facilities or have no access at all</li> <li>• Access costs escalate</li> <li>• They need good infrastructure and support</li> <li>• They are unaware of available facilities (e.g. access to Internet from the University library, electronic journals, etc.)</li> <li>• They prefer on the whole not to use available features (such as e-mail communication). They need to change these attitudes</li> </ul>
8	How should a distance education course that comprises a combination of media and technology be designed and developed so that it will be effective?	New development	<ul style="list-style-type: none"> <li>• Media and technology should form an integral part of the distance education course and learners should utilise all available recourses.</li> </ul>

It is concluded that the website has a high level of usability, that it is instructionally effective and stimulating, and that it can form a vital component in a combination of media and technology for distance education learners.

In chapter 5 I present the conclusions and recommendations that arise from the reported research, and I relate these conclusions and recommendations to the research questions.