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TO WHOM IT MAY CONCERN

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e-Commerce – the challenge of succeeding in the emerging economies

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Abstract

The retail sector has emerged as a leader in the South African economy. It is a main contributor to the Gross Domestic Product (GDP). E-commerce specifically online retail in this emerging economy has grown tremendously over the past years. Even though online retail sales lag the conventional retail sales, it poses a great growth potential. For online retail to be successful, e-commerce websites that are responsive to the users needs is a vital prerequisite. Designing such a website in South Africa (SA) is a challenge since the population varies greatly with regard to cultural background. Studies focusing on usability issues in South African websites focused on clicks-only retailers. This paper is unique because it focuses on the usability issues of Click-and-Mortar retail e-commerce websites and is contextualized to SA users. The paper reports on the results of the user evaluations conducted on three SA retail sites and how these compare or can be benchmarked for usability purposes against an international retail site. The paper furthermore, reports on the current status of e-commerce and online retail in South Africa. Finally, it concludes with some provisional usability issues identified during the user evaluations as well as some recommendations for improvement of SA websites.

Keywords: e-commerce, retail, usability, user evaluation, user experience, emerging economies.

1. Introduction

There is a strong belief that e-commerce in the emerging economies contribute to the advancement of businesses and has a potential to add a higher value to businesses and consumers than in developed countries (Kshetri, 2007; Molla & Licker, 2005). This belief is enhanced by potential benefits of e-commerce, which include; expanded geographical reach, expanded customer base, increase visibility through search engine and enhanced marketing which provides customers valuable information about the business (Turban, King, & Lang 2009:73; Laudon & Traver, 2007:17).

As a consequent of this belief and the Internet hype, many companies have been compelled to adopt e-commerce (Chang, & Chen, 2008; Wang & Emurian, 2005). These companies allocate significant portion of resources towards designing and implementing e-commerce websites. However, just starting doing business online does not necessarily guarantee success. Since e-commerce companies are dependent upon customers visiting their websites, purchasing products, and more importantly becoming regular customers (Chang & Chen, 2008; Bias & Mayhew, 2005). On the other hand, customers have too many websites that they can use as alternatives. Nothing hinders them from switching to another website if the performance of a particular website is unacceptable (Bias & Mayhew, 2005). Resources allocated for designing and implementing these e-commerce websites will be wasted or under-utilized if no or few successful sales are made through e-commerce websites. For example, a South African clothing retail store spent R12 million on its site but failed to attract customers (Manson, 2001). The question still remains what contributes to this failure?

Many factors contribute to e-commerce failure, these impeding factors include aspects such as; cultural or language impediments (Martim, Dlamini, Van Greunen, Eloff & Herselman, 2009; Macagnano & Greeff, 2007) people's resistance to change, technical difficulties, post-apartheid effects, illiteracy (Hugo 2002), lack of expertise in user-centered design (UCD), as well as usability testing (Barnard & Wesson 2003, 2004).

Companies need to consider consumer technology before the next Internet revolution leaves them behind (Smith and Abrams, 2005). Based on statistics (Epnet, 2009; World Wide Worx, 2008; Internet World Stats, 2008; Seda, 2007) e-commerce has grown substantially over the past years in the emerging economies. We therefore, argue that businesses as well as consumers have embraced technology in this case e-commerce. However, e-commerce has not achieved its full potential (Martim, et al., 2009) it is therefore necessary to improve the usability of e-commerce websites for a positive user experience thus enhancing growth of online retailers.

In an attempt to improve e-commerce usability, many authors have developed guidelines, (Nielsen, Molich, Snyder & Farrell, 2001; 2000; Barnard & Wesson, 2003, 2004; Nielsen, 2003) which website developers use as blue print when designing websites. Many of these guidelines have not been validated by empirical or theoretical evidence rendering them inapplicable in some contexts (Lowry, Spaulding, Wells, Moody, Moffitt, and Madariaga, 2006). In South African context website developers consequently follow some of these guidelines which do not necessarily provide appropriate levels of website usability. Furthermore, in SA the goal of delivering a good user experience takes the back seat to meeting the website and management basic requirements.

This paper discusses the current status of e-commerce and retail sector in SA. It then discusses the challenges faced by online retailers in trying to ensure e-commerce usability; the discussion is done with reference to SA. The paper also presents the results of user evaluations conducted on three South African retail sites. These results are compared against the results of an international retail site. Finally the paper concludes with recommendations for improvement of SA websites.

2. Related work

2.1 E-commerce

Turban, King, and Lang (2009), Laudon & Traver, (2007:17) and Barnard & Wesson, (2004) agree that e-commerce implies the use of transmission medium through which exchange of information takes place in order to conduct business. For the purpose of this paper, e-commerce is seen as consisting of all transactions that take place by using the Internet as a communication medium. The transactions involved includes buying and selling of products and services, and can be carried out in different types of e-commerce.

E-commerce types are distinguished by the nature of the market relationship (Turban, King, & Lang, 2009). These types include Business-to-Business (B2B), Business-to-consumer (B2C), Consumer-to-consumer (C2C), and Consumer-to-business (C2B) (Laudon & Traver, 2007:17; Turban, King, & Lang 2009:73). This study focuses on B2C e-commerce.

Taking a closer look at e-commerce in emerging economies, there has been a drastic increase even though it is lagging the developed countries this is evident from surveys carried out by various independent researchers (Epnet, 2009; World Wide Worx, 2008; Internet World Stats, 2008). Internet World Stats (2008) reported that Internet usage in Africa is growing faster than any other region in the world.

In SA, the government realized the critical importance of e-commerce and online electronic linkages in shaping the performance of domestic enterprises in the global networked economy hence developed policies and regulations to govern e-commerce (South Africa Department of Communication, 2000). With this government support among other factors, SA has become Africa's dominant Internet center. Johannesburg (in Gauteng province) based ISPs are central to the Africa's Internet industry (Epnet, 2009). Though SA dawdle African peers like Egypt, Nigeria and Morocco in terms of per capita usage, a quarter of Africa's Internet users are based in SA (Epnet, 2009). World Wide Worx (2008) reported that the Internet user base in SA has seen its highest rate of growth since 2001, increasing by 12.5% to 4.5-million in 2008. World Wide Worx (2008) predicts that SA's Internet population will grow by 13.3% in 2009 and by 17.6% in 2010. Despite this spectacular growth of e-commerce, there's promising prospects and plenty of room for improvements in SA. The following section discuss retail sector.

2.2 Retail

Due to e-commerce adoption the retail business model have changed to include business models such as Clicks-only and Click-and-Mortar (Turban, King, & Lang, 2009; Laudon & Traver, 2007). This paper focuses on Click-and-Mortar retailers. These retailers merge the strengths of both Internet and traditional channels hence offering customers the best shopping experience in both online and offline worlds (Deloitte, 2008; Laudon and Traver, 2007). This strategy enhances customers trust, because consumers are attracted to stable, well-known retail brands (Deloitte, 2008; Laudon & Traver, 2007). The following section examines SA retail sector.

2.2.1 South African retail Industry

Retail in SA is regarded as one of the sunrise economic indicator the GDP, it contributes 15% to the GDP and accounts for 24% employment (Statistics South Africa, 2008; Seda 2007). Despite the recent slow retail growth attributed by recent global economic crisis; rising interest rates and petrol prices as well as efforts to reverse the

trend in SA household savings, the performance of SA retail sector has been exceptional (Statistics South Africa, 2008; Seda 2007). This growth is characterized by significant retail space expansion and national retailer share prices (Seda 2007).

Seda (2007) predicts stable growth of 20% growth per annum in online retailing. However, it is not always positive for retailers. Deloitte (2006) points out that retail faces risks such as international economies, global supply chain, brand management and new media. New media include aspects such as e-commerce. The following section discusses usability as an issue which impacts e-commerce usage.

2.3 Usability

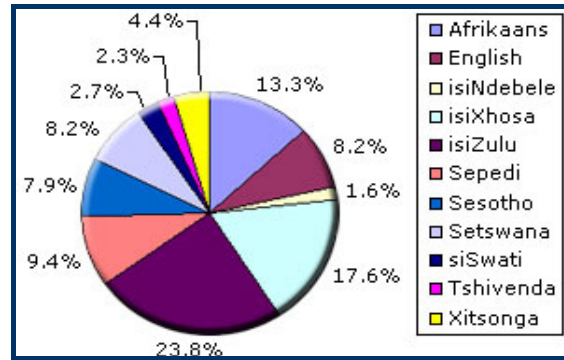
To establish a connection between usability and user experience, Nielsen (1993) proposed the following usability attributes; *Learnability* - the system should be easy to learn, *efficiency* – the user should be highly productive when using the system, *memorability* - casual user should be able to learn the system after a period of time and still be able to use the system, *errors* – If users do make errors, they should be able to recover from those errors, and *satisfaction* – users should feel satisfied when using the system.

The attributes efficiency and effectiveness are considered during the development of any software. This paper focuses on the websites fully functional end-product. In this case satisfaction, memorability, and learnability were considered. When these attributes are ensured in a website, it is rendered useful thus a positive user experience.

Many researchers stress that an appropriate, usable user interface is a critical consideration in the success of e-commerce (Schaik & Ling, 2008; Valdes & Goozit 2007). Bias and Mayhew (2005), Nielsen (2000, 2003) concur that when users cannot find what they are looking for, they simply cannot transact. Though some websites can attract customers successfully and customers browse the websites, they do not purchase successfully due to complicated payment procedures, unsuitable information or incompatible interface (Jinling & Huan, 2007; Bias & Mayhew, 2005). This is worsened by the diversity of users of the same website who are continually exposed to different technologies through various user interfaces (Zou, Zhang & Zhao, 2007). Other factors such as culture, education poses a challenge to designing usable websites.

Most recently attention has been diverted to the design of websites and their usability across countries, genders, age groups and religion. Johnson, Salvo, Zoetewey, 2007; Shiu and Dawson, 2004 assert that usability can be improved by understanding the users' culture. Drawing the attention to SA also referred to as the "rainbow nation", a title which epitomizes the country's diversity. SA people speak eleven distinct official languages as highlighted in figure 1, and there are disparities within the language groups in socio-economic standing and literacy (South Africa Info, 2009). This poses a challenge to website developers.

Figure 1: SA language distribution



Source: South Africa. Info, (2009)

To ensure usability Rubin, Chisnell, and Spool (2008), Sharp, Rogers and Preece (2007), Bias and Mayhew (2005) and Barnum (2002) recommend that user centered design (UCD) should be considered during the design of any system. In this context, this implies that users need to be consulted and should be the centre of website design thus creating websites that meet their requirements and needs.

Usability problems exist due to inadequate usability testing of the websites (Gabriel, 2007). Numerous usability testing methods are available in literature for example, heuristic evaluation, guideline check list, user evaluation, satisfaction questionnaires among others (Sharp, Rogers & Preece, 2007; Holzinger, 2005; Nielsen, 1993). These methods can be applied in e-commerce websites. However, with lack of skills in usability and UCD in SA (Barnard & Wesson, 2003, 2004) it is difficult for designers to evaluate websites without engaging usability engineers and spending large amounts of money.

Despite these challenges, online retailers need to consider usability. Bias and Mayhew, (2005), assert that the ability to cost justify usability is crucial and retailers can gain more by improving usability to increase customer productivity, increase customer satisfaction and moreover increased customer loyalty, trust and retention.

This paper aims at addressing the following research question: How can SA online retailers improve e-commerce usability to enhance growth? To address this question triangulation research methodology (Cooper & Schindler, 2003:253) was adopted in a multiple case study (Yin, 2003:7). Nine users were selected to evaluate the websites and thereafter fill a satisfaction questionnaire based on the experiences they had while using the websites. The satisfaction questionnaire was based on the work done by Spool, Scanlon, Schroeder, Snyder and DeAngelo, (1999); and Barnard and Wesson (2004). The questionnaire questions required the user to rate each website on a rating scale of 1 - 5, with 1 being Very Poor and 5 being Excellent.

The following section discusses multiple case study design applied in this study.

3. Case study

Using judgmental sampling technique (Cooper & Schindler, 2003:253), SA retail websites had to meet the following criteria;

- The website had to be of Click-and-Mortar retailer; have website and physical presence in Gauteng province;
- The website had to be a fully functional B2C e-commerce website; and
- The website had to be retail website selling music CDs among other items. The motivation behind this choice was based on research conducted by Hart (2008), he found out that the products bought most widely online by South Africans are; (1) music, (2) books and (3) DVDs.

For the purpose of this study, three SA websites were selected and one international website was selected to be used as a benchmark to compare the SA websites. In this paper the selected websites are referred to as: [SA Website 1](#), [SA Website 2](#), [SA Website 3](#) and *international Website*.

Using judgmental and random sampling techniques nine users were selected to participate. Screening questionnaires were e-mailed to target users. On receipt of the questionnaires users over 18 years with a credit card were selected. The screening questionnaire required the users to rate their Internet proficiency either as a beginner, intermediate or expert. During the sampling procedure, users were grouped according to their Internet skills thereafter three users per group were randomly selected. Table 1 shows the number of users selected.

Table 1: Total number of users selected

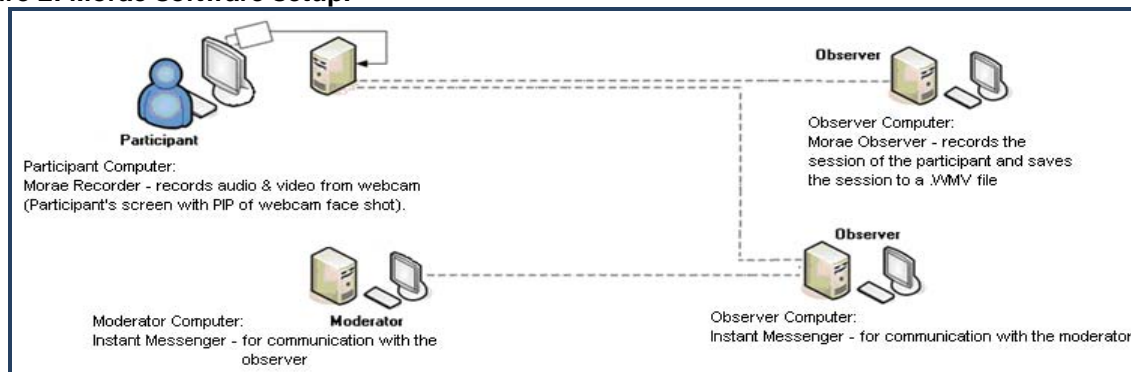
User Group	Internet skills	Gender		Total
		Female	Male	
1	Beginner	2	1	3
2	Intermediate	1	2	3
3	Expert	2	1	3
Total Number of users				9

3.1 User evaluation

User evaluations were conducted to measure the users' experience of the four websites through carefully prepared list of tasks. The tasks comprised of finding music CD's information, placing the CDs on the shopping cart, deleting and replacing a CD and providing necessary details required to complete a sale.

While performing the tasks, users were observed and their interactions with the websites were recorded. Individual evaluations were conducted over a period of five days using the *Morae software* (Manager, Recorder, and Player, Version 2.0.1). *Morae software* was setup in a single room at SAP Research in Pretoria since no usability lab was available during the time this study was conducted. The room allowed the observer to be quite a distance away from the participant and moderator as shown in figure 2. The setup of the testing room remained unchanged throughout the evaluation to allow the users to complete the evaluations in a similar environment.

Figure 2: Morae software setup.



Source: TechSmith (2009)

During the evaluation think-aloud protocol was adopted whereby, the moderator observed, probed the user on his/her actions, from time to time the silent user was encouraged to think aloud. After the evaluation users completed a satisfaction questionnaire taking into account the experiences they had with the websites. The results from user evaluations and the satisfaction questionnaires are presented below.

4. Results discussion

The results are presented below are based on the tasks performed by users during the evaluations.

4.1 Finding the CD and product information

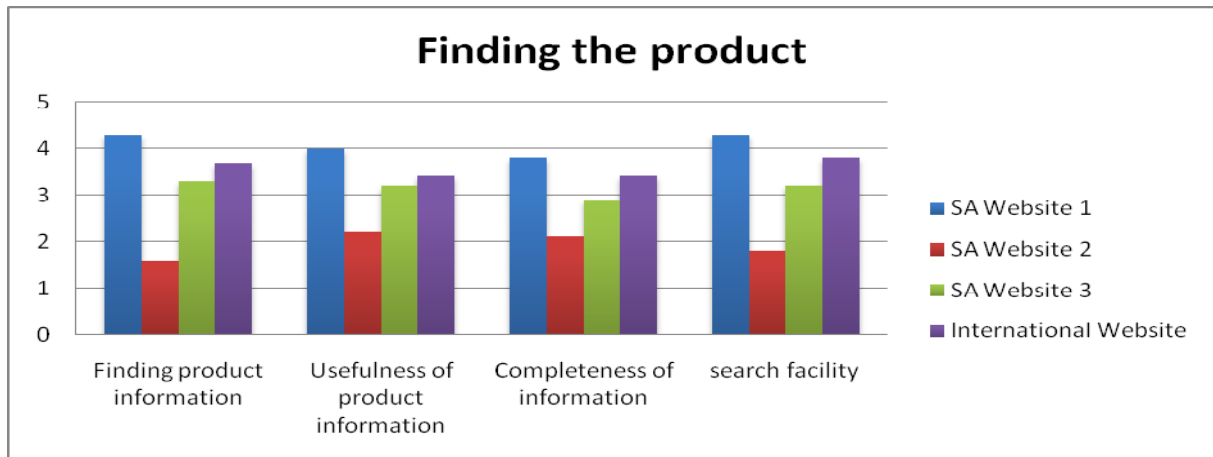
Users were given the details of the CD to find this was to avoid the user selecting any CD on the website. Users preferred the fact that all websites provided search facility. The following are some usability issues observed while users were using the search facility.

- The search engine of SA website 2 and SA website 3 were non error tolerant. Most users made spelling errors as a consequent no results were displayed. Moreover, the websites did not maintain the search string on the results page. Users commented that it could have helped if they knew what they had entered so as to rectify the mistake.
- Numerous unfiltered results were displayed in all SA websites. The results included CDs which were unrelated to the users' search. The navigation of the results was challenging in all SA websites. Two of SA websites didn't provide navigation links or buttons. Instead users had to click the page numbers this proved to be a challenge to SA users. SA website 3 provided the next and previous button but users complained that the buttons were not visible enough. Users liked the fact that international website provided these navigation buttons

- All websites provided sorting facility. However, SA website 2's sorting facility was not functional; one user commented that "so what does this search do".

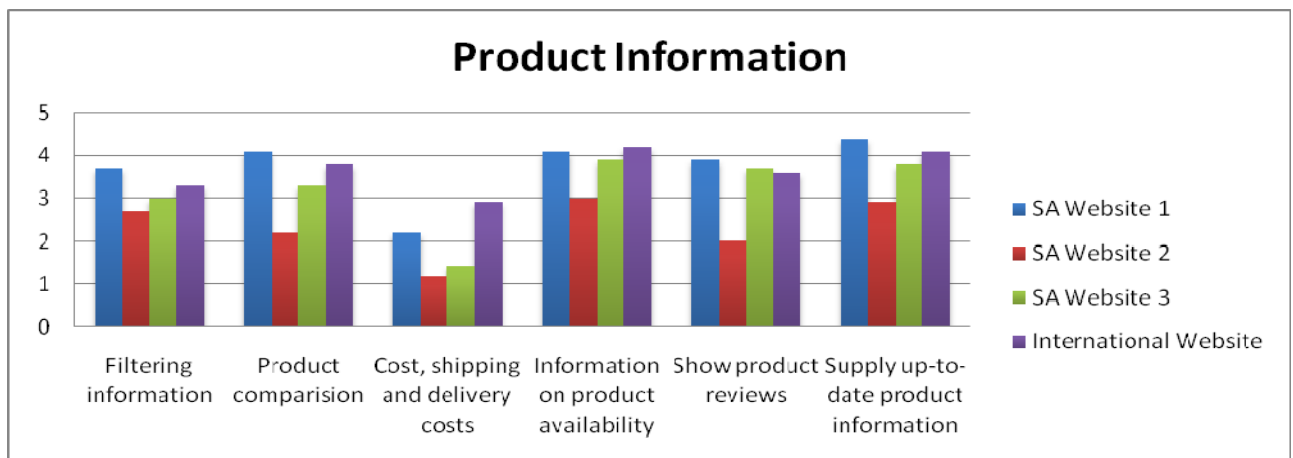
Figure 3 shows mean users' ratings. Most users had difficulty finding the product in SA website 2 followed by SA website 3. Most users preferred SA website 1 and the international website.

Figure 3: Finding product ratings



Users were asked to write down CD information such as title, release year, availability, price, delivery charges, and the total price on the information sheet provided. All SA websites provided product reviews and prices in South African Rands. However, in all SA websites no shipping and taxes information were provided at this stage. The international website provided shipping discounts and a link for users to get more information. Figure 4 shows that users found information provided in SA website 1 useful followed by international website.

Figure 4: Product information ratings



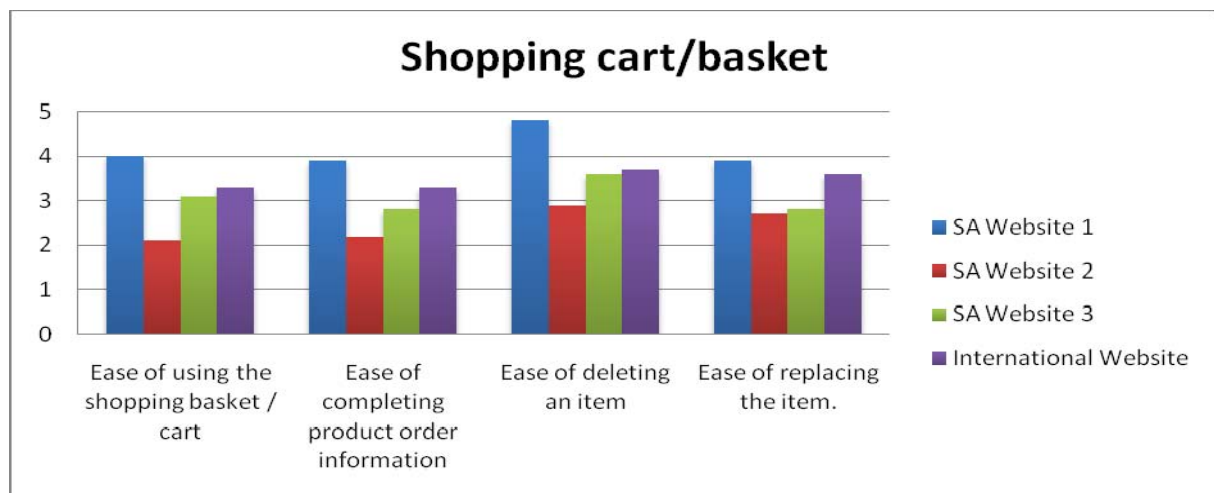
4.2 Shopping cart

The users were asked to add the CD to the shopping cart, then delete the CD and replace with another CD. The following describes some of the issues uncovered.

- The usage of different terms to refer to the shopping cart had no negative effect; users claimed that as long as there was a visual implication of the cart, and that they could understand what it was the term did not matter.
- Users found the placement of the buy button appropriate in all websites. However in SA website 1 users didn't realize that the item had been added to the cart, since the page did not take the user automatically to the shopping cart page. This allowed the customer to continue shopping however the indicator on the page was not obvious to the user.
- Users comfortably deleted an item from the shopping cart and added a new item in all the websites. Three users could not locate the remove button in SA website 1, they claimed the link was small and users did not see it at first.

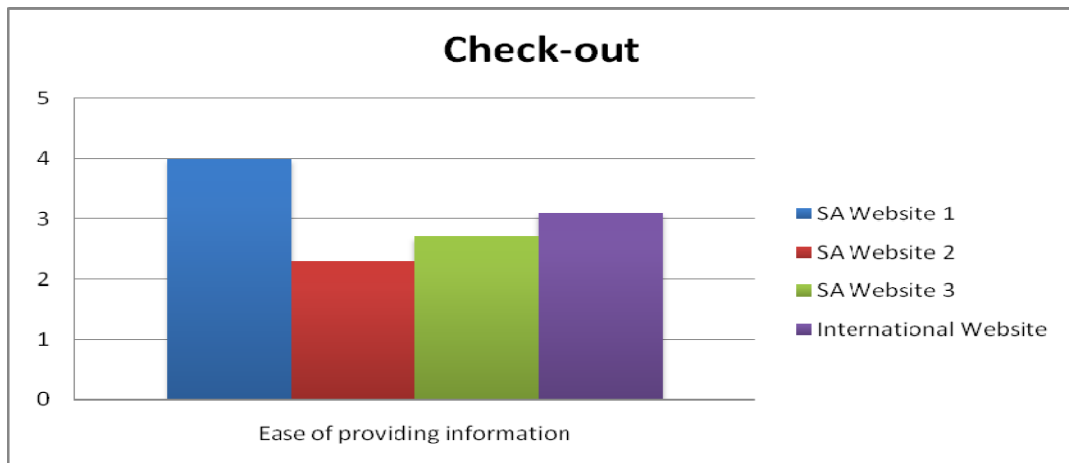
Figure 5 shows how users rated the shopping cart.

Figure 5: Shopping cart ratings



4.3 Checkout Process

The checkout button in all SA websites was visible. Two users had difficulties placing an item on international website one user commented that “the button is just off”. This could have been exacerbated with the amount of information presented on the website. Users also did not like the placement of buy button in SA website 2, since they had to scroll to locate the button. Figure 6 shows how the users rated the checkout process.

Figure 6: Checkout process ratings

All users were required to register in order to complete a sale. In general the registration procedure was found to be complicated in all SA websites. Table 2 compares the registration process of the four websites.

Table 2: Comparison of registration process

SA website 1	SA website 2	SA website 3	International website
Users claimed that the process was easy. However, information layout and the order of providing information was confusing to users. Users filled the registration form top to bottom while the form's structure was left to right. Users made errors while entering information.	Users had to complete both shipping and billing address. Even though information was provided to explain that users could pick the CD from the closest store, this information was missed by all users. They went right ahead and entered both addresses	The form was found to be cluttered with information and required users to enter too much information. Though some information provided was intended to assist the users, no user read the instructions. Users also complained that red colour usage was too much, this contributed to users not noticing the error messages displayed on the right side of the form.	Users preferred the step by step registration guidance. Hints were given where deemed necessary. users commented that the process was still long.

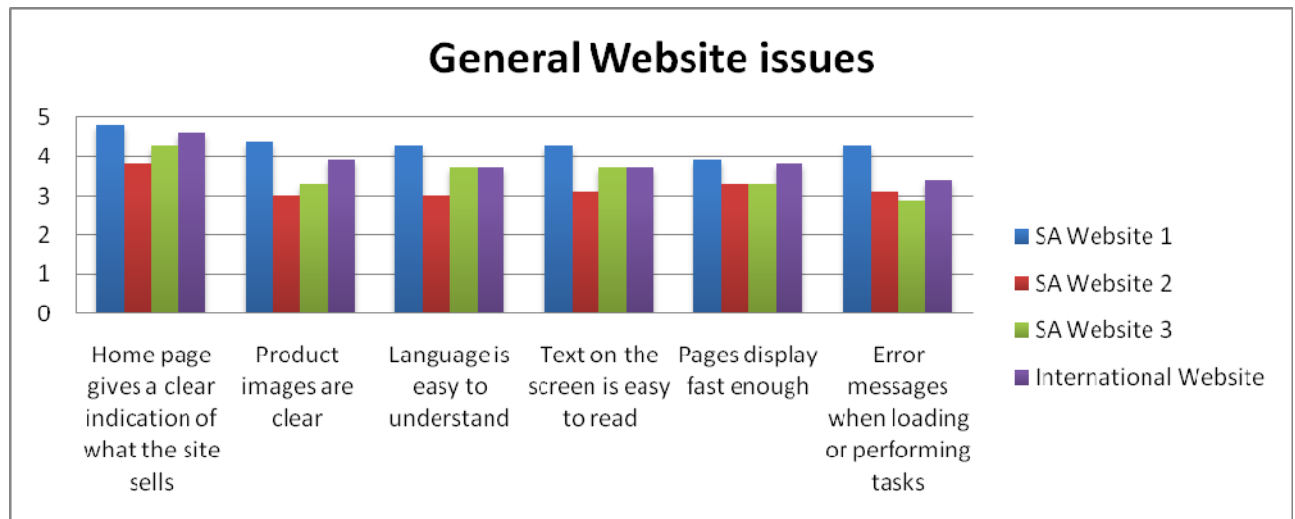
All users found the registration long and tedious. The fact users had to access their e-mails to activate their accounts only to return to an empty shopping cart was annoying. Moreover, users were reluctant to provide details such as e-mail address and date of birth. They indicated that they didn't like receiving marketing e-mails and e-mail reminders.

4.4 General site issues

Users commented that they understood the purpose of the websites. Product images were found to be clear, although all SA websites in some cases provided no images this didn't negative affect the users.

The website layout was found to be appropriate, users preferred well organized websites with minimal text. Users found the international website to be cluttered with information. Most users commented that one needs to get used to the website in order to use it contentedly because “everything was everywhere”. All SA websites have bright colourful web pages, most users preferred the “first look”. One user commented that SA website 3 looked neat and everything seemed well organized. Figure 7 shows the mean ratings of different questions which related to general issues of the websites.

Figure 7: General issues ratings



5. Conclusions and recommendations

This paper concludes that some SA retail companies are aware of usability and have ensured that their websites are usable. However, there is more work to be done for instance online retailers need to; tune their search engines to provide relevant results which meets the users' expectations, provide step by step simple registration process to enable users to register with ease; improve navigation, make error messages useful the messages should be clear, visible and precise to enable users to read and understand them.

This paper concludes that SA users are sceptical about security and trust issues. Online retailers should require users to provide the most relevant information. Information such as gender, title, middle name, date of birth may be irrelevant.

This paper acknowledges that SA population varies greatly with regard to cultural background and skills. Based on the results, we conclude that SA users needs differ from international users needs for instance; SA users prefer colourful, graphical interfaces. Therefore, websites should be contextualized meet these needs.

The results from the experts' reviews are outstanding; these results together with user evaluations results will help design guidelines to developing usable SA retail e-commerce websites.

6. Future work

This study revealed some aspects of usability in SA websites and made recommendation on how to improve e-commerce websites. Future work needs to be done to understand how companies design e-commerce websites in order to determine where retailers go wrong. Strategies also need to be put in place to enable online retailers to incorporate usability guidelines in the development process of e-commerce websites.

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