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How South African university information systems students are using social media.

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Abstract--Social media is a term used to combine social networking, media sharing and microblogging systems. Social media assists students to improve their academic studies, allows collaboration and sharing of information with each other, and affords students to know what is happening in the world, acquire pictures and videos in support of such information. Information Systems (IS) students are the next generation of technology experts and their exposure to using social media as an alternative source of information and for collaboration might affect features included in systems.

This research was conducted following a positivist approach which used a quantitative method to investigate the usage of social media in higher education. An online questionnaire was distributed to undergraduate Information Systems students via email with a link to the questions provided. Statistical inference was performed to test the usage of social media in higher education through the Unified Theory of Acceptance and Use of Technology (UTAUT).

As a result, students viewed social media as a learning tool since it allowed them to enhance their academic performance and ability to explore knowledge. Social media also allowed students to communicate, share and collaborate. Research model confirmed that there's a positive relationship between social media and the behaviours of undergraduate students and regarded social media as a learning tool.

Keywords: Generation Z and use of social media, Use of social media in higher education, Undergraduate students and use of social media, Undergraduate students in South Africa and use of social media, Operationalization of UTAUT.

1 INTRODUCTION

Social media is one of the most common and important communications networks used by individuals and groups. Social media is defined as “the collection of Internet websites, services, and practices that support collaboration, community building, participation, and sharing” [1, p. 2]. Social media allows a user to “share information, files, pictures and videos, create blogs, send messages, and conduct real-time conversations” [2, p. 2].

Students attending higher education institutions are considered digital natives since they are part of Generation Z. Generation Z refers to individuals born after 1996 and have not experienced life without the Internet [3]. Students from Generation Z are familiar with interacting and communicating in a world that is always connected to the Internet which includes social media.

Information systems (IS) students in higher education are expected to join organizations in different roles upon graduating. The roles include systems analysts, data analysts, system testers, systems developers, database administrators and business analyst [4]. These roles afford them the link to businesses and organizations with technology where students can advise on what features should be included in upcoming systems based on their skills, exposure and prior knowledge. It is a crucial role as most organizations in the world are adopting systems that enhance efficiency and effectiveness in conducting businesses [5].

Social media has been argued as one of the systems that employees use to waste time and reduces efficiency [6]. One way to taste this claim is to engage with people who interact with businesses and advice on systems for companies to adapt and in this case, IS students [4]. Thus, the research poses the question, *what is the usage of social media by information systems undergraduate students in higher education in South Africa?* The research provides empirical evidence from South African information systems undergraduate students in the quest of describing their actual use of social media and thus validating UTAUT.

This empirical research begins with a summary of the literature in relation to key concepts leading to the use of UTAUT, thereafter research methodology is provided which explains how the research was conducted. Findings and discussion are presented and related to literature. The research concludes by explaining the contributions of the study.

2 LITERATURE REVIEW

2.1 Undergraduate students and the presence of generation Z

Undergraduate students that are currently studying in higher education are part of Generation Z and considered as digital natives. The Generation Z students were born from 1996 or later and are also known as iGen or Centennials [3]. According to [7], digital natives are used to receiving information at the real-time and are good at multitasking.

Within higher education, not all students have the same learning style. The different learning styles consist of visual, auditory and kinaesthetic [8]. Visual students prefer to use graphical images such as graphs, diagram and/or pictures, auditory students prefer to make use of voice sounds which includes speaking out loud, listening and involving discussion with other people and lastly, kinaesthetic students prefer to learn using a sensor which includes physical activities, problem-solving and being active. The effort that undergraduate students place on using social media for learning is dependent on their preference for learning style.

2.2 Social media applications and their use

Using social media, users share their personal diaries, post images or videos, express opinions, meet new people and establish communities based on common interests or/and background [2]. Users have an option to choose whether to send private or public messages, post on other user's timeline, organise social events, and getting informed of other user's daily activities [9]. Social media is inexpensive and free to use which allows individuals to access any social media platforms. There are different types of social media tools that one can use; social networking, microblogging and media sharing.

Social networking sites are online communication tools that allow users to set up their personal profile before establishing connections with friends or other users who have similar interests or/and background [10]. Social networking site contains user's details such as biological information, likes and dislikes, and education that he/she attended. According to [3], students prefer to use social networking sites to create their own groups that include all students in the class. Social networking is used as a form of instant messaging for communication purposes. The two most popular social networking sites that are widely used are Facebook and LinkedIn [10].

Microblogging is a combination of social networking and blogging but has a set limit of characters [10]. Microblogging is mainly used by participants to talk about their daily activities and share or seek information at the real-time [11]. Twitter is one of the most popular microblogging sites. Twitter allows users to send and read posts with a set limit of 140 characters [12]. A user follows other users, even if the user being followed does not necessarily follow back and this is considered being a "follower" instead of a friend [11], [12]. Students use microblogging sites to acquire information on current events including market shares, news and content shared by friends.

Media sharing sites allow "users to upload and share media such as videos and photos as well as allowing users to comment and tag other media" [10]. Examples of media sharing systems are YouTube and Instagram [13]. The main purpose of students using the media sharing sites is to view or download a podcast, pictures or videos that they have missed, want to view it to gain a better understanding or explore new learning experiences.

2.3 Use of social media in higher education

The study by [14] found that social media are mainly used for, social interaction, sharing videos and pictures, meeting people, information seeking and watching the news. [15] reported that 93% of social media users focus on communication as the primary purpose. Even though social media is developed for communication, it is used as a learning tool to enhance teaching and learning through online social networking activities [14].

In higher education, students use different technologies other than learning management system (LMS) such as Vula, Sakai and Blackboard as learning tools. Many students regard social media such as Facebook, Twitter and YouTube as learning tools that enhance academic performances [16]. Higher education tends to rely on traditional teaching method without realising that students are using social media to get a better

understanding of lecture content and collaborating with classmates outside the lectures [14].

According to [2] and [10], social media has a positive effect on student's academic performances, but if students control and manage their time on the use of social media excessively and effectively. While [17] study found that the higher the student's use of social media is, the higher is the negative effect on students' academic performances.

2.4 The use of the unified theory of acceptance and use of technology (UTAUT)

While the literature outlined the usage of social media in higher education, this study will employ Unified Theory of Acceptance and Use of Technology (UTAUT) framework as a lens to determine behaviour intention and define the relationship between the actual usage of social media and students in higher education institutions. According to [18], recent studies have used UTAUT to investigate how the relationship between the variables (depicted in Fig 1) adapt to each other.

In the South African context, UTAUT is as an ideal theory to use as it assists in describing the actual behaviour of higher education students. Internet use in South Africa in 2016 was at 49% with 24% of the population using social media for almost 3 hours a day [19]. The social media that were ranked as the most used in South Africa were; WhatsApp (33%), Facebook (30%) and Twitter (12%) [19]. Previous studies that have used empirical evidence from South African higher education institutions have identified that the actual use of social media by higher education students includes the use of YouTube, Facebook and Twitter [20]–[22]. Thus, the student's actual behaviour is that of using social media during and outside lectures.

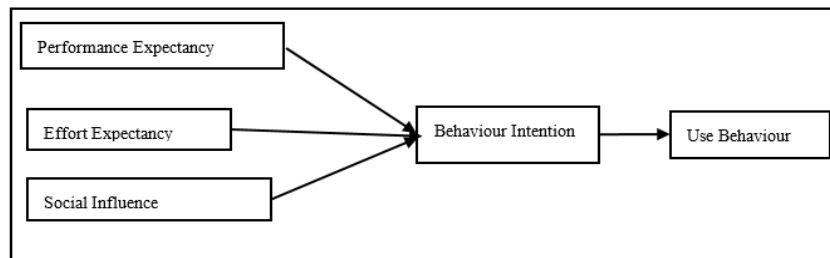


Fig 1: The unified theory of acceptance and use of technology

As shown in Fig 1, there are three main factors that influence the intention of acceptance and usage of social media technology, namely performance expectancy, effort expectancy and social influence [23] that relate to a students' behaviour to adopt a technology and use it for learning.

Performance expectancy is “the degree to which an individual believes that using the system will help him or her to attain gains in job performance” [23]. [24] reported that

students use social media to offer social support and manage their academic studies leading to collaborating with colleagues for learning.

Effort expectancy is “the degree of ease associated with the use of the system” [23]. [25] provides statistics in 2015 that 76% of the users who are higher education students were using social media.

Social influence is “the degree to which an individual perceives that important others believe he or she should use the new system” [23]. Social media provides opportunities for students to participate and collaborate which increases their learning experience [26]. Further, [26] argues that the use of social media sites for education purposes increases academic performance, interaction with the lecturers, opportunities to share opinions, develop creativity and provide feedback if it is used wisely.

Students intending to use social media represents a behaviour intention and is affected by performance expectancy, effort expectancy and social influence. The behaviour intention, in turn, affects the actual behaviour that a student has in applying social media to learning. The research uses four hypotheses to explain students use of social media based on the three constructs and the behaviour intention.

Table 1: Hypothesis used to validate UTAUT.

#	Hypothesis
H ₁	Performance expectancy (PE) of using social media is positively related to students' behaviour intention (BI)
H ₂	Effort expectancy (EE) of using social media is positively related to students' behaviour intention (BI)
H ₃	Social influence (SI) of using social media is positively related to students' behaviour intention (BI)
H ₄	Behaviour intention (BI) of using social media is positively related to students' use behaviour (BU)

3 METHODOLOGY

The purpose of this research was to offer an explanatory contribution [27] using positivist philosophy and a deductive approach through the use of UTAUT. The researchers wanted to investigate which social media platform affects student's behaviour on its usage and whether it could be used as a learning tool in higher education institutions.

The research used the quantitative method of data collection by employing questionnaires that were posted online using Qualtrics as the tool for data collection. The use of questionnaires was favoured as the intention was to collect data from the population of undergraduate IS students.

The questionnaire consisted of 16 closed-ended questions which include dichotomous, multiple-choices and checklists that were used to structure the questions. Dichotomous and multiple-choices were used to support the constructs of UTAUT; performance expectancy, effort expectancy, social influence, gender, age, behaviour intention and use behaviour. While checklists were used to determine the usage of social media.

This research uses a single case study of the first ranked university in Africa for data collection as it represents a unique and peculiar set of students. Cluster sampling was used to gather data. The target sample was the information systems (IS) undergraduate students at the university as the main source of data since the students represent a diverse population from different countries, cultural background, level of educational preparation, personality and they have a different style of learning. The university also uses social media to inform students of developments around campus. For example, in the years 2016 and 2017 the university used Facebook and Twitter to share information to students during discussions, demonstrations and closures that were unfolding as part of the #RhodesMustFall and #FeesMustFall movements.

During the practical classes and workshops, students were observed using social media when the researcher would take breaks to attend to students who did not understand the content being taught. When asked, some of the students would explain using social media to communicate with relatives or organizing a braai and others were organizing academic discussions using Facebook.

Cape Town is a diverse city in South Africa as it is home to individuals from all continents who own businesses and are employed in different sectors. Several Information Technology (IT) multinational companies such as Amazon operate from Cape Town and thus offer not only job opportunities but also prospects for an internship in big firms. Some IS graduates from the university have gone to start their own companies such as GetSmarter and Silulo Ulutho technologies that use social media to brand and advertise their products. During university vacations, some students undertake internships in IT companies which gives them exposure and knowledge of what IT companies require. In return, they share such knowledge with peers and assist their understanding of what the industry wants.

By using the university database which stored student records, an online questionnaire was sent to the students' email account with a request to complete the survey and was accompanied by a cover letter that explained the aim of the study, confidentiality and anonymity of respondents' personal information. Out of a total of about 150 undergraduate IS students, 64 respondents completed the online questionnaire that was available for seven weeks from July to September 2017. Five questionnaires were removed as respondents were either postgraduate or did not complete the survey. Data were analysed using statistical inference. In preparation for data analysis, data was imported from Qualtrics to Excel. Excel was used to summarise data using frequency tables and graphs (to show the parameters). Another tool, WARPLS, was used to test the four hypotheses from data loaded in Excel.

4 FINDINGS AND DISCUSSION

Of the 59 respondents that were analysed, 54% are females and 46% males. 88% of the respondents were aged 18 to 21 years old and only 12% were older than 21. Data collection was conducted in 2017 which means undergraduate students in South Africa

are from generation Z. Further, 96% of the students responded to having Internet access most of the time to always. The university offers access to Edu roam Internet connectivity using Wi-Fi services that are available at any time on campus and at university residence facilities. Furthermore, 97% of the students have access to social media with the majority of the use being on mobile phones (44%) followed by laptops (33%) and tablets (15%). Personal computers contributed only 8% on access to social media. Many of the students used mobiles and laptops to access social media which contradicts [3] as students in higher education institution in South Africa tend to have more than one device. Participants were asked which social media platform they used daily. WhatsApp had the most daily use with 26% followed by YouTube with 21%. Facebook was used by 18% of participants. Only 5% accounted for LinkedIn where students seek job opportunities. When aggregated, 48% of respondents used social networking (Facebook and WhatsApp), 12% microblogging (Twitter) and 40% employed media sharing (YouTube and Instagram).

4.1 Performance expectancy of undergraduate students on using social media

Using checklists, Students were asked of factors contributing to daily use of social media and responded by ranking keeping in touch with family and friends as the first factor with 92% followed closely at 88% with checking what is happening around the world which support [28] and [29] report. Finding information for personal and academic needs was ranked third with 71%. Further probing on finding information is depicted in **Fig 22**.

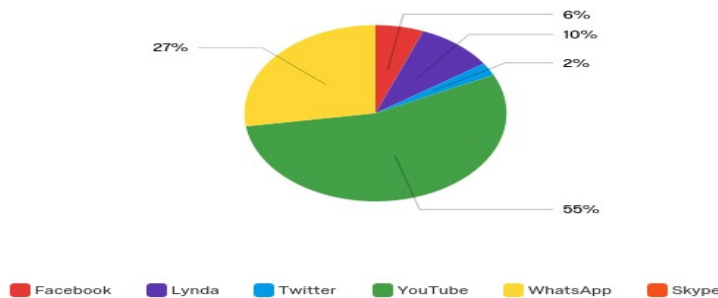


Fig 2: Distribution of social media platforms used in higher education institutions.

Fig 22 shows the distribution of social media used in higher education institutions to assist with finding academic information. YouTube is regarded as a popular social media (55%) followed by WhatsApp with 27%. Facebook and Twitter have a slight contribution with 6% and 2% respectively. Whereas [30] indicated that 91% of the students used Facebook for educational purposes followed by YouTube with 27%. Therefore, this study contradicts [30] as students prefer to use media sharing sites than social networking sites. Media sharing platforms (YouTube, Lynda) accumulated 65% and are used to assist with students' academic studies which include videos, audios and visual. Lynda is a learning

website offering access to massive open online courses (MOOCs) through the use of videos and is the official social media platform the university endorses for its students.

4.2 Effort expectancy in using social media for academic studies by undergraduate students

In terms of effort, 45% of the respondents stated spending between most of the time and always on social media to access academic content. 17% of the students quantified using ‘about half the time’ on social media to assist with academic studies while 32% of the respondents accounted for sometimes which means these students only use social media when there is need to acquire information. The frequency of accessing social media in higher education was not so often which indicates the students have managed their access to social media effectively and corresponds to studies by [2], [10], [17].

Students were further asked on their perception that in comparison to using official university learning management systems like Vula, Sakai and Blackboard, do they view social media as easier platforms and 55% responded by stating they somewhat agree to strongly agree. 10% of the students were neutral with 35% of the respondents ranging from somewhat disagree to strongly disagree.

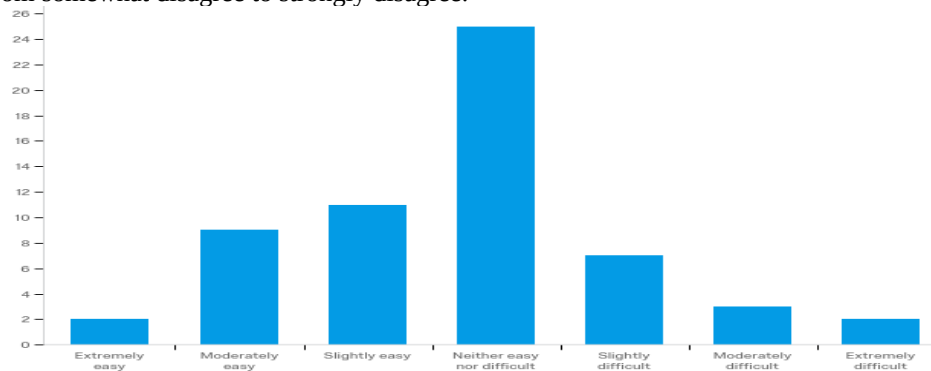


Fig 3: Distribution of how social media influences participants' academic studies.

Participants were asked whether social media influenced their academic studies in higher education and hence making it easier for learning. About 42% of the respondents chose it was “Neither easy nor difficult” and this is explained as subjective to the nature of the work that students are currently focused on. The skewness of **Fig 33** is 0.895 which indicated a positive skewness. As a result, participants believed social media does influence their academic studies.

4.3 The social influence of colleagues in using social media for academic studies

Higher education students work in groups to complete assignments and projects. Further, students assist one another during the preparation of test and examinations. Fig 4 provides information on students' response to being influenced by colleagues to use social media.

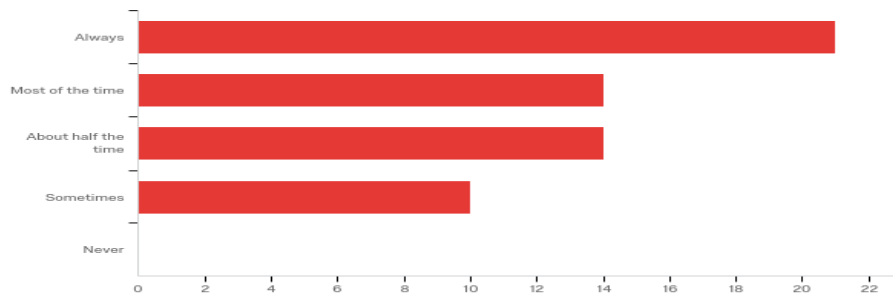


Fig 4: Distribution of social media collaboration in a higher education institution.

Fig 4 depicts a positive skewness as most of the participants used social media, 50%, communicate with other fellow colleagues for academic purposes. This is parallel to [26] that social media could be used for educational purposes that allowed the student to increase their learning experience such as discussion, sharing opinions, interaction as well as collaboration.

4.4 Construct reliability and validity

To test the reliability of each construct, the Alpha Cronbach and composite reliability were used to determine the reliability of the data in each of the constructs. For a construct to be reliable, the results needed to be at least 0.7. The results for each of the constructs shows that Cronbach Alpha and Composite Reliability are all equal to 1.00. There is no need to remove any question and it is considered acceptable since there is only one question assigned to each construct

The validity of each construct was tested using the Average Variance Extracted (AVE) in each of the constructs. For a construct to be valid, the results need to be at least 0.7. The results for each of the constructs on the average variance extracted of each construct are all equal to 1.00. Therefore, there is no need to remove any question and it is considered valid.

4.5 Hypotheses testing

To determine the acceptance of the usage of social media in higher education institutions, a significance level test was performed between each construct. The p-value indicates a probability of accepting the hypothesis. Thus, a significance level should be less than 0.05 for the hypothesis to be accepted. The list of hypotheses that were outlined in Table 1 was tested according to the analytics using WARPLS. Table 2 summarises the results of the hypothesis testing.

Table 2: Tested hypothesis results.

#	Relationship	p-value	Outcome
H ₁	PE – BI	<0.001	Accept
H ₂	EE – BI	0.081	Reject

H₃	SI – BI	0.049	Accept
H₄	BI – UB	0.004	Accept

The hypotheses that failed to produce the significance level of less than 0.05 is marked in red while green indicates there is a significance. The only hypothesis that was rejected was the relationship between the EE and BI (H₂) with the significance level of 0.081 while other hypotheses (H₁, H₃ and H₄) are accepted.

The amount of effort spent on social media does not impact on student's behavioural intention. H₂ indicates there's no significance, therefore this hypothesis has been rejected even though 80% of participants have access to social media in higher education. [25] statistics indicated that 76% of the students used social media in higher education. These two figures are related but the effort of having access to social media does not relate to the behaviour intention to use social media in higher education.

Performance Expectancy has a high level of significance (<0.001) towards Behaviour Intention (H₁) where students mostly spend time using social media to find information or communicate to enhance their academic performances which are supported by **Error: Reference source not found2**. The findings of the research correlate to [31] that students integrate social media with their academic studies to improve work performance. While [24] was contradicted since social media improves students' performances in higher education.

Social influence also has a high level of significance with 0.004 towards Behaviour Intention (H₃) where students believed that social media influences their academic studies in higher education and allows them to explore new knowledge and information as presented in **Error: Reference source not found4**. This is parallel to [26] that social media could be used for educational purposes and allowed the student to increase their learning experience such as discussion, sharing opinions, interaction as well as collaboration.

Overall, the students perceived the behaviour intention of the usage of social media in higher education as a learning platform with a high level of significance of 0.004 to use behaviour (H₄). Students showed the significance of H₄ since they found social media easy to obtain information and affords an ability to understand the topic than using academic materials. As [14] observed, social media is used as a learning tool to enhance teaching and learning within higher education.

This research is limited by size and time. Failure to acquire more participants is due to lack of interest from IS students and an effort to complete the survey. The amount of time the survey was kept online, seven weeks, is shorter than the researcher's expectation of at least three months and this was caused by delays in ethical clearance.

5 CONCLUSION

The purpose of this research was to investigate the usage of social media in information systems undergraduate students in higher education institutions. Social media is considered the most common communication and media sharing platform. Internal validity was acquired by linking themes with the theoretical framework and research protocol. The discussion is guided by the UTAUT.

The main research findings are that students are using social media to acquire academic content which assists in their studies. Students do not use much effort as generation Z knows how to use technology. Peers assist in acquiring academic assistance using social media. Media sharing is the most accessed social media tools for learning purposes.

This research contributes to the body of knowledge on adoption and use of social media as tools that foster collaboration and teamwork to students in higher education institutions and hence extend formal learning across the boundaries of the lecture venue. Universities could make good use of case studies from companies that are within the country and where possible, those CEOs or founders that are their alumni.

The research provides a contribution to UTAUT theory by providing empirical evidence from the highest ranked university in Africa by explaining how social media is used in higher education institutions. By so doing, the research extends the use of the theory to the usage of social media with a focus on more than one platform for learning. Further, the theory assists to explain how social media assists students in their academic work and how social influence from peer's fosters learning.

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