DIGITAL SKILLS DEVELOPMENT FACTORS AS PREDICTORS OF SELF-EFFICACY FOR ONLINE JOURNALISM AMONG UNDERGRADUATE MASS COMMUNICATON STUDENTS IN RWANDA

JOSEPH NJUGUNA GITHAE

DOCTOR OF PHILOSOPHY

(MASS COMMUNICATION)

JOMO KENYATTA UNIVERSITY

OF

AGRICULTURE AND TECHNOLOGY

2022

Digital Skills Development Factors as Predictors of Self-efficacy for Online Journalism among Undergraduate Mass Communication Students in Rwanda

Joseph Njuguna Githae

A Thesis Submitted in Partial Fulfillment for the Degree of Doctor of Philosophy in Mass Communication of the Jomo Kenyatta University of Agriculture and Technology

2022

DECLARATION

This thesis is my original work and has not been presented for a degree in any other university.

Signature: ……...Date: …….

Joseph Njuguna Githae

This thesis has been submitted for examination with our approval as the University Supervisors**.**

Signature: ..... Date: .....

Prof. Hellen K. Mberia, PhD

JKUAT, Kenya

Signature: ..... Date: .....

Prof. Margaret Jjuuko, PhD

University of Rwanda, Rwanda

DEDICATION

I dedicate this work to my late parents Josephat Githae and Mariam Wambui who planted in me the seed of love for education, hard work and personal integrity. Although you did not live to witness this achievement, I know you would be very proud of it.

To my wife Agnes and son Jeffrey - you understood my struggles and gave me the space and support to realize this dream.

Thank you for your prayers.

ACKNOWLEDGMENT

I thank God for giving me good health and guidance throughout this long and winding academic journey. I wish to acknowledge my supervisors, Prof. Hellen Mberia and Prof. Margaret Jjuuko who patiently critiqued and shaped my research to an outcome that I am now proud of. Thank you for your meticulous feedback throughout the process and the molding of a fine scholar in me.

To the heads of journalism schools and research assistants who facilitated me in data collection and follow-up, I acknowledge and appreciate your help. I acknowledge Mr Anthony Muraya, Mr Ephantus Kariuki and our statistics lecturer Dr Joseph Mung'atu for meticulously taking me through the mumble and jumble of statistical analyses ultimately making me love the subject! Thanks Dr Mark Suva for the critical reading of the final draft.

Paul Kahiga, thank you for your unfailing help and making my stay in Juja comfortable. God will specially reward you in due course. I acknowledge the prayers and support of my sisters and brothers. My late brother, Julius – you saw a 'Dr' in me a decade ago, something that cheered me on to actualize this feat.

To my PhD colleagues, Virginia, Francis and Chege, I acknowledge your camaraderie, encouragement and strong resolve to finish this academic journey no matter what. Thank you, Francis, for keeping the group posted on different issues touching on the research.

God bless all of you.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ABBREVIATIONS AND ACRONYMNS

AEJMC	Association of Educators in Journalism and Mass Communication
ANOVA	Analysis of Variance
BYOD	Bring Your Own Device
CMS	Content Management System
EFA	Exploratory Factor Analysis
FGD	Focus Group Discussion
HTML	Hypertext Markup Language
ICT	Information Communication Technology
MOJO	Mobile Journalism
SNSs	Social Network Sites
TAM	Technology Acceptance Model
UGC	User-generated content
UNESCO	United Nations Educational, Scientific and Cultural Organization
WWW	World Wide Web

OPERATIONAL DEFINITION OF TERMS

Attitude How a person feels, believes and behaves towards a phenomenon or an issue (Mcleod, 2018)

Media Convergence Merging of media platforms, operations, technologies or products from previously distinct print and broadcast news media (Lowrey & Becker, 2015)

Citizen Journalism Practice where news audiences participate in the creation and distribution of news stories through their own devices such as mobile phones and social media networks (Nah &Chung, 2009).

Converged journalism curriculum Content that integrates new media technologies in different journalism and communication courses. It replaces the teaching of print and broadcast media as separate news media platforms (Castaneda, Murphy & Hether, 2005).

Digital capital Accumulated digital competencies and resources (for example tools/devices) that enable one to effectively perform different digital tasks (Ragnedda, Ruiu & Addeo, 2020).

Digital natives People (mostly youth and teenagers) who have grown up under heavy exposure to and influence of different digital devices and new media technologies, for example, Internet and social media networks (Prensky, 2001).

Digital skills Skills or abilities related to proper use of digital devices, communication applications and networks to enable creation and sharing of content as well as use of tools to solve different work and life problems (Goodfellow, 2011; UNESCO, 2018).

Digital competence	The ability to confidently and critically use different digital technologies and tools to work, communicate and engage in leisure activities (Punie & Cabrera, 2006).
Digital natives	Those who were born and have grown up in the information age characterized by high creation, sharing and consumption of digital content through devices and platforms such as computers, mobile phones, social media, etc (Lowrey & Becker, 2015).
Experiential learning	This denotes 'learning by doing' and reflecting on the experience to learn what works and what doesn't. Thus hands-on experiences offer concrete learning for students (Kolb, 1984).
Industry experiences	These refer to the different forms of practical exposure to online journalism tasks at the classroom and industry level (case studies, practicums, internships, etc)
Internet literacy	The capacity to create and communicate online content as well as ability to access and critique different online information sources and their content (Van Deursen & Van Dijk, 2011)
Mobile journalism	Journalists' use of portable devices like smart phones and tablets to collect, edit and distribute news stories to audiences (Lowrey & Becker, 2015).
New media	Applications that enable the merging of 'old' news media platforms (i.e. print and broadcast media) with digital tools to create interactive and dynamic content (Iyer, 2015).
Online journalism	A type of journalism that entails gathering and distributing news content on different Internet-based platforms such as social media.

Online media habits Activities related to repeated access and usage of online media tools such as social media that makes these media tools almost indispensable and ubiquitous on the users' daily lives (Pew Research Center, 2018).

Online media tools Internet-based tools for creating, sharing and distribution of content (for example websites, blogs, social media, etc.) by different online audiences (Kanigel, 2014).

Self-efficacy A person's beliefs in their ability or capacity to execute actions needed to successfully perform a given task (Bandura, 1986).

Social media Online networks or platforms that afford users spaces to create and distribute content, ideas, etc. as they interact with each other (Jiang & Rafeeq, 2019).

Social Network Sites Online applications that enable participants to create personal profiles, invite friends to these profiles and share content (of different formats, for example image, sound, text, website links, etc) with each other within these personal spaces (Kanigel, 2014).

User-generated content Content that is created published or shared by users of a media or brand. For example, online posts (in form of text, images, videos, audios) from news audiences or general public about a news story.

Web 2.0 technologies Online collaborative tools that facilitate open participation in content creation and active engagement with one another (O'Donnell & McKnight, 2012).

ABSTRACT

With new technologies like Internet shaping the future of the news media industry, research on a framework to measure journalism students' confidence to professionally use these technologies is lacking. In addition, factors considered critical in the development of appropriate online journalism skills have not been systematically studied. To address this lacuna, this study sought to investigate the role of each of the following factors in predicting students' self-efficacy for online journalism: (a) characteristics of training content (b) training resources (c) online media habits (d) industry experiences and (e) attitudes to online tools for professional development in predicting undergraduate mass communication students' online journalism self-efficacy, OJSE. The study drew on three theories: experiential learning, technology acceptance and social cognitive theories. For data collection, a mixed methods approach was used. This involved a survey (n=182), five focus group discussions (8 participants from each school) and content analysis of online journalism modules of each school. The survey sample was proportionately drawn by gender from a population of all finalist undergraduate mass communication students in journalism schools of five Rwandan universities(N=293). The study tested null hypotheses that postulated no significant predictive relationship between each of the factors and the students' OJSE. Correlation analysis showed that all the factors correlated positively with the students' OJSE, with industry experiences having the greatest correlation (r=.527) and online habits having the least correlation (r=.270). Regression results indicated that each of the individual factors significantly predicted the students' OJSE. However, the overall model revealed insignificant predictive power of the training content and the students' online habits on the students' OJSE($p>0.05$). Industry experiences were the most significant predictor of the students' OJSE, followed by training resources and online attitudes. Qualitative results largely corroborated survey findings: most modules had a practical bias, indicated diverse online journalism skills to be learnt and expected students to produce lots of hands-on work. The FGD participants generally affirmed the role of these factors as incidental to their OJSE. On the whole, the significant predictive roles of industry experiences, resources and online attitudes behoves journalism instructors to leverage these factors in preparing 'online-ready' professionals. The study recommended that online journalism instructors provide adequate opportunities and resources to master relevant online skills, balance growing student numbers with technical resources and instill positive perceptions in students regarding the future of online tools for career success. In addition, respondents suggested the need to diversify the online skills taught and have realistic module descriptions. To enrich the results of this study, more factors (for example motivation for digital skills and digital capital) may be explored. Researchers can also use a longitudinal approach with a bigger population and to trace the development of students' online journalism self-efficacy from the time they enter the university to the time they graduate.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

The news media industry continues to experience a paradigm shift with mass communication scholars recognizing that Internet technologies have radically redefined how the news content is produced and consumed. Specifically, the Internet platform has fundamentally shaped not only how media practitioners source, create and share news stories but also how they solicit feedback from the audiences (Hamzah & Mustafa, 2014; Jeanti, 2015). In addition, this technological revolution has ushered in new story-telling formats that leverage user-generated content enabled by internet tools like social media. As a result, the traditional news media production formats for radio, TV and print are gradually being replaced by a new format of journalism and mass communication - referred to as 'cyberjournalism', 'online journalism' or 'digital journalism' that focuses on gathering and distributing news content for consumption by audiences in the online environment (Bethell, 2010).

With online journalism, practitioners can publish stories and instantaneously receive feedback from audiences on different Internet platforms (for example social media, email, websites and online newspapers). This technological shift has also bred the concept of 'mass self-communication' characterized by converged media and social media platforms that have allowed audiences to be critical producers and consumers of news (Cindy, 2014). Consequently, the notion of professional journalism and communication has been problematized since news production and distribution is no longer the exclusive province of trained media practitioners but a collaborative process among the practitioners and the 'citizen journalists' – the audiences (White, 2012).

1.2 Digital skills and readiness for journalism work

Studies have associated the possession of digital skills with people's employability (see Pirzada & Khan, 2013). For the 21st century networked communicator to remain relevant to their audiences and the industry in general, they are expected to demonstrate competence to exploit different online media tools (Veglis, 2010; Switzer & Switzer2013; Deuze, 2017). Such knowledge of digital skills has even become commonplace criteria in the recruitment of new media and communication professionals (Macnamara & Zerfass, 2015; Kanigel, 2014; O'Donnell & McKnight, 2012; Pew Center, 2014).

With practitioners and educators differing on the required 'employability' online journalism skills, it has been argued that determining the real digital media skills and competencies that journalists should have in such a fast-changing technological environment is an uphill task (Jiang & Rafeeq, 2019). Although most media training institutions have gradually incorporated digital skills in their curriculum and delivery of mass communication skills, it has been suggested that the fast-evolving digital media technologies require deliberate enquiry not only to catalogue the nature and diversity of skills on demand but also identify the most appropriate methods to deliver them to the future professionals (Iyer, 2015; Jeanti, 2015; Ramachandran & Balaguru, 2014).

Although the concept of 'digital skills' is not universally defined especially in the journalism context, this has been broadly understood as the skills that help users to effectively exploit the potential of the Internet and its related modern technologies to perform journalistic production tasks (Macnamara & Zerfass, 2015; Canute, 2012). Other scholars opine that such skills are the competencies that journalists need to potentiate web resources to achieve different professional goals (Marta-Lazo, Rodríguez & Peñalva, 2020). Even without a systematic framework that consolidates these digital skills in the media industry context, evidence seems to converge on a combination of digital skills such as multimedia production, social media, website production and data journalism as critical for the future media professionals. For example, in a study by (Finberg

&Klinger, 2014) explored perceptions of educators and practitioners regarding the core digital skills for future journalists. 38% of the media professionals considered the ability to produce audio stories as important while 72% of the educators supported this view. In addition, about 50% of the professionals rated video production skills as a key skill for future professionals, with 76% of educators confirming this. Photojournalism skills were also placed lowly by professionals (53%) as opposed to 79% of the educators. Finberg and Klinger considered these results as surprising since professionals seemed to place low premium on digital and multimedia skills even with glaring evidence of a rapidly changing industry dictated by new media technologies.

Another international study on the new media skills sought by the communication industry ranked the use of social media to engage with audiences first (40%), followed by multimedia content creation skills (39%). The ability to plan and measure results of social media activities were also rated highly (PRovoke, 2015). In addition, different media and communication experts argue that the use of digital communication tools and their analytics will be instrumental in future communication practices (Macnamara & Zerfass, 2015; Vinogradova, Melnik & Pantserev, 2018). Study findings also show that future media professionals must possess skills in publishing and production, journalistic writing, innovation and creativity with digital tools and web management skills, in addition to other emerging skills like data journalism and visualization (Theiss, 2018; Cremedas & Lysak, 2011).

In the broader context of developing the growing repertoire of digital skills for the Internet-driven industry, a fervent topic of debate has focused on what the dynamic technological changes portend for the ‘online readiness’ of the future professionals and the specific contexts in which the desired online skills are developed. One critical concern has been whether capacity building for the industry is being synchronized with the increasing digital skill demands. As stakeholders ponder on what these developments mean for the preparedness of the future professionals, it has become critical to rethink the academia-industry linkage as well as the digital culture and beliefs of the news

audiences (Cindy, 2014). Furthermore, as technology fuses with the traditional print and broadcasting platforms, scholars have urged new approaches of teaching journalism, enhancement of digital resources and leveraging the digital culture of students in arming them with the requisite skills to fit into the dynamic technology-based work environment (Cochrane, Sissons, Mulrennan & Pamatatau, 2013).

In developing the requisite digital skills and assessing the work readiness of online journalism professionals, factors associated with the training environment, digital culture, personal dispositions regarding technology among others have been identified as important (Deuze, 2017; Daniels, 2012; De Lara & García-Avilés, 2013). In addition, developing such skills has also been linked with enabling settings like at home (due to availability of several digital devices), peer interactions as well as in professional networks (Dunne, Lawlor & Rowley, 2010).

Measurements of the perceived digital competencies of people in different domains have mainly drawn on Bandura's (1997) concept of self-efficacy which helps to assess the people's beliefs in their ability to handle different digital skills. Bandura attributed people's judgment of their confidence to perform given tasks like effective Internet use to personal (for example attitudes), behavioural (for example use of technology) and environmental (for example infrastructure) dimensions. Bandura further underscored the importance mastery experiences with related tasks, learning from significant others (social modeling) and feedback from others in developing one's confidence to perform a task. Other studies (for example Iordache, Mariën & Baelden, 2017) underscored the role of online experience, comfort using the online tools, as well as user attitudes regarding technology in developing the digital competence of students.

While advocating for a broader interrogation of digital competence, scholars suggest that enquiry should move beyond the range of desired skills to explore the role of important dispositional attributes like digital habits, personal values, and attitudes regarding technology (Yakin & Erdel, 2012; Caballero & Walker, 2010). In a study by Holmström & Siljebo (2013), a relationship between students' positive perceptions towards new

technologies and the development of important digital skills was established. Although a host of dimensions have been explored with respect to the development of skills necessary to work in the online environment, scholarly evidence seems to foreground technology attitudes (Wright & Hinson, 2009), online behaviour (Daniels, 2012), work-based experiences (Correa, 2010) and factors of the training environment (see Iyer, 2015; Jeanti, 2015) as the main contributors to students' levels of confidence in using technology for personal and professional purposes.

Although UNESCO's (2007) model journalism training curriculum emphasized the need for a diversity of skills, including new media technologies, most journalism schools in Africa aspiring to be centers of excellence are hampered by poor adaptation to these new technologies due to low capacity in technical infrastructure, disjointed curriculum, low instructor qualifications, inexperienced journalism teachers and few opportunities for online practice. This view is shared by media scholars like Amukuzi, and Kuria (2021) who explored competencies of journalists in Kenya. UNESCO argues that the right curriculum and institutional capacity to teach emerging new media skills are paramount (UNESCO, 2007, as cited in Ireri, 2017).

In partnership with the Google News Initiative, UNESCO has partnered with 100 journalism schools in Africa to establish ways of making the training institutions 'centers of excellence' underpinned by competence-based curriculum and adoption of new media technologies. Like in other parts of the world, the competence-based learning approach has been employed in some East African countries (for example, Kenya and Rwanda) to ensure that students get career-relevant practical skills (UNESCO, 2021).

1.2.1 Developing digital skills for media professionals in Rwanda

Like other developing countries, Rwanda continues to mainstream new information technologies across different sectors as it moves to develop an information society underpinned by the use of digital tools (mostly internet-based) for socio-economic transformation. According to Miniwatts Marketing Group (2021), a company that

aggregates world Internet statistics by country, Rwanda had about 6 million Internet users by 31 December 2020. Out of this population, about 1 million were already hooked to different social media tools. Facebook was the most prominent social media tool at 63% followed by Twitter. As of August 2020, StatCounter, an Ireland-based web analytics firm indicated the top social networking sites among Rwandans as: Facebook (62.7%), Twitter (15.35%), Pinterest (10.64%), Instagram (7%) and YouTube (3.67%) (Bizimungu, 2020). A 2020 report by Freedom House indicated that Rwanda's mobile phone penetration was about 75% and this enabled most people to access and use social media content on these devices.

To anchor technology in all sectors of development, Rwanda has developed initiatives like the Smart Rwanda 2020 Master Plan that envisages a digitally literate society. This has been touted as an important enabler of appropriate infrastructure and capacity building for innovative use of digital technologies (Ministry of Youth & ICT, 2015). So far, crucial infrastructure like the fiber optic backbone as well as broadband have been erected to link all urban centers around the country. A study by Mwesigye (2018) explored the media and information literacy of a sample (n=100) of Rwandan journalism and mass communication students. Results indicated that most students felt 'literate' as far as interacting with media and information tools was concerned. This literacy was largely attributed to the students' exposure to social media tools where they accessed different types of information.

Despite the significant progress in laying out the necessary digital infrastructure, policies and capacity building for the envisaged knowledge-based economy, Rwanda's level of digital literacy is still considered low especially among most youth (Ministry of Education, 2016). At the 2019 Internet Governance Forum (IGF), Rwanda committed to promote internet literacy for digital inclusion among secondary school students aiming to meet its 11.8% literacy target by 2020. This resonates well with the ICT in education policy of the Ministry of Education which underscores the need to develop competent professionals to match the growing needs of a knowledge-based economy. In the context

of media industry development, this perspective was highlighted in the Media High Council's five-year strategic capacity building plan (2014-2018), which identified digital media skills as critical for current and future media professionals. The plan projected that building capacity for these skills will have been realized in 2020 among 80% of the media professionals (Media High Council, 2013).

Like other developing countries, Rwanda's rapid digitization, adoption of social media tools as well as the gradual use of mobile phones in news production and consumption can be considered as important indicators that the news media industry is undergoing transformation. This means that how Rwandans' access and consume news has also gradually changed. For example, a number of news media houses now have an online presence which makes it easier for audiences to access their content on the go (Habumuremyi, 2011). The impact of new media technologies in the media sector is also seen in the context of not only trying to evade the 'official editorial censorship' to reach out directly to the audiences but also leveraging these platforms for productive editorial meetings (Ngendahimana, 2016). However, concern has been raised on the growing misuse of these free online sites to incite discourse that negates the tenets of professional journalism (Beyene, 2012; Ndahiro, 2010). As a consequence, proposals have been made to regulate blogs and YouTube as news sites, in line with the increasing abuse of such online channels of information (Ashimwe, 2020). From a media business sustainability perspective, the Freedom House report (2020) indicates that a number of Rwandan media houses and practitioners have had to employ online channels such as YouTube to monetize their content to mitigate the financial challenges militating against the growth of the sector.

Despite Rwanda's growth in the telecommunications industry, most media houses are yet to adequately exploit the opportunities that these new technologies present. Although specific studies focusing on digital skills development have been rare, periodic media industry surveys generally indicate mixed reactions to journalism capacity building efforts for the industry. For example, a 2013 survey by the Media High Council found

that some training institutions focused more on theory than practice even where modules required practical content production. To bridge this gap, on-the-job training, invited guest speakers and actual field work especially supervised by the more experienced professionals were considered critical to prepare the future professionals for the job market (Media High Council, 2013). In the same survey, 50% of the respondents felt that the main hurdles militating against the creation and consumption of quality local media content in the country related to the poor use of technology as well as identification, development and distribution of local media content. Twenty-five per cent of the respondents opined that content producers were not well trained in new media technologies to create the much-needed quality content.

A 2014 survey focused on media business growth in Rwanda and largely corroborated the 2013 findings. Specifically, the results showed that 90% of journalists did not have adequate skills in information technology. Training opportunities to build these competencies were also rare. Among the key recommendation of the survey included the need for media houses to embrace new media technologies (for example, social media) to facilitate interactivity and collaboration with their audiences. The research also recommended that educational institutions step up efforts to build the necessary capacity for the desired crop of 'digital journalists' who can effectively drive the news content agenda for the new media age (Media High Council, 2014). Some steps have been made in this regard. Media houses like the New Times has organized trainings on data journalism, multimedia, writing for the web for 'fresh graduates and final year journalism school students' as well as working journalists. Also, in the wake of COVID-19 a series of mobile journalism (MOJO) trainings were offered to practicing journalists. In its 2019-2024 action plan, the Media High Council also underscores its commitment to devote more capacity building resources towards training media professionals in emerging media technologies in order to position professionals at the center of the technology revolution sweeping across the industry.

In its most recent Rwanda Media Barometer that sought to assess the level of development of the sector, the Rwanda Governance Board's survey found that 68.4% of the practitioners considered the media training institutions as capable of teaching the needed digital skills. In addition, 53.2% of them assessed those trainings offered currently as 'appropriate to their needs' but with several improvements to be made. The survey further recommended the need for regular appraisals of skills offered to future professionals in line with the changing media environment (Rwanda Governance Board, 2018).

1.2 Statement of the problem

Studies have established the urgency of preparing future media professionals for an increasingly Internet-driven industry (Ferrucci, 2017; Hamzah & Mustafa, 2014; Hirst & Treadwell, 2011). Although Rwanda's media policy (2014-2020) envisioned a citizenry with broad access to diverse news sources through the liberalized online news platforms, media stakeholders underline the media houses' laxed uptake and usage of the growing diversity of online tools to improve news production (Mwai, 2017). Despite offering modules on online journalism, media schools have been blamed for the low level of digital skills development in the industry (Media High Council, 2013).

With most media employers expecting to recruit 'industry-readiness' graduates, studies exploring if the future media professionals believe they are well-prepared to face the online journalism marketplace (online journalism self-efficacy) become significant. Current studies on self-efficacy for online skills have only focused on general Internet technology issues and social media skills (Kothari & Hickerson, 2016; Litt, 2013) with scant attention on the mass communication education context. In addition, a validated tool to measure online journalism self-efficacy is lacking.

In developing capacity for the digital environment, studies underscore the centrality of factors such as relevant module content, appropriate training approaches and facilities in ensuring that the future media professionals are well-tuned to emerging industry needs

(Iordache, Mariën & Baelden, 2017, Iyer, 2015, Jeanti, 2015, Pew Center, 2014). In addition, dimensions like exposure to new media, digital experiences and personal dispositions (including digital culture, beliefs, motivations and attitudes towards technologies) have also been touted as critical in shaping the development of digital skills necessary for the workplace (Jeanti, 2015; Kwanya, 2014; Switzer & Switzer, 2013; Iyer, 2015; Holmström & Siljebo, 2013). In Rwanda, it remains unclear how the above factors contribute to mass communication students' beliefs in their ability to perform different online journalism tasks.

It is against this backdrop that the current study sought to explore the predictive role of selected digital skills development factors in the online journalism self-efficacy beliefs of mass communication students in Rwanda. The key factors were identified as characteristics of module content, training resources, online habits, industry experiences and attitudes to online tools. By exploring the students' self-efficacy for online journalism and how this can be statistically predicted by the factors above, results were expected to inform policy, practice and further research into how the factors can be leveraged for better "online readiness" of the future media professionals.

1.3 Research objectives

1.3.1 General objective

The main objective of this study was to explore the role of digital skills development factors in predicting the online journalism self-efficacy of undergraduate mass communication students in Rwanda**.**

1.3.2 Specific objectives

To achieve this main objective, the following specific objectives guided the study:

1. To investigate the role of characteristics of training content in predicting the online journalism self-efficacy of undergraduate mass communication students in Rwanda.

2. To assess the role of training resources in predicting the online journalism self-efficacy of undergraduate mass communication students in Rwanda.
3. To determine the role of online media habits in predicting the online journalism self-efficacy of undergraduate mass communication students in Rwanda.
4. To assess the role of industry experiences in predicting the online journalism self-efficacy of undergraduate mass communication students in Rwanda.
5. To analyze the role of attitudes towards online media tools for professional development in predicting the online journalism self-efficacy of undergraduate mass communication students in Rwanda.

1.4 Research Questions

The study sought answers to the following research questions:

1. To what extent do the characteristics of training content predict the online journalism self-efficacy of undergraduate mass communication students in Rwanda?
2. To what extent do training resources predict the online journalism self-efficacy of undergraduate mass communication students in Rwanda?
3. To what extent do online media habits predict the online journalism self-efficacy of undergraduate mass communication students in Rwanda?
4. To what extent do industry experiences predict the online journalism self-efficacy of undergraduate mass communication students in Rwanda?
5. To what extent do attitudes towards online tools for professional development predict the online journalism self-efficacy of undergraduate mass communication students in Rwanda?

1.5 Research hypotheses

The study tested the following null hypotheses:

H_{01}: Characteristics of the training content do not significantly predict the online journalism self-efficacy of undergraduate mass communication students in Rwanda.

H_{02}: Training resources do not significantly predict the online journalism self-efficacy of undergraduate mass communication students in Rwanda.

H_{03}: Online media habits do not significantly predict the online journalism self-efficacy of undergraduate mass communication students in Rwanda.

H_{04}: Industry experiences do not significantly predict the online journalism self-efficacy of undergraduate mass communication students in Rwanda.

H_{05}: Attitudes towards online tools for professional development do not significantly predict the online journalism self-efficacy of undergraduate mass communication students in Rwanda.

1.6 Significance of the study

The significance of the results of this study derives from its different outputs. These results have implications for research, practice, policy and theory as discussed below.

1.6.1 Research significance

The findings of this study have bridged a gap in the existing literature by adding to the body of knowledge in digital skills development for the online journalism workplace. This pioneer study has employed a conceptual model to provide new empirical evidence on how training content, resources, online habits, experiences and attitudes regarding online skills, singly and in combination, can significantly predict or explain the development of students' self-efficacy for online journalism. The results will hopefully provoke deeper academic enquiry into this under-researched area in order to identify the optimum dimensions required in developing digital capacities for the dynamic news media industry. Possible future research directions are discussed in chapter 5.

1.6.2 Policy significance

The results present a handy reference for media stakeholders on strategies necessary to build new media capacity for future media professionals. Media educators in Rwanda and elsewhere could draw on these findings as a basis for defining the range of digital skills, resources as well as the best practices that are necessary to prepare future media professionals for the contemporary dynamic news media industry. In addition, the validated online journalism self-efficacy index can serve as tool for digital skills audit in journalism schools and media houses to gauge the competencies that urgently need to be developed and how online journalism courses can be structured to address these skills gaps.

1.6.3 Theoretical significance

The study results have largely validated theories enlisted in the study. From a technological acceptance model perspective, it was confirmed that self-efficacy for technology use is, to a large extent, predicated on how users of a technology perceive it to be easy to use and of direct benefit to their work. Thus, since most respondents perceived their ability to do online journalism tasks in tandem with this theoretical proposition, cultivating positive online behavior and attitudes for the expected professional dividends is critical for trainers and students themselves. The results also add knowledge to the social learning theory by demonstrating that beyond the mastery experiences, positive reinforcement by others as well as observing and imitating others, self-efficacy for technology especially in the context of online journalism could also be determined by factors such as attitudes and habits of the online tasks being explored. The prominent position taken by industry or work-related learning experiences in this study gives credence to the constructs of experiential learning theory – that real learning involves ‘experimenting with real-world practical scenarios’ (Kolb, 1984). In essence therefore, the theoretical frameworks of this study have been proved sound and could be replicable in similar studies elsewhere.

In the context of online journalism, this study has extended the theory beyond examining Bandura's four sources of self-efficacy, i.e. enactive mastery experience, vicarious experience, social persuasion, and emotional state to include student's online habits, attitudes and the digital skills learning environment as predictors of self-efficacy for online journalism. With empirical research showing positive correlations between people's self-efficacy and their actual performance, online journalism self-efficacy is to be considered a key construct for media stakeholders like trainers as they endeavour to prepare future media professionals for the digital industry.

1.6.4 Practice Significance

The assessment of online journalism self-efficacy provides training institutions, media educators, and students not only with insights on the crucial aspects of online journalism that students should master for industry readiness, but also affords the stakeholders a tool to use when refining the online journalism curriculum (Calvani, Fini, Ranieri & Picci, 2012). Such a snapshot of the digital skills required by newsrooms can provide handy clues on students' ability (or even inability) to face the online industry. With the dearth of literature on the development and validation of a comprehensive framework to assess perceived online journalism readiness, this study can be considered to have made a crucial first step. The developed online journalism self-efficacy index presents a comprehensive framework for trainers, media researchers, students and media practitioners to gauge the level of their digital skills in line with industry demands. While the current index provides a more accurate measure of the future media professionals' beliefs in their ability to execute online journalism work, the dynamics of emerging technologies will necessitate its revision with time.

1.7 Scope of the study

The study investigated the role of five independent variables (characteristics of training content, training resources, online media habits, industry experiences and students' attitudes towards online tools for professional development) in predicting one dependent

variable (online journalism self-efficacy). The study targeted all final year undergraduate mass communication students (N=293) in five purposively selected Rwandan universities. The study was informed by constructs from social cognitive theory, technology acceptance model and experiential learning theory.

A mixed-methods design involving survey, focus group discussion and content analysis was adopted in data collection. A sample of 182 respondents completed the questionnaires while 20 respondents (four from each of the five journalism schools) participated in five focus group discussions. In addition, a content analysis of online journalism modules in the selected journalism schools was carried out. Results were analysed using descriptive and inferential statistics. The triangulated findings were discussed and interpreted in line with the study objectives.

1.8. Limitations of the study

As with other explanatory studies, some limitations existed for this study. These pertained mainly to methodology and generalization of results. The study was limited to five independent variables believed to influence the development of students' online journalism self-efficacy. These variables, as the study findings have shown, only explained 45.5% of variations of online journalism self-efficacy – proposing that more variables (including extraneous ones) into the model could have revealed different results. This limitation notwithstanding, the researcher acknowledges the impossibility of accommodating all possible variables in one study. This research, however, is considered as a first crucial step into more other related studies that can consider more variables.

Since the survey was meant to elicit subjective perceptions, this presented a potential bias. Self-reporting has been associated with errors of personal judgment and therefore, might have led to inflated or deflated assessments of online skills abilities and the environments of acquiring these skills (Van Deursen & Van Dijk, 2010). With triangulation of results however, these biases were minimized. During the introductions

of the surveys to respondents, the researcher made efforts to request for candid responses with an assurance of confidentiality.

These above limitations notwithstanding, the study can be considered to have broken new ground and provided unique knowledge that clarifies the concept of ‘online journalism self-efficacy’ and how this can be predicted by different factors. In addition, the validated online journalism self-efficacy index is a unique contribution of how the online-readiness of future media professionals can be objectively measured.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Chapter 1 has discussed the general background, research problem and rationale of the study that sought to explore the role of selected digital skills development factors in predicting students' assessment of the self-efficacy for online journalism. The current chapter uses extant literature to discuss the conceptual, theoretical, empirical issues considered to underlie the role of digital skills development in developing confidence to perform online journalism skills. First, a theoretical framework explicating the three theoretical strands underpinning this study is discussed. Then, the variables of study are illustrated in a conceptual framework and further discussed as they relate to the study objectives. An empirical review of the study variables as they apply in related study contexts then helps to identify research gaps that underpin and locate the present study.

2.2 Theoretical Framework

2.2.1 Technology Acceptance Model

Davis (1989) propounded the Technology Acceptance Model (TAM) to explain how technology users decide to accept and use the technology. He argued that the perceived ease of use (for example requires little/more effort to gain a particular skill) and usefulness of a technology (to enhance one's performance) were central factors to people's acceptance and usage of the technology. Such perceived usability has been described in terms of how effective, efficient, safe, useful and learnable the technology is (Hsieh et al., 2017). In addition, studies have shown strong associations between people's acceptance of technology and their self-efficacy with that technology. For example, Mew and Honey (2010) revealed that when users consider a certain technology to be easy to use and beneficial to them, they gained more confidence to adopt it for different purposes. Different scholars have also confirmed that people's self-efficacy for Internet has also been related to how users perceived the ease of use and usefulness of

Internet in their personal and professional lives (Celik & Yesilyurt, 2013; Polites & Karahanna, 2012).

Other studies have used the TAM approach to underscore the role of people's attitudes or beliefs regarding technology in their eventual usage of the technology. For example, drawing from the TAM approach, readiness to use technology has also been conceptualized into attitudinal readinesss (how technology is generally perceived) and action readiness (how people perceive their interaction with technology). While the former conceptualization is a cultural dimension, the latter is based on skill (Nasution, Rusnandi, Qodariah, Arnita & Windasari, 2018). The authors suggest that both dimensions can predict people's beliefs in their capacity for digital innovations. According to Davis (1989), the action readiness demonstrates how a person's positive interaction with technology creates a perception of technology being a tool to accomplish individual and professional tasks. In addition, using the perceived benefits and ease of use as basis has demonstrated a link between people's positive attitudes towards technology and their beliefs in their ability to confidently use the technology for different purposes (Davis, Bagozzi, & Warshaw, 1989).

Using the TAM framework to predict what students' perceive to be the role of new media technology in their professional growth has been shown to be pertinent. For example, Davis (1989) deployed this model to examine the usage of social network sites by people. The amount of time people were willing to spend on the sites correlated well with the sites' usefulness and ease of connectivity. McNaught, Phillips, Rossiter & Winn (2000) used the same theoretical lens to highlight three additional dimensions that influence the successful adoption of technology by educational institutions to include policy framework (for example, technology leadership and relevant policies), supporting infrastructure (for example, labs and relevant software) and institutional culture (for example, innovativeness and attitudes to technology).

Relating to the current study, the TAM approach to understanding students' self-efficacy for online journalism can be seen in the light of how the students perceive exposure to

online media tools (for example, social media, online news sites, smart phones among others) as critical to their professional growth, ease of learning news story-telling with such tools as well as how dimensions like ICT infrastructure bear on their confidence for learning important online journalism skills.

In addition, with studies (see Jo, So & Kim, 2018; Steensen, 2011) demonstrating the relevance of TAM constructs such as technology benefits, ease of use, ICT environment and personal dispositions (such as motivations and attitudes) in users' assessment of their competence to use technology, this model aptly informs the current study. Specifically, the study objectives of module content, resources and attitudes towards online tools for professional development are captured by the essence of this technology model.

2.2.2 Social cognitive theory

As a theoretical concept, self-efficacy derives from Bandura's (1986) social cognitive theory which explains how people come to believe and get motivated to act on a given situation. Social cognitive theory proposes that how individuals perceive or believe, think and feel about a situation affects their ability or intention to act on the situation. As the main component of the social cognitive theory, self-efficacy denotes an individual's belief in their capacity or confidence to perform a particular task. The concept underscores human agency and helps to interrogate factors which determine what people believe they can accomplish. Bandura underlines that people's self-efficacy beliefs are not measured by the perceived skills acquired but what they believe they can accomplish with such skills obtained under given conditions (Bandura, 1986). Thus, judging one's capability to perform a task is, therefore, an assessment of what a person believes they 'can do' and not what he or she 'will do'. In this context, self-efficacy studies usually employ self-report surveys where respondents indicate their beliefs in their ability to execute given activities (Bandura, 1986).

According to Bandura, people's self-efficacy beliefs influence how they attribute the cause of their success and failure in a task. Thus, highly efficacious people see problems as challenges to be confronted and attribute failures to inadequate effort or factors that they cannot manipulate. On the converse, people with low self-efficacy avoid challenging tasks, are pessimistic and tend to attribute their failures to low capacity. Bandura argues that developing self-efficacy to perform a skill involves a complex interplay of behavioral, environmental, and cognitive factors. Particularly, he cites the role of four sources of self-efficacy information: previous experience, performance feedback, observational learning (modeling) and individual dispositions like attitudes and anxiety as critical in developing confidence to perform given skills. In addition, Maddux (2013) suggested imagined experience or visualization as a fifth source of self-efficacy information. This involves visualizing success as the only outcome of an activity and therefore, working hard to prove that one can realize this only outcome. To enhance people's self-efficacy for given tasks, scholars have also argued that people should be well-informed about the tasks to be done, well trained on how to do them and the right internal and external environment offered to allow optimum task performance (Sutherland & Ho, 2017).

Scholars argue that most studies focusing on perceived technology competence employ measures that assess people's self-efficacy for technology (Litt, 2013; Meelissen, 2008). Since the self-efficacy theory postulates that one's self-perceived ability to execute a task may indicate their actual capacity to successfully perform the task, the current study borrowed concepts from Bandura's (1986) self-efficacy model to assess the behavioural (for example, online tools usage), environmental (for example availability, accessibility and quality of training resources) and cognitive (for example, perceived professional needs from the online tools) factors to argue that Rwandan mass communication students' perceptions of the circumstances under which they acquired important Internet-related skills, may significantly bear on how they assess their self-efficacy for online journalism work upon graduation.

2.2.3 Experiential learning theory

In the process of acquiring skills for the workplace, scholars have argued that authentic learning is realized practically, where learners gain direct experience as they practice skills in a workplace fashion (Stoker, 2015; Mihailidis & Shumow, 2011). Propounded by Kolb (1984), this experiential learning theoretical approach positioned authentic learning at the nexus of theory and practice using real-world scenarios. Kolb argued that experiential learning helps learners to 'experience and reflect on a skill' (p. 11) and eventually consider what is working or not – through repeated trials. This theory has also been understood in the context of constructivist learning where students are allowed to develop knowledge as they create meaning from their real-world experiences.

In the context of technology skills development, scholars like Palonis (2010) have touted experiential learning as the single-most important technique of developing the necessary employability skills for the increasingly digital job market. For example, in preparing media students for the online market place, Switzer and Switzer (2013) argued that media educators can incorporate social media experiences into the online journalism pedagogy to enable the future professionals build professional confidence in using Web 2.0 technologies. In addition, the way students behave in their online environment has been linked with their ability to learn professional skills as the user-friendly features of most online tools afford students easy exploration and experimentation. For instance, in journalism education, scholars like Aifan (2015) have established that students' intensive use of social media tools (for example, in creating and sharing videos, posting comments and tagging industry professionals) has the potential to create learning opportunities relevant for their professional life.

Veglis (2015) used experiential learning theory to investigate the possibility of using Virtual Learning Environments and Learning Portfolios to upgrade ICT skills for journalists and journalism students in Greece. The results supported experiential learning where journalists and students learnt skills in 'real life' situations. Similarly, Kwanya (2014) employed this theory to examine the effectiveness of university-level formal ICT

training of journalism students in Kenya. He recommended the model as a suitable training approach for developing ICT skills in the new media era. In a bid to improve media education, UNESCO (2017) has also urged educational institutions to use new media technologies to rethink and renew curriculum and pedagogy in creative ways that reflect real-life applications.

The current study has thus utilized selected constructs of this theory (for example opinions regarding professional journalism development through online media exposure, digital skills learning with real-world examples or scenarios and perceptions of social media as media training tools) to assess the extent to which Rwandan journalism schools employed experiential learning techniques to strengthen mass communication students' online journalism skills. In addition, students' personal experiences with online tools (online habits) and their perceptions of such tools in shaping their careers as well as professional ability are interrogated in the context of this theory.

2.3 Conceptual Framework

As indicated in Chapter one, this study conceptualizes that mass communication students' self-efficacy for online journalism can be predicted from the characteristics of the training content, training resources, online media habits, industry experiences and students' attitudes towards online tools for professional development. A hypothetical conceptualization of the predicted relationship between the explanatory variables and the outcome variable is illustrated in figure 2.1. This represents the study's operational model that was tested to confirm or disconfirm the null hypotheses that postulated no significant predictive relationship between the selected digital skills development factors and the mass communication students' self-efficacy for online journalism.

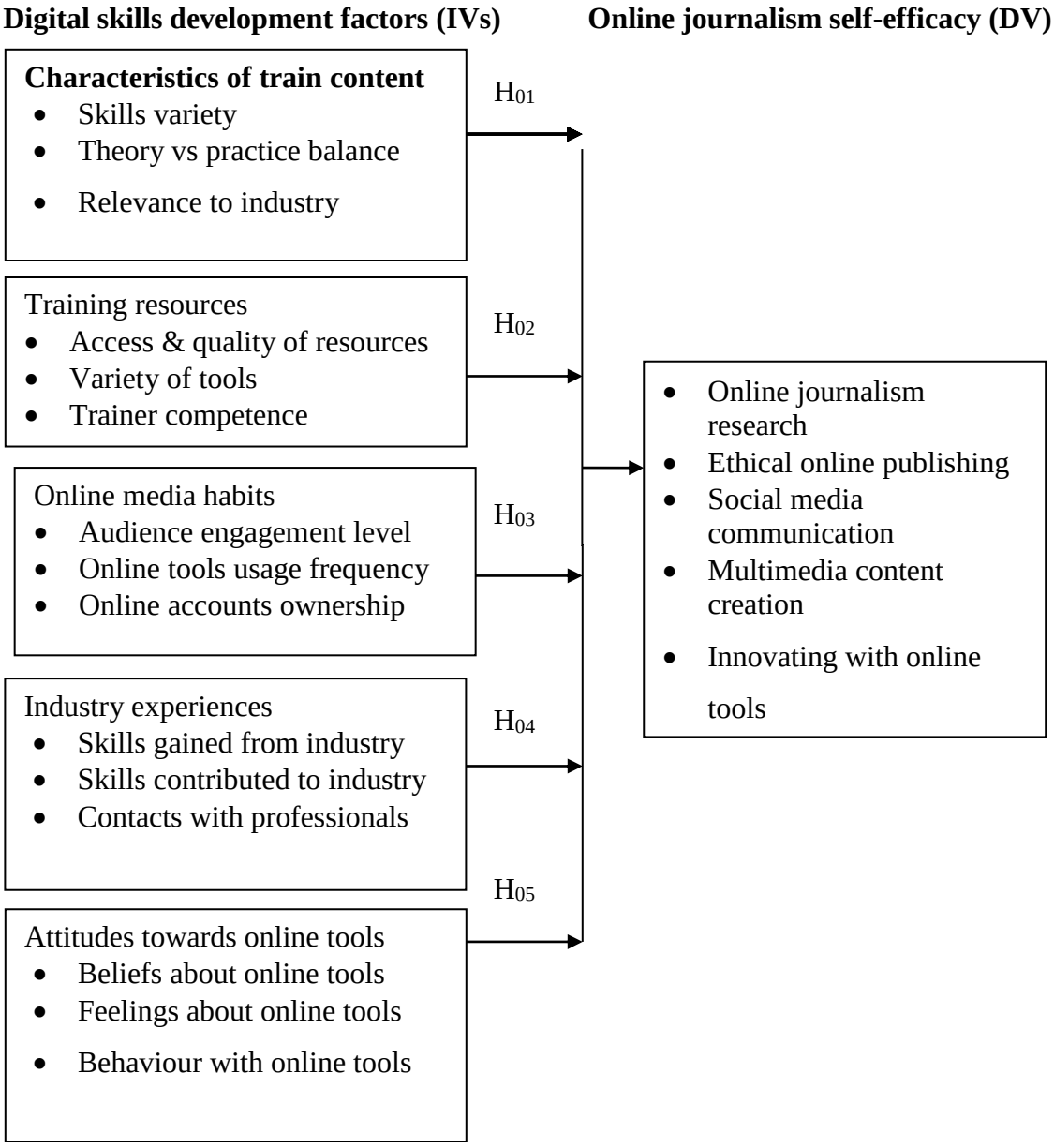


Figure 2.1: Conceptual framework of the study

In the next sections, a literature review of each of these variables as they relate to the objectives of the study follows.

2.3.1 Characteristics of the training content

The ubiquitous nature of new media technologies endears their integration into the media training content to facilitate engagement, participation and digital learning by

future professionals (Elavsky, Mislan & Elavski, 2011). Although evidence shows that today's media curricula need a technology component to enable students acquaint themselves with digital media tools as they join the industry, the way to incorporate technology poses a challenge (Pavlik, 2013). For example, an Australian survey by Tanner (2014) on journalism curriculum renewal showed the lack of a common understanding between educator and practitioners on what journalism education in the new media age should offer. Nevertheless, scholars argue that journalism educators have no option but to orient and align their training content with digital age requirements. They justify this retooling by suggesting that digital competence training is increasingly leveraging on the students' digital culture (Ferrucci, 2017; Oluchi, 2016; Aifan, 2015). Furthermore, the failure to align journalism training to the demands of the digital age industry has not only been considered to expose programs to possible failure but also negatively affected career paths of graduates (Poynter, 2013; McDevitt & Sindorf, 2012).

Researchers advocate for competency-based training content that is not only regularly updated but also that which simulates modern newsrooms. For example, some argue that modern use of social media in news production should feature in such trainings (Iyer, 2015; Hirst & Treadwell, 2011). Others argue that training on new media tools that reflect real-time newsrooms can be done as separate skills development or integrated within other journalism and communication courses, the same way some broadcast production units are designed to integrate different webb-based tools to share video content with audiences (Pavlik, 2013; Deuze, 2017). While still emphasizing on the need for tradition journalism skills, evidence shows the need for a good balance of training content that imparts skills in web development, multimedia production (for example photo, audio and video editing), social media usage in news production as well as writing, interviewing and critical thinking skills (Sue, 2013; Larkin, 2008). Apart from having online media skills for computer-aided research, researcher also suggest considering digital journalism as process where educators co-design learning content

with students to encourage innovation among the future professionals (Jeanti, 2015; Nistor, 2015).

Since newsrooms seem to set the trend of new media usage, it has been suggested that media educators should develop content that employs a mixture of social media tools (Twitter, Face book, blogs, etc) not only to demonstrate how to develop interactive online multimedia stories but also encourage students to use such tools to develop and publish their works for future professional reference (Cindy, 2014; Seelig, 2010; Robinson, 2013). By adopting a learning methodology where classroom exercises are developed in sync with how the newsroom operates, such an approach is considered critical in strengthening the students' practical skills in news production, although scholars argue that training will only be effective if the trainers have the necessary competence and the right attitude to these new media technologies (Iyer, 2015; Jeanti, 2015).

From the foregoing, it is clear that training future media professionals for the digital age requires identifying a concrete mix of skills to be taught and the right environment under which such skills will be taught. This also involves deliberate efforts by the journalism educators to retool themselves in line with the growing variety of new media skills being adopted by the industry.

2.4.2 Training resources

In the digital era, researchers advocate for a media training that employs appropriate technology to bridge the theory-practice disconnect (Cochrane, Sissons, Mulrennan & Pamatatau, 2013). It has been argued that if media educators can effectively appropriate social media tools in the journalism education process, the digital story-telling habits of the future professionals are likely to be improved (Aifan, 2015; Bor, 2014; Wenger & Owen, 2012). To avoid being overwhelmed by technology, researchers suggest that since educators may not know all online media tools, they can train students on online research skills and encourage them to discover more on their own (Schwalbe, 2009).

This is consistent with arguments that the digital era is gradually transforming journalism educators from being knowledge disseminators to mentors or facilitators of learning to their more digitally suave students (Terzis, 2009; Singer, 2008).

The media industry being a technologically-intensive domain, scholars consider digital hardware (e.g personal computers, digital recording devices and mobile phones) alongside content-management software and easy-to-use editing programs as key to content production (see Nistor, 2015; Eliasson & Jaakkola, 2014). The digital environment requires prospective journalists to be able to produce, edit news stories and repurpose the content for different media platforms, access to and knowledge of the right software and hardware for this production is key. Researchers argue for the need for media training institutions to update their technological infrastructure to align with the changing content production and sharing practices (Kwanya, 2014; Wenger & Owens, 2012; Tanner, 2014). To address costs media educators have been urged leverage the digital connectedness of their students by exploiting the range of new technology equipment (for example laptops, phones, recorders, etc) they own. This will circumvent the need to procure an exhaustive set of technological resources by adopting the Bring Your Own Devices (BYOD) principle to facilitate this more mobile way of learning and practicing journalism (Eliasson & Jaakkola, 2014).

To enhance digital learning, scholars call for a connected multimedia environment that affords unrestrained opportunities to students to experiment and freely practice their online production skills (Bethell, 2010). Although digital skills development requires some investment in the right mix of digital tools and Internet connectivity, it has been suggested that more affordable media platforms like mobile phones and free online software need to be explored (Switzer & Switzer, 2013). This is because of the impossibility of media training schools procuring every new media gadget on the market (Alves, de Souza Filho, Moura & Brito, 2014). Researchers argue that when armed with a cell phone and digital curiosity, media students can circumvent the costly production equipment (cameras and recorders) to produce quality stories. Moreover, if connectivity

costs can be kept low, students can be trained to refocus their use of mobile phones from a social tool to a working tool Bethell (2010). A study by Jjuuko and Njuguna (2019) revealed that the use of mobile phones for journalistic production has salvaged the sad situation of most journalism schools in Rwanda that are hampered by lack of financial means to procure the more expensive technical equipment like video cameras.

In a nutshell, increased technological changes have called for not only new ways of teaching journalism but also improved infrastructure. Although the traditional infrastructure (video cameras, recorders and physical studios) are still fashionable in most journalism schools, digital journalism has challenged educators to adopt more dynamic tools like mobile phones and other online tools to enhance journalism learning. This is gradually becoming the norm rather than exception in journalism schools globally.

2.4.3 Online media habits

The way people engage with social networking sites has been associated with outcomes such the development of social capital, self-esteem and general personal and professional well-being of the online users (Brown, Czerniewicz & Noakes, 2016; Chaka, 2011). Such online engagement is usually discussed in the context of nature of active accounts they keep, how users represent themselves online (identity), their active behavior online (for example commenting, liking, etc.), gratifications derived from such engagements and the contexts which shape their online habits, for example, norms of their online groups.

As mentioned in Chapter 1, the youth, prominent among them students, are considered ardent consumers of content from technologies like mobile phones and different online tools like social media. Research has shown that with the advent of collaborative media such as social networking sites, these youth live in two worlds – the physical world and the virtual spaces (Hatlevik & Christophersen, 2013). In addition, because of their proclivity for creating and sharing different types of content online, these online users

are branded ‘digital natives’ for their digital agility in spontaneously experimenting with and using the different features of different online tools.

By quickly adopting and engaging with emerging new media tools, most of these ‘millennials’ have been observed to develop crucial online habits, with some researchers arguing that these online media habits predict greater and more sophisticated use of the different web tools (Narasimhamurthy, 2014). Consequently, this habit-driven skills development has been considered a classic example of potential professional self-teaching (Buckingham, 2007). However, some researchers have debunked the ‘digital natives’ myth by establishing that not all youth develop tangible professional skills by virtue of their online behavior – most lack orientation on how to leverage online tools for professional growth (Bor, 2014; Abe & Jordan, 2013). Thus, although many students may consider themselves digitally literate, their use of Internet may not be spectacularly innovative and creative but just the mundane retrieval (or creation) and sharing of communication content on different online platforms (Buckingham, 2007). This is despite research suggesting that many online users (especially students) gradually develop an instinct to ‘gather’ stories by using their mobile phones to capture images and video clips and share them with their friends in different online networks (Switzer & Switzer, 2013). Other studies have also shown that most social media habits relate to reading and posting comments, making new friends, watching videos and listening to music and to a smaller extent, participating in educational activities (Kocadere & Aşkar, 2013).

Researchers who champion skills development through online experience cite the adaptable user interfaces of many new media tools and the ease with which people can learn different online applications through exploration, experimentation and collaboration with others (Kaasbøll, 2014; Buckingham, 2007). Thanks to the freely accessible and user-friendly online tools, the youth are now able to define their information behaviors including what and how they consume on different platforms (Cohen, 2013). The prominent social networking sites like Youtube, Twitter, Instagram,

Facebook and LinkedIn also form a popular channel for knowledge sharing and generation as well as self-expression among college students. For example, with free websites, editing software and a host of social networking sites, students can have new avenues for formal and informal learning interactions, where anyone can publish media-rich, audience-engaged online content (Jeanti, 2015; Theiss, 2018).

A study conducted by Gangadharbatla, Bright and Logan (2014) provided sound evidence to correlate one's high social media exposure with their likelihood of gaining confidence in the adoption and usage of other online technologies. In light of this study, this implies that students' perceptions of digital competence is linked with how they employ the online tools for their personal or professional growth – and that as their digital usage confidence rises, they might find innovative ways of engaging with the technology. Heavy adoption of new technology is therefore expected to lead to increased self-efficacy to use technology for different purposes. Other scholars extend this argument by asserting that, although confidence in using a technology starts with using a variety of the tools, previous experience with the technology will determine the nature of technological efficacy beliefs. Having experienced positive results from previous use of these tools (due to their user-friendliness and benefits) will therefore, lead to increased self-efficacy for the future use of technology (LaRose, Mastro & Eastin, 2001). Drawing parallels with this argument, some researchers conclude that confidence for professional technology usage among the digital generation is dependent not only on the nature and types of Internet tools they use but also positive or negative experiences they have had with them over time (Gangadharbatla, Bright & Logan, 2014).

Relatedly, high technology users are considered to possess a huge digital capital as indicated by the amount of energy and time they invest in mastering the use of such technology as well as how they build their online social networks for different purposes (Helsper, Van Deursen, & Eynon, 2015; Selwyn, 2004). This view is congruent with a position by Ofcom (2013) that 'tech-savvy' people consider the different online

platforms that they are associated with as only second nature to their personal lives and would go to any length to discover the affordances of these platforms in their personal and professional lives. By the participative and interactive character of Web 2.0 tools online users are provided with personalized and collaborative forms of learning (Deng, Liping & Tavares, 2015). Scholars have argued that by associating perceived digital competence with the level of innovativeness with technology, the interest and enjoyment that one draws from the technology task enable them to self-regulate their technology learning experiences (Correa, 2010).

Robson & James (2011) examined how the personal use of new media by selected public relations staff influenced their professional use of social media. Their study revealed that using social media for social reasons also provided the necessary knowledge and confidence for actual public relations work. They considered personal use of social media tools as having provided a base for testing out their readiness and ability to deploy the tools at a more professional level. The authors considered this as a natural evolution of technology adoption where technology usage and skills from a basic personal level gradually evolve to professional level usage.

A key benefit of participating in the social media space has been the use of such networks to remain updated by sharing comments and opinion on anything, 'from personal to professional' (Robson & James, 2011, p.4). Since frequent use of a technology drives its competence, it has been argued that important professional knowledge can be reinforced through the repeated usage of such technology (Blayone et al., 2017). This indicates that frequency of use of new media technologies may predict a more complex professional experience after some time. Such frequency builds confidence, an important predictor of one's readiness to discover new situations and extend the digital capacities already gained (Hargittai & Hinnant, 2008).

Evidence shows that by using different media channels, journalism students may incidentally develop some production skills through informal learning (Eliasson & Jaakkola, 2014). Although researchers warn that new media overexposure may not

automatically lead to professional competence in the tools used, the exposure can be harnessed for professional learning purposes. In the context of online media, Yang (2016) considers online environments as ideal for the development of students' self-direction as they pursue their professional goals.

The foregoing discussion demonstrates the role of online behavior in developing important skills. It is evident that, although students' personal use of social media and other online tools is focused on social and personal gratifications (for example information sharing and general online interactions), incidental learning has been found as an effect of this exposure.

2.4.4 Industry experiences

To develop concrete skills for work readiness, researchers suggest that students should engage in real or simulated work experience – through a series of fieldwork experiments, engaging in volunteer opportunities as well as participation in on-site trainings provided by the industry (Olusegun, 2015; Bhuiyan, 2010). In the news media context, students may also create their own online platforms like blogs, social media accounts and websites to create an online presence and space for self-expression. These experiences afford students valuable learning opportunities not only on how knowledge learnt is integrated into practice, but also how new knowledge and skills is developed from the actual work experiences (Powers, 2012). While studying the risks of not encouraging journalism students to seek actual practical environments through extra-curricular experiential activities, researchers have cautioned that students might miss out on work environments that shape the growth of their professional abilities, especially with most training institutions having meagre practical training and learning facilities (Olusegun, 2015; Cindy, 2014).

With the perpetually changing media environment, scholars argue that students cannot understand how the media industry operates by just reading books and attending lectures. (Gugerty, 2011). They must explore real world learning experiences to put the

largely theoretical classroom knowledge into practice. Scholars vouch that such work related learning experiences greatly boost the self-efficacy of students through the acquisition of appropriate practical skills and professional networking opportunities (Olusegun, 2015). The benefits of such exposure notwithstanding, some scholars expect that the effectiveness of the work experiences will be measured on the diversity of practical skills obtained in conformity with professional expectations of the program which students are pursuing (Theiss, 2018).). In the media environment, scholars seem to agree that a practice-based program like journalism needs to create a learning environment for students where they can test their creativity and ability through authentic practical exposure (Cullen, Tanner, O'Donnell & Green, 2014).

Gugerty's study (2011) on the field-based experiences of public relations and advertising students revealed that the practical exposure boosted their perceived industry readiness of the students. While some students hailed some technology learning experiences as more superior to what they had used in class, others saw these as eye-openers on how inadequate their digital infrastructure and skills learnt were. Thus, these perspectives underscored the work environment as the most credible index of students' readiness to perform professional work. Gugerty further suggests that the value placed on the field experiences by the journalism students could be attributed to industry demands as the yardstick that jolts them to match up to desired skills before they join the actual employment.

By their participation in practical activities like online newspaper publishing or school website production, students get an opportunity to appraise their ability to publish or create news media platforms in real industry situations. In addition, they improve their skills in critical thinking, communication and collaboration on similar projects at work (Royal, 2015). In essence therefore, such industry simulations provide students with authentic learning opportunities that are critical in creating the connection between the academy and industry.

In the opinion of Lewis (2010), students develop a heightened sense of self-efficacy for social media tools when they are able to create their own social media accounts and actively engage other through these tools. In addition, when students engage in social media communication in the coverage of real events such as graduation ceremonies, updating institutional web pages as well as researching, creating and sharing of real stories online, this indicates an enactment of their mastery of professional experiences through digital exposure, as underlined in the social cognitive theory by Bandura (1986). In addition, the consumption of and interaction with online news content developed by industry professionals has been considered to facilitate the modeling of professional behavior among the future professionals. This is because the students vicariously learn by observing and participating in the online works (e.g through reading, and commenting) of those in the industry (Daniels, 2012; Eliasson & Jaakkola, 2014).

Consequently, scholars consider social media tools as platforms where media students can jump-start their career ambitions, for example by publishing their works (through blogs, personal websites and social media channels like Youtube) and reaching out to professional networks for comments (Deuze, 2017). A study by Cindy (2015) illustrates how students can develop their field production skills by participating in an annual technology conference (Southwest Interactive Festival) hosted at the University of Texas. As part of their online media course, the journalism students employed online tools like Twitter, live streams, video interviews, Skype, Instagram and WhatsApp to cover and publish the event online. Their interactions with different professionals at the festival and their online publications created good reference during future job interviews.

The foregoing discussion indicates the centrality of work-based experiences in harnessing students' online skills. There is scholarly consensus that mainstreaming such industry experiences in journalistic learning would go a long way in drawing a link between what students learn in theory and what happens in practice.

2.4.5 Attitudes towards online tools for professional development

Students who believe that technology can positively influence their professional development possess higher technology self-efficacy than those with contrary beliefs (Abe & Jordan, 2013). In assessing people's attitudes, most researchers employ the three aspects expounded by Ajzen and Fishbein (1980), that is, cognitive aspects, affective aspects and behavioural aspects – to understand people's dispositions towards something (Espuny, Gonzalez, Lleixà & Gisbert, 2011; Lewis, 2010). In the technological context, therefore, the cognitive aspects refer to one's ideas, awareness, beliefs and knowledge about technology; the affective aspects focus on a person's general feelings of emotions to technology while the behavioural aspects refer to intention or expectations to use technology. Davis (1989) used the Technology Acceptance Model (TAM) to assess how the three dimensions of attitudes affected students' successful use of technology. Results confirmed that students' attitudes towards the technology impacted how they felt about its usage and relevance to them. These results are consistent with a study by Jegede, Dibu-Ojerinde and Ilori (2007) who confirmed that a significant relationship obtains between people's attitudes and their perceived competence with different technologies.

A study by Li (2007) analysed the opinions of students and teachers regarding technology as a learning tool and found that 87% of the students valued technology for its efficiency and possibility of executing different tasks concurrently. Students in the study enjoyed working with technology as it boosted their motivation and confidence levels. Although previous research (for example Palak & Walls, 2009) shows that a relationship exists between people's attitudes and their perceived technology competence, the study by Li revealed only a slim relationship.

Although the association between students' attitudes towards online media tools and the actual job performance is not easy observe, it has been established that positive attitudes may eventually lead to action (for example, engaging in online interactions for professional learning) (Iyer, 2015). Moreover, positive attitudes about new media

technologies have been associated with increased dependence of Internet as a trusted source of information as more users appreciate the medium with vast sources of skills and knowledge on just about anything (O'Donnell & McKnight, 2012).

Like other students, mass communication students are surrounded by a plethora of new media tools. The high use of new media technologies has been associated with the possibility for professional development, if oriented well to the users. Yet with scant research on students' attitudes to such technologies for professional growth, it is complex to know how the affordances of these tools can be harnessed. Establishing the extent to which such students view the professional benefits of interacting with new media technologies is crucial. This is especially since researchers have established that people who belief that technology adds value to their personal and professional lives demonstrate positive attitudes and behavior to the technologies (Purcell, Rainie, Mitchell, Rosenstiel & Olmstead, 2010).

From the foregoing, it can be argued that the way students perceive technology is crucial since it has been considered to affect how they get motivated to engage with the technology. Since it is clear that students' attitudes towards online collaborations can influence how they work and learn online, exploring students' perceptions on online communications and collaborations can be expected to help align their acquisition of important digital skills as they prepare to communicate professionally in work environment.

2.4.6 Online journalism self-efficacy

Although no studies specifically measuring online journalism self-efficacy exist, available research has focused on the different efforts made by media stakeholders to build digital capacity and confidence for mass communication students and practitioners. The concept of 'self-efficacy' denotes a person's beliefs about their abilities (or confidence) to perform desired tasks (Bandura, 1986). This study operationalizes online journalism self-efficacy as the mass communication students' beliefs in their abilities

and competence to perform given online journalism tasks. In different studies, this concept is addressed under the banner of digital readinesss, skills or competence required for journalism practice in the digital age. In the context of this study, these online journalism skills are categorized into online journalism research, news content creation, social media communication, ethical publishing and innovative problem-solving with online tools.

While what constitutes measures of perceived online readiness in the context of journalism practice has mainly been discussed under the diversity of digital skills that future media professionals are expected to possess as they transition to the online workplace (for example Ramachandran & Balaguru, 2014; Rosenbaum, 2014), some studies have made attempts at measuring this concept. For example, Theiss (2018) used a qualitative collective case study approach to explore desired digital competencies needed to cope in an increasingly converging media environment by journalists in the Swiss German media industry. The study identified the skills desired in a converged media environment as underpinned by competencies that foreground the ability to publish online content, innovate and create with digital tools, handle technical aspects, write well as well as develop social and emotional, cognitive, leadership and management skills in the online environment.

Although Covello (2010) endeavored to compile digital readiness measures used globally, there was no consensus on what attributes were measured and how. Other scholars argue that such measures are usually focused on temporal (certain ICT skills are gradually replaced by emerging new media which may not yet be defined), industry-specific (digital readiness differs as per skills sets required in a certain domain), and platform specific applications (Lowrey & Becker, 2015). According to Ferrari (2013), today's digital readiness or competence implies the ability to understand and effectively use new media technologies, to search for useful information while being critical of what is online. Digitally competent users will also demonstrate ability to create online content and communicate well with others through a diversity of digital applications.

Ferrari's approach to digital competence is in tandem with the views of researchers like Van Deursen &Van Dijk (2011) who foreground the ability to navigate online environments, develop social media interaction skills as well as innovate with digital tools as critical in preparing work-ready graduates.

For lack of a proper digital skills framework in journalism and communication, Sagrista & Matbob (2016) suggested the need to explore the extent to which journalism students feel they possess these critical skills to equip them to face the new demands of the digital world. The authors argued that such general skills could be contextualized in journalism practice and used as measure of readiness for the industry. In the new media context, students need to possess competencies that enable them to understand how an online environment is evolving and what this means for the industry. Since the contemporary media industry seeks professionals who are proficient in creating stories for multiple platforms, researchers suggest that future practitioners should demonstrate confidence in the basics of video and audio editing, creating web sites and also use of new media applications (for example, blogs, micro-blogs, video-sharing sites, wikis, and social networking profiles) to produce and distribute their content to multiple audiences (Powers, 2012; Burns, 2011; Larkin, 2008).

Although journalism professionals are not expected to master all new media skills set, they have been urged to at least strive to have knowledge of the basics of each emerging tool – at the bare minimum (Briggs, 2007; Iyer ,2015). Briggs (2007) proposes the capability to write, shoot, edit, talk, and look good on camera as good enough for any medium. Consistent with this view, Canute (2012) advocates for a journalist who is prepared to blend his traditional journalism skills with multi-media capability through combining the talents of existing disciplines. Despite the industry relevance of tools like HTML, photo-editing software, Content Management Systems (CMS) and even flash, writing skills are still emphasized although online journalists should be able to adjust to the reality of online narratives, integrating multimedia elements to news stories (Steensen, 2011).

To survive the wave of new technology and fit into the industry, Kaasbøll (2014) recommends that journalism graduates should demonstrate confidence in producing content that can be posted on the web, create and post content on blogs, do professional photography and audio-visual productions as well as and be active on social media networking activities as they enter the modern workplace. Since journalists are expected find sources via social media and instantaneously interact with audiences across the different media platforms, an understanding of content production variations across the different formats is crucial. Kaasbøl (2014) further urges that future professionals need to be familiar techniques of conducting computer-aided research and managing online databases as a way of using Internet for newsgathering. In addition, it has been suggested that media professionals need to be trained to moderate online discussions and interact with audiences on different web-enabled platforms (Deuze, 2017; Cindy, 2014). Badia et al. (2015) add that new media platforms should develop in graduates the proficiency to write, edit and publish online and also equip them with appropriate skills for the entrepreneurial-driven industry.

In a news environment increasingly defined by data as story sources, Veglis (2012) argues that future journalists should be ready to employ programming techniques to simplify and analyze complex data obtained from different online sources. To effectively tell a story, such data may need to be presented in infographics, a data visualization skill in increasingly high demand. Although most media houses and training institutions are yet to explore the full range of online possibilities offered by new media technologies, a number of them have introduced advanced skills like artificial intelligence, data visualization and web analytics as part of the complex data-driven story-telling techniques required in future newsrooms (Yang, 2016; Pew Research Center, 2014).

With these dynamic data gathering and story-telling techniques, scholars argue that future journalists will need to be techno-savvy, adaptable and innovative with the technologies. Moreover, faced with a deluge of online information from different

sources, the professionals need to be confident with evaluation skills to filter facts from fiction and establish the reliability of the information obtained from various online sources. For this to happen, they will need familiarity with legal and ethical issues affecting online practice (Picard, 2014). In general, successful navigation of the digital environment will depend on well-developed media and information literacy skills to enable a user critically interact with information in an online context (Tellería, 2012).

While use of social media tools may have weakened the gate-keeping role of journalists, the practitioners have been forced to adapt to new computer-assisted research techniques. To balance their role as professionals with the avalanche of unverified stories from different social media sources, they have had to learn new fact checking and verification strategies to ensure reliability of stories they publish from the different online sources (Singer, 2011). In their twin survey involving online journalism educators and practitioners, Oselydnu and Hornburg (2011) rated the top skills on which both groups agreed were important for future media professionals. It was evident that although web production skills enjoyed higher support from the educators, the practitioners ranked them lowly. This suggested the need for further debate on the role of web skills in journalism practice. To establish the technological competencies that the news media industry is demanding from future professionals, Marta-Lazo, Rodríguez & Peñalva (2020) content analysed 119 scholarly articles on training of media professionals on new media technologies from 1998 to 2017. The results suggested that journalism schools need to integrate the traditional journalism skills instruction with new technologies and show how these new tools affect the economic survival of the industry.

Although a comprehensive mix of the digital skills required for media industry readiness is yet to be developed, debate about these skills suggests a convergence of opinion about the need for future professionals to be able to effectively conduct research and audience analytics with different online tools, create and distribute content in different formats, effectively utilize social media tools to collaborate and share content with different

online audiences, observe responsible online publishing as well as innovate with the online tools to solve organizational problems.

2.5 Review of empirical literature relating to the study variables

Studies have explored the role of different factors in developing digital skills or competencies especially among students and working professionals. What follows is a review of selected empirical works depicting how the independent variables of the current study have been associated with developing the target respondents' confidence or ability to handle different digital journalism tasks especially at the professional level.

2.5.1 Characteristics of training content and online journalism self-efficacy

In their study, Becker, Vlad and Kalpen (2012) analysed the content of the curricula of 82 US journalism and mass communication schools and investigated how 2,195 graduates perceived the content studied as having prepared them for the workplace. More than 70 percent of respondents felt the curriculum prepared them to "write for the web, edit for the web, use and create blogs, and use the social media professionally" (p. 1). Although more than 50% were in jobs that required social networking and collaborations, only few whose coursework prepared them in writing, editing, and developing visuals (for example photographs) for the websites could perform tasks in web animation and create content for mobile devices, The researchers proposed to analyze the actual syllabi to determine elements that played into digital skills development and any gaps.

A study by Wotkyns (2014) used an online survey to examine student satisfaction (efficacy and relevance of curriculum) with a new convergent journalism major in an Australian university. Using a population of all the journalism students pursuing this major, results showed 88% extreme to moderate satisfaction with the knowledge and skills taught, confirming that the students' expectations of learning were being addressed. To confirm this, selected employers gave anecdotal feedback suggesting that graduates possessed relevant skills in content creation and distribution through different

platforms. In the study, however, a few students expressed anxiety for learning new digital platforms as they risked becoming jacks-of-all-trades but end up mastering none of the skills. Wotkyns concluded that producing content on multiple platforms, on tight budgets, might just need general journalists competent in reporting, writing, photography and video.

In a study to explore the effectiveness of ICT education in the journalism schools in four Kenyan universities, Kwanya (2014) surveyed 78 journalism students and also reviewed their course descriptions. Although slightly more than 60% of the surveyed students considered the ICT courses undertaken to be heavy on theory with minimal practical sessions, most appreciated the wide exposure to a variety of ICT skills - computer fundamentals, web design, ICT security, online information search skills, blogging, new media ethics, policies, Desktop Publishing and MS office proficiency in the course of their studies. They considered such skills useful in news gathering, consultancy, data management and public relations work. Forty five percent of them blamed infrastructure – especially inadequate computers, unguaranteed Internet access as the main barriers to effective ICT instruction in the surveyed schools. According to 30% of them, more practical lessons with students being encouraged to create online tasks would go a long way in matching the education with current industry trends.

Hodgson & Wong (2011) assessed the learning effects of media educators' integrating of course-blogs in news writing among 52 journalism university students in Hong Kong. The researchers administered an online survey that had 23 five-point Likert scale statements and five open-ended questions as well as a focus group comprising five students. Students were interrogated on the learning effects associated with making the blogs, how proficient they felt in their online publishing in these blogs, the skills they gained in the process and the nature of the learning community they developed through the blogs. On the whole, the students hailed the blogs as having boosted their skills to work in an online environment by the online portfolio they built.

To explore better techniques of teaching journalism courses, Daniels (2012) surveyed the relationship between high technology use and the opinions of 203 Southwestern university students regarding their journalism classes and industry in general. Unsurprisingly, the findings showed that journalism students are some of the most zealous users of new media technologies (90.7% used at least one social media service daily, with 44.4%) using YouTube between three and six days weekly) with a majority preferring to consume media online. Despite their frequent online interactions, evidence suggested that most students prefer face-to-face to online learning. Though research shows that many journalism educators are modifying their curricula to align it with the digital culture of the students in general, there is evidence that a number of journalism programs have continued to adopt a model dictated by the industry (Switzer & Switzer, 2013).

Although studies relating the journalism courses taught and students' confidence to work in the industry are few, the foregoing empirical review indicates that in the online journalism context, the type of content taught and how new media tools are integrated in the journalistic learning process are crucial to students' satisfaction with the program and general readiness for the industry.

2.5.2 Training resources and online journalism self-efficacy

The advent of new media technologies has led to radical shifts in the nature and types of resources required to prepare future professionals for the industry. This includes revamped technical infrastructure, more practice time and retooling of educators. Studies show how this shift has impacted on journalism education.

To cultivate professional media behaviour in journalism students, Marinho and Pinto (2006) consider an appropriate multimedia environment as critical. Both lecturers at the University of Minho School of journalism, created an enabling environment for creative and innovative thinking among students in 2001 (i.e. a fully-equipped multimedia journalism laboratory connected to the internet, an audiovisual lab and press room for

providing access to daily news). By exposing students to these facilities, the lecturers observed that students gradually acquired important digital skills competences by immersing themselves in a multimedia environment.

A study conducted by Alampay (2006) explored how Filipino youth accessed and used Internet as habits, with results indicating that the youth mainly accessed Internet through their Internet cyber-cafes and computer laboratories in their schools. The results showed that among other factors, availability of infrastructure was a critical barrier of ICT access in the country. Alampay (2006) argued that with an Internet-ready environment, an almost-unlimited range of possibilities for their users is offered and students can use search engines like Google or Yahoo to carry out their research – in light of massive databases of online information on virtually any topic. Such infrastructure can also be useful in supporting various aspects of the curricula.

Evidence has shown that the ready access to different social media tools and free editing software being gradually appropriated in journalism education and training, the story-telling and multimedia production skills of the future professionals are being enhanced (Aifan, 2015; Hirst & Treadwell, 2011; Quinn, 2010). Studies show that the connected online environment offers unlimited tools to ennhance practice in online production. This way, students are able to extend their formal journalistic learning to the individualized online spaces which afford them more practical time and clarifications of concepts learnt (Salaverria, 2011).

2.5.3 Online media habits and online journalism self-efficacy

Studies have associated the online behavior or habits of students with incidental professional learning. In a study exploring how journalism students perceive the changing media industry, Daniels (2012) sampled 203 undergraduate journalism students from a US university in the South-West. The students reported to be highly dependent on new media tools, with the majority preferring to interact with each other and consume news online. The students had an optimistic opinion on the evolving

changes in the media industry and were inclined to adapt to it. Despite the glamour of online interactions, a number of the students still preferred the face-to-face interactions with their instructors.

To assess how journalism students formed their online news habits, Diddi, Arvind and LaRose (2006) surveyed 162 students from University of Gothenburg and 167 from University of Tampere. Access to a diversity of online media tools was observed to be key in developing the news media habits of the students. Furthermore, the nature of social media and content management tools used by the instructors greatly determined how the students formed their online habits. One conclusion from this study was the need for future media professionals to invest in a diverse online media diet showcasing their online works (for example in blogs) which would be handy in seeking for a job. The students' media habits were therefore regarded insightful into the job self-efficacy of the future professionals.

In a study by Brady, Holcomb and Smith (2010), 52 US graduate students expressed their perceptions of the capacity of *Ning* (an online community building platform), for professional communication activities. About 70% of the students thought the Ning software was quite facilitative of communication with peers outside of class, with (82%) considering it as more effective in receiving comments than face-to-face settings. However, a study by Jones, Ramanau, Cross and Healing (2010) that involved several institutions indicated that students seldom utilized such online networks for academic pursuits. A study by Tess (2013) demonstrated that available evidence does not definitively state the effectiveness of SNSs in academic achievements. Spyridou and Veglis (2008) investigated the perceived determinants and patterns of consumption of online news by selected journalism students in Greece. The findings indicated that majority of them had online news as part of their news diet. In addition, over 90% agreed that regular online news consumption is important for readiness in their future jobs.

Deng, Liping and Tavares (2015) examined the cognitive and socio-emotional benefits that Hong Kong University students derived from using Facebook and Google sites. The students affirmed Google sites as potential spaces for sharing school resources and other learning ideas. By its interactive nature, Facebook enabled the students to seek and gain support from peers as they explored different topical debates. Findings from this study corroborate Vivian's (2011) study which explored the motivation of Australian university students to use Facebook as an informal learning tool. This platform was considered useful in networking and discussions thanks to its chat applications.

In their study of the social media usage behavior of 853 students in Turkey, Tezci and İçen (2017) explored the frequency and reasons of social media usage. Students reported using social media tools like Youtube and Facebook mainly for educational purposes. This indicated an awareness of the potential role of social media tools for professional growth as opposed to the common belief that such tools are basic entertainment and socialization tools.

2.5.4 Industry experiences and online journalism self-efficacy

Work-based learning among students has been considered critical to their grasp of practical skills required in the industry. Scholars have drawn parallels between the nature of practical experiences (e.g fieldwork) that students have undergone during their academic pursuit and their confidence to apply such experiential learning at the workplace (Iyer, 2015; Cindy, 2014; Jeanti, 2015).

In her study exploring how online journalism skills can be developed around practical activities, Jones (2016) regularly used journalism students at the Queensland University to cover the local government elections in the Australian city of Toowoomba. All elections stories (in multimedia formats) were published on the school's Radio journalism blog. From interviews with selected student journalists, the elections reporting exercise not only provided them with practical digital newsgathering

experiences but also provided a perfect blend of old and new media skills critical for job readiness in a multimedia newsroom.

In his interviews with six journalism students who had accumulated a blogging experience of more than 12 months (on different genres – fashion, popular music, football, darts), Stocker (2015) found that students who had started the blogs got inspired by different sources – a job in a magazine indicating need for blogging experience, encouragement by tutors to blog for online visibility and future employability, need to create online profile of one's activities, need to keep writing creatively (improve communication skills), among others. Stocker recommended the need to leverage online tools such as blogs in order to enhance the work readiness of students. She argued that students can use such online environments to develop journalism-specific skills and boost their creativity, initiative and communication competencies.

A study by Purdie, Ward, Mcadie, King and Drysdale (2013) explored whether UK students who engaged in work-integrated learning developed their self-efficacy for job as opposed to those who never took part in fieldwork. From a sample of 716 students representing all academic departments at the University of Huddersfield, the results indicated that those who took part in the fieldwork were more hopeful and confident in attaining their careers goals than those without field exposure. These findings were consistent with previous studies that demonstrated the role of work-integrated learning in boosting the job and career confidence of future professionals

(Daniels, 2012; Deuze, 2017). Getz (2001) surveyed journalism students' beliefs about internships and found out that the students considered the field work experience as having validated their career choices. Students reported great satisfaction with the experience gained, ranking the skills they learnt on the job as the greatest source of satisfaction. From the studies discussed, it is clear that immersing students into the work environment as they study serves to help them relate what they study and the reality in practice.

2.5.5 Attitudes towards online tools and self-efficacy for online journalism

Empirical studies have drawn relationships between people's perceptions of technology (for example Internet) and how they interact with it with the level of personal and professional gains derived from the technology. Thus, attitudes towards technology have become a topical issue on digital skills development research.

Popa and Topala (2018) used a survey and focus group discussions to assess 200 undergraduate students' attitudes in relation to their self-assessed digital competencies to teach themselves new skills. Findings associated higher digital tools usage with higher levels of self-directed learning ability among the students. Those who showed positive attitudes towards digital tools for professional development had a higher frequency of usage of such tools. Furthermore, students who were more satisfied with their learning experiences displayed tendencies of free exploration with digital tools. In another study, Lewis (2010) sought to determine students' attitudes towards social media as strategic communication tools. He surveyed 463 Oklahoma state university students pursuing public relations and advertising as a mass communication major. The findings showed the students perceived the social media positively and suggested such tools should be integrated into the curriculum to facilitate job readiness among the students. Students who utilized the social media tools as their primary news sources had higher regard for the tools for professional purposes.

Hartshorne and Ajjan (2008) explored students' attitudes towards the adoption of Web 2.0 technologies in personal and professional development. Their study underscored the role of attitude as key determinant of the students' motivation and intent to employ web 2.0 technologies. This intention was also viewed to strongly determine the actual usage of web 2.0. Further analysis revealed that students' attitudes towards web 2.0 technologies usage, depended on how they perceived the value, compatibility and user-friendliness of the Web 2.0 with other technologies they were familiar with. These findings were consistent with results from Shittu, Kamal & Ahmad (2011)'s study which sought to explore people's influences in adopting emerging technologies.

To establish students' perceptions of social media sites as enablers of skills development, Obaid (2011) surveyed computer science students at Al Imam Mohammad Bin Saud University, Riyadh, and found that they frequently used social networking sites for social communications than for professional purposes. Students showed low value and no intention in using social networking sites to support professional skills development. They observed that even their instructors had not connected their websites to social networking sites, something that could have played a role in poor modeling of behavior. This contrasts with results of a study by Wang, Shannon and Ross (2012) which explored medical students' attitudes towards using such sites to improve medical education. The students had positive attitudes to using social networking sites for learning purposes, especially those who used them frequently. In another study to explore the attitudes of medical and social science students in a UK university towards the use of Facebook for development of online professionalism, Prescott, Wilson and Becket (2013), deployed an anonymous online survey on a sample of 595 students. Findings showed attitude differences are based on year of study, age and gender, suggesting the need for more education on how to develop and maintain professionalism in online contexts.

In a nutshell, studies reviewed here demonstrate that people's beliefs and attitudes regarding technology and interacting with it are crucial factors in determining their confidence to use them.

2.5.6 Empirical literature on online journalism self-efficacy

Empirical studies relating to online journalism self-efficacy are rare. However, a number of researches have dwelt on journalism and communication students' assessment of their learning and professional gains from different online tools (for example social media) both at the class level and during their personal explorations with the new media technologies.

Although self-efficacy for online skills has not been specifically investigated in journalism and communication contexts, self-efficacy studies have explored related Internet technology issues like social media and general Internet skills (Litt, 2013; Kaasbøll, 2014; Hargittai, 2005). Since Internet is a broad technology environment, scholars (for example Ferrari, 2013) have argued for the need to differentiate user competencies of different aspects of the technology, especially at it applies in different contexts. This implies that people's self-efficacy with Internet-related tools may differ across different applications. In this context, empirical studies are mainly based on how different aspects of digital skills development have been associated with students' increased preparedness for the digital media industry.

In their study to develop an instrument to measure self-efficacy for newspaper, television and interpersonal communication, Hofstetter, Zuniga and Dozier (2009) found that self-efficacy for the effective use of these media was correlated with how students used the different media formats, the extent to which they were exposed to these media and how these media stimulated them intellectually. Thus to increase the probability of effective usage of these channels of communication, understanding the media uses and gratifications was required.

Du and Lo (2014) conducted a practice–education gap survey on a sample of selected Hong Kong online journalists including 117 journalism students from four universities. The aim was to explore their current perceptions of journalism-related skills, specifically on four undergraduate online or digital journalism courses. The findings indicated a fairly proficient number of students in new media skills with average ratings (out of 5) as follows: using audio and video tools in news reporting (3.17); efficient skills in writing (2.93) and producing web pages (2.24).

Using a survey of three US television stations that produce local stories (ABC, CBS, NBC, Fox), Cremedas and Lysak (2011) assessed how these stations produced online news and what new media skills news directors desired from beginning entry-level journalists. Almost all reporters and newscast producers were expected to generate a

web product. While 38% of news directors said such proficiency was ‘extremely important’, 53% considered the skills as ‘somewhat important’ and about 9% of the news directors rated the new media skills as ‘not at all important’. These findings demonstrate the central place of online technologies in the TV stations studied and, by extension, other news media platforms.

Spyridou, Matsiola, Veglis, Kalliris and Dimoulas (2013) published a survey report which evaluated ICT skills of Greek professional journalists. Their findings indicated that Greek journalists extensively employed ICT devices in their work, including desktops, laptops and smart phones; and that they stayed online for prolonged periods each day. About 80% of respondents rated their Internet competence as between good and very good. Their knowledge of skills like web navigation, social networks and email demonstrated high levels of familiarity. But apart from blogs and Twitter, the journalists had low knowledge in other social networks. Still their skills in editing audio-visual materials, web design and desktop publishing including web publishing and web casting skills, were largely inadequate. The researchers also concluded that due to the low usage of infographics in Greek stories, it might be fair to assume that such skills were little known to the journalists.

To explore the perceptions of digital competence among South Korean and Nigerian newspaper journalists, Ol (2017) used a questionnaire and in-depth interviews on a select group of journalists from both countries. The Nigerian journalists demonstrated more competence and readiness on the tested skills. Differences in digital competence were mainly attributed to newsroom cultures with some journalists perceiving more digital threats on their jobs than others.

2.6 Critique of the empirical literature

Various studies have been carried out to establish perceived digital confidence of students in various contexts and domains. The findings from these studies are unanimous that having the right digital skills and competence to us them is crucial for employability

in the modern information age. However, there are a number of shortcomings in most of these studies that warrant further research in this domain of knowledge.

To develop a scheme for upgrading digital capacities for working media professionals in Australia, Iyer's (2015) study proposed a digital journalism skills framework deriving from a content analysis of 100 newspaper job ads and opinions of practitioners. Although the framework had a number of general knowledge areas and assorted new media skills at the functional level, it was not considered exhaustive. Besides, the framework did not undergo an expert validation process to confirm its fitness for use in other empirical studies. Although Iyer further argued that the digital skills would be developed through a combination of formal and informal factors, these were not elaborated.

Despite literature indicating that journalism research has dealt with the skills, knowledge areas and attributes of newsroom journalists (Singer, 2008; Pew Research Centre, 2010), no empirical evidence exists about a research model that demonstrates the digital skills in the context of online journalism. In Bethell's (2010) study that investigated first year Deakin university journalism students' usage of mobile phone technology, students expressed enthusiasm for integrating the mobile phones for personal and professional learning. However, studies on the students' potential use of such tools for professional purposes have shown mixed results that merit further inquiry. For example, while scholars like Pegrum (2011) consider social media as important professional learning tools, others regard students' use of such tools as purely non-academic and personal (Tess, 2013). Evidence on what types of new media tools students would attribute to the enhancement of their professional learning is missing. It has been argued that studies relating to digital preparedness for the industry among students should target finalists since the utility of the different online platforms might not be fully formed among junior students, rendering the results not generaliseable (Moran, Seaman & Tinti-Kane, 2011). This distinction has not been made in the most of the reviews made.

Despite the mixed perceptions about the ability of the 'digital natives' (for example university students) to informally learn and develop new media competency by virtue of their heavy exposure to new media, researchers anticipate that journalism students are trained how to practically use different social media tools professionally (Pegrum, 2011; Lewis, 2010). However, studies have not demonstrated how journalism students make sense of their online media habits and the extent to which formal learning (for example journalism school) supplements or contradicts their online behavior with regard to their readiness for the online workplace.

Although studies have explored undergraduate students' opinions on social media proficiency as part of the repertoire of professional skills required for their employability (Sutherland & Ho, 2017), there are still questions on the combination of digital skills development factors associated with this proficiency, and how these factors contribute to the students' perceived self-efficacy to use new media technologies at the workplace. There are also some methodology limitations in related studies. Blayone et al. (2017), for example, engaged quantitative methods to study students' digital competence in schools, but left out the qualitative aspects which are crucial to unraveling hidden meanings in perception studies because they give insights into students' fears and inner strengths and gives room for suggestions.

Through a national survey of 463 journalism and mass communication schools drawn from the Association for Education in Journalism and Mass Communication (AEJMC) Directory, Lowrey and Becker (2015) conducted an online survey on the degree to which these programs have moved from traditional "medium-specific" curricula to curricula focused on multiple media platforms and reasons for the move. Data showed that schools were quite enthusiastic about the converged curriculum with about 85 percent of respondents considering the curriculum as either biased towards different multimedia platforms (31.7%) or a combination of learning across cross-media platforms and specializing in a specific digital skill (52.6%). The findings showed that the move to new media platforms was predicted by factors such as the schools'

economic and professional environments as well as the nature of the curriculum and faculty. To examine the relative importance of these factors, a predictive model would have shed more light on their contribution to the shift to new technologies.

2.7 Research gaps

This study endeavored to address several gaps in empirical research. Although different studies have assessed the perceptions of students' digital competence in different domains, systematic research focusing on how mass communication students perceive the way they develop their digital skills and what this means for their perceived ability to successfully work in the media industry is lacking. In addition, although studies have shown the centrality of the training environment, online habits and attitudes in developing students' digital competence (for example Sutherland & Ho, 2017; Schwalbe, 2009), how these factors singly and collectively predict this digital ability in the context of journalism remains unexplored. For example, research has been done on the different skills required for journalists in the digital age (for example Iyer, 2015), use of social media tools in journalism education (for example Hodgson & Wong, 2011), issues in journalism education in the digital era (for example Du & Lo, 2014) as well as the role of Social Networking Sites (SNSs) usage behavior in online skills development (for example Benson & Morgan, 2016).

In most of these studies, gaps exist especially relating to methodology (for example, relying on survey and select interviews), adopting single cases instead of a multi-case approach, not clearly defining the nature of online skills required of future practitioners as well as not demonstrating how these issues can be employed to explain the future media professionals' confidence in performing online journalism work.

This study endeavors to address this research lacuna by systematically modelling the predictive relationship between selected digital skills development factors and students' self-efficacy for online journalism. Adopting a multi-case, multi-method and multi-theoretical perspective, this pioneer study departs from past studies to bridge the above

research gaps by examining the role played by course content characteristics, training resources, students' online media habits, industry experiences and attitudes towards online tools for professional development in predicting mass communication students' self-efficacy for online journalism as they prepare for jobs in the digital age industry. Although literature exhibits the complexities of variables influencing new media skills development of journalism students, the variables are interwoven with each other making it difficult to determine the extent to which each predicts the students' level of online journalism self-efficacy, and their overall effect taken together. Since this research is about digital skills self-efficacy, its core mandate is to develop a body of knowledge constituting a standard measure or framework – useful to assess the concept of online journalism self-efficacy and measure this against the above-mentioned skills development factors.

2.8 Summary

This chapter has discussed the theoretical and conceptual frameworks underpinning this study. The constructs from the three theories that were relevant for this study have been explained. This underscored the importance of a multi-theoretical approach in understanding the role of content taught, resources used, online habits, industry experiences and attitudes towards online tools in predicting students' self-efficacy for online journalism. Depth literature review of the variables used in the study was instrumental in establishing their link with journalism students' competence development for different online journalism tasks. Research gaps identified formed the basis of the study. The study addressed the lack of a systematically developed and validated instrument to measure students' online journalism readiness (OJSE) and the role of identified factors in predicting this perceived readiness. In addition, a multi-theoretical and multi-method approach was adopted to enrich the results and bridge the gaps in literature. The chapter that follows explicates the methodology employed to realize the objectives of this study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Chapter 2 laid the foundation for this study by reviewing conceptual, theoretical and empirical issues pertinent to this study. It culminates with identified research gaps which form the basis and rationale of the current study. This chapter elucidates the methodology employed to realize the objective of the study which investigated the role of selected digital skills development factors in predicting mass communication students' self-efficacy for online journalism. The chapter describes the research design used, the study population, sampling and data collection procedures, instrumentation and how the data was processed, analyzed and presented. The chapter concludes with a discussion of the ethical and logistical considerations that guided the research.

3.2 Research Design

In exploring the predictive role of selected digital skills development factors in students' self-efficacy for online journalism, this study deployed a mixed-methods design that draws from positivist and interpretivist knowledge paradigms. On the one hand, the study endeavored to use variables to predict and model the relationships as derived from empirically measured data (positivism). On the other hand, the study enriched the findings by exploring how respondents made sense of the issues under study through their own socially constructed realities (interpretivist) (Berg & Lune, 2012).

The positivist part was represented by a researcher-constructed questionnaire aimed at gathering quantitative data. The interpretivist part of the study used focus group discussions and module content analysis to gather qualitative data that would complement the survey results. Researchers argue that a mixed-methods design helps to harness the strengths of both quantitative and qualitative approaches and recompense for the weaknesses of single designs by corroborating results (Creswell & Clark, 2011). In addition, the study was non-experimental and cross-sectional to facilitate the gathering

of data ‘at a single point in time’ as recommended by Bryman (2007, p.11). Data was gathered sequentially where quantitative (survey) results were used as criteria for selecting participants for the focus group discussions. Beyond the closed survey responses, the focus group discussions together with content analysis of the online journalism modules taught, provided a rich understanding of the students’ online journalism skills development experiences as well as the role of content taught. As scholars argue, triangulating survey results with unfettered opinions from respondents affords an opportunity to hear their personal nuances or experiences that inform how they make sense of the phenomenon under study (Creswell, 2013; Berg & Lune, 2012).

3.3 Study Population

A study population is the target or accessible people, objects or events from where a researcher wishes to draw inferences either using a study sample or by examining all the eligible members (Gall, Gall & Borg, 2014). The study population comprised all final year students in the undergraduate mass communication programs (N=293) of five Rwandan universities. According to Rwanda’s Higher Education Council (2019), Rwanda had 29 institutions of higher learning, including 27 private and two public institutions as at December 2019. Of these, only 5 offered mass communication degree programs. These include University of Rwanda, Mount Kenya University, Catholic Institute of Kabgayi, Christian University of Rwanda and East African University. While the students were the units of study for the survey and focus group discussions, the online journalism modules (one in each of the journalism schools) formed the basis of the content analysis.

The study focused on final year mass communication students for several reasons. Firstly, given the role of Internet technologies such as social media on the survival of the media industry, focusing on finalist students was considered pertinent since they were expected to have undergone an academic training and exposure to a wealth of online knowledge and skills to properly fit into the job market. Consistent with this observation, Huang (2009) opines that since the survival of the journalism and

communication profession is directly shaped by emerging new media technologies, future professionals and practitioners in this field should be more concerned [than others] about what this means for their careers. Secondly, scholars consider undergraduate students from such a domain of knowledge to have spent most of their time using various new media technologies and therefore, highly connected, to justify an examination of how the depth and breadth of their online participation can impact on their media careers (Wecker, 2012; Correa, 2010; Bethell, 2010). Finally, in studies involving perceptions (such as this current study), Rosenbaum (2014) argues that researchers should ideally target respondents with substantial period of exposure to the phenomenon since they have a better composite perception of the phenomenon under study. Being in their final year, a combination of formal online journalism education and wide exposure to online tools placed the students in a better position as study subjects.

3.4 Sampling frame

A sampling frame denotes a list of the population members or units from where a sample can be drawn to adequately represent that total population (Creswell, 2013). In educational set-ups involving studies with students (such as in the present study), class lists are used as frames of reference (Cooper & Schindler, 2011). The sample for this study was drawn from established class lists of all registered final year mass communication students in the journalism schools of the five universities. These lists were formally obtained from the heads of the journalism schools.

To identify the modules to be analyzed, a list of module descriptions of all modules offered in each journalism school were accessed through the school heads and where possible, online through the university websites. Only modules that focused specifically on online (digital) journalism were selected for analysis.

3.5 Sample size and sampling techniques

3.5.1 Sample Size

This study used a sample of 182 mass communication students systematically drawn from five journalism schools. The sample size was determined using Yamane's (1967) formula which caters for total populations of below 1500 units or members. Since the total population of the study was 293, the sample size was derived as follows:

$$n = \frac{N}{1 + N(e)^2}$$

Where

n = Sample size;

N = Population size;

e = margin of error.

As in most social science studies (see Cooper & Schindler, 2011; Creswell, 2013), a 0.05 level of precision is assumed in this equation. Therefore, n = 293/[1+293(0.05)2 = ~170. In the present study the desired total sample from the population of 293 was, therefore, 170. However, the researcher anticipated a questionnaire return rate of 95%. To provide for the probability of high non-response rate that might be caused by drop out or incomplete responses, oversampling was done, in accordance with recommendations by scholars like Bartlett et al. (2001) who proposed a formula for sample sizes adjusted for response rate (n2) as follows:

n2 = Minimum Sample Size /Anticipated Return Rate

Thus with a minimum sample size of 170 and an anticipated return rate of 95%, the final adjusted sample size was n2 = 170/.95 = 182. This sample accounted for about 62% of the total mass communication student population in the five journalism schools, way above the recommendation of at least 10% of the total population (William, Barry & Mitch, 2013) Table 3.1 shows the final adjusted sample distribution by university.

Table 3.1: Sample size distribution by university

University	Student Population	Sample taken	%
University of Rwanda	130	80	61.5
Mt Kenya University	25	16	64.0
Catholic Institute of Kabgayi	78	48	61.5
Christian University of Rwanda	30	19	63.3
East African University	30	19	63.3
Total	293	182	62.1

The total sample size for the five Focus Group Discussions (FGDs) was 40 members. Each discussion group, representing a journalism school, comprised 8 members – four male students and four female students.

3.5.2 Sampling techniques

The five universities that run journalism and communication programs were purposefully sampled as the only universities offering the programs then. Participants for the survey were proportionately sampled by gender from the sampling frames (student lists) obtained from the heads of the media schools. To achieve gender balance, the male-female proportion was calculated in relation to the required sample size for each school. The formula used was as follows:

$$\frac{\text{Total population of a given gender /}}{\text{Total population in the whole school}} * \text{sample size}$$

A simple random technique was then used to pick these respondents from the sampling frames and contact them for the survey. To participate in the FGDs, maximal variation sampling was used. This involved picking participants who obtained extreme OJSE scores based on the composite scores of their online journalism self-efficacy across two strata: low self-efficacy and high self-efficacy (see Creswell, 2014). Those with low online journalism self-efficacy category fell in the aggregated category of "Disagree and Strongly Disagree" of the 5-point Likert scale used. Those with high online journalism self-efficacy fell in the aggregated category of "Agree and Strongly Agree". Then, a

simple random approach was used to select any four participants who had low online journalism self-efficacy and four who had high online journalism self-efficacy and who were willing to participate in the study. The purposeful sampling technique was employed to select modules on which to conduct content analysis. Online journalism modules were purposefully selected since these were the only modules relevant to the objectives of this study. The next section describes the different methods that were deployed to gather the required data for this study.

3.6 Data collection methods

Both primary and secondary data collection methods were employed to gather data for this study. These were survey, focus group discussions and content analysis. According to scholars, using mixed methods ensures that a researcher is not deluded to think that he or she 'has found the right responses using only one method' (Creswell, 2014, p.11). A sequential methods approach was applied where the survey was carried out first before FGDs and module content analysis. The survey, conducted through self-administered questionnaires, helped to gather quantitative data on the different variables of the study. Variables were quantitatively measured on 5-point Likert questions that required respondents to indicate the extent to which they agree (from 'Strongly disagree' [1] to 'Strongly agree' [5]) with given statements for each variable. The choice of using a survey was underpinned by its ease of gathering a significant amount of data within a short period of time. In addition, questionnaires increased the response rates for bias-free feedback since confidentiality was assured (Mugenda & Mugenda, 2004; Kothari, 2011).

Focus group discussions with a selected group of participants served to elicit deeper qualitative insights and explanations regarding the online journalism competence development issues addressed by the study. Within the self-efficacy perceptions framework, understanding the respondents' online journalism self-efficacy thoughts beyond their survey feedback was important. It has been argued that since a survey is not expected to exhaustively interrogate nuances that explain people's behavior or

beliefs, alternative approaches like FGDs should complement the findings with deeper insights (Campbell, Clelan, Collumbien & Southwick, 1999).

A content analysis of the online journalism modules taught at the schools was carried out to analyze the course materials that described the nature and type of skills or content taught under online journalism were analysed from each of the five journalism schools. Such an analysis involves careful and systematic examination of a given piece of communication to identify themes, patterns and meanings (Berg & Lune, 2012). The content analysis of the online journalism modules served to provide a snapshot of the themes or narratives underpinning how the modules are described; the content taught, facilities used, assessments given and expected learning outcomes. The importance of conducting this analysis was viewed in the light of conforming or disconfirming what FGD and survey participants considered was the role of formal online journalism education (through the module descriptions) in making sense of their self-efficacy for online journalism work. Course content analysis has been used elsewhere to better understand the role of instructional materials in participants' self-efficacy for technology (Brown & Collins, 2010). In addition, the merits of artifact collection (for example course materials) have been considered not to influence the social setting under examination (Hatch, 2002).

3.7 Instruments of data collection

3.7.1 Questionnaires

The questionnaire development process was preceded by an in-depth literature review to generate appropriate statements corresponding to the independent variables of course content characteristics, training resources, students' online media habits, industry experiences and attitudes towards online tools for professional development (as identified in Chapter 1). In addition, since no instrument exists to measure the dependent variable, an online journalism self-efficacy (OJSE) index was constructed by adapting and modifying the five indicators of the digital competence framework of Ferrari (2013).

This scale provides an important reference where 21st century professionals are expected to be proficient in using Internet-based tools for research, content creation, communication, safe and ethical publishing and innovative problem solving. Based on extant literature, these skills dimensions were modified to fit into the online journalism context and relevant indicators for each dimension developed.

The final questionnaire was structured in seven sections to capture the different variables of the study (see Appendix II). A letter introducing the study and requesting respondent participation accompanied the questionnaire. Instructions of completing the questionnaire were also indicated for each part of the questionnaire. Part 1 comprised the personal data of the respondents (gender, study option, ownership of digital devices and online media accounts). Part 2 had seven statements exploring the characteristics of the course content on the basis of the variety of skills learnt, practical vs theory bias and relevance of online journalism modules to industry. Part 3 comprised seven statements investigating training resources (their availability, accessibility, quality and trainer competence). Part 4 included seven statements on students' online media habits with indicators on the students' nature of engagement with different online audiences, the frequency with which they use the online tools and if they different online accounts. This section drew insights from Hou's (2017) Social Media Active and Engagement Levels as well as the sub-scale of the 'Media Technology Usage and Attitudes' in Rosen, et al's (2013) 'Media and Technology Usage' Scale.

Part 5 consisted of eight statements focusing on industry experiences (i.e. skills gained from the industry, skills contributed to the industry and contacts with industry professionals). Part 6 included nine statements exploring students' attitudes towards online tools for professional development. In line with Ajzen & Fishbein's (1980) conceptualization of attitudes into three aspects (beliefs, feelings and action or intentions), this study operationalized online attitudes as beliefs regarding online tools, feelings about online tools and action or intentions with online tools for professional development. This section drew insights from the 'Attitudes' subscale of the validated

Media and Technology Usage and Attitudes Scale by Rosen, et al (2013) as well as Wright and Hinson's (2009) Attitudes to Social media scale. Part 7 comprised 27 items measuring the study's dependent variable 'online journalism self-efficacy' (OJSE). Items under the OJSE variable were in five skill categories as follows: online journalism research skills (6 items), social media communication skills (4 items), multimedia content creation skills (8 items), online ethics skills (4 items) and innovative problem-solving skills with online tools (5 items). An Exploratory Factor Analysis (EFA) showed that all the items loaded well onto the five dimensions of the OJSE with item values ranging from 0.449 to 0.875 (see Appendix VI). This demonstrated that the index was reliable since all items had factor loadings of ≧0.4 (see Izquierdo, Olea & Abad, 2014).

For Part 1, respondents indicated their responses by selecting appropriate choices with an √ while Parts 2 through 8, they indicated their level of agreement to statements under each variable on a 5-point Likert scale (where 1 = Strongly Disagree and 5 = Strongly Agree. These categories were used as the basis of selecting the FGD participants. The procedure to identify FGD participants from survey results is consistent with studies that suggest that actual qualitative follow-up questions require complete quantitative results to determine the relevant questions that would capture the respondents' explanations on 'how and why they came to achieve the scores that they did' (Creswell & Clark, 2011, p.12). A description of the FGD guide used in this study is discussed in the next section.

3.7.2 Focus Group Discussion guide

A FGD guide was used to show the nature of questions to be asked to ensure the discussions were systematic and kept the study focus (See Appendix III). Questions were structured in line with study objectives. The guiding question focused on participants' opinions regarding new media technologies (for example Internet, social media tools, etc) as shapers of their profession and how best they are expected to prepare for the digital industry. Specific questions relating to the digital skills development factors and online journalism preparedness then followed. Recommendations on how

future professionals should be prepared for the increasingly online market formed the last part of the guide.

3.7.3 Module content analysis guide

To interrogate the nature of online journalism content that students were taught in the respective classes, a guide was developed (see Appendix IV). Modules were coded for content (functional skills taught), methods used (theory vs practice), facilities employed in online journalism teaching (for example computer labs and mobile phones), nature of assessments (theory, practicals or mixed) as well as expected learning outcomes (e.g practical online productions). The development of the guide was informed by the availability of specific modules on online journalism as part of other modules taught under the journalism programs.

3.8 Reliability and validity of the research instrument

To establish the reliability of the survey instrument, a pilot test was first carried out. To establish if an instrument is precise or accurate enough to measure what the researcher intends it to measure (reliability), scholars argue that pilot studies comprising between 10% and 20% of the actual study sample size should be carried out (Cohen, Maurion & Morrison, 2011).

For this study, 11% of the sample was picked for the pilot test. Thus, 20 students (four from each of the five journalism schools) participated in pre-testing the study instrument. The reliability of the instrument was determined through Cronbach's coefficient Alpha which expresses the level of reliability as a coefficient between 0.0 (not reliable) and 1.00 (very reliable). According to Cronbach (1951), an increase in the coefficient leads to increased instrument reliability. In line with most scholars (for example George & Mallery, 2003), this study considered a Cronbach's Alpha value of ≧ 0.7 as acceptable to confirm the reliability of the instrument. Some researchers argue that a value that is too high indicates that items suffer from multicollinearity and therefore are redundant (for example Creswell, 2013).

This trial run helped to get feedback regarding the clarity of questions, comprehension of concepts used in the questions, relevance of the questions and general understanding of the study objectives. Among the key issues raised from this pre-test phase included unclear instructions on how to indicate the responses, understanding words like 'media habits', 'self-efficacy' and 'netiquette', elaboration of different study options under journalism and communication (PR, film, journalism and development communication) and questions that sounded redundant. Appropriate amendments including reformulating questions, using simpler language and deleting redundant questions were effected to improve the final questionnaire. To statistically determine the instrument's reliability or internal consistency of the study variables, Cronbach's Alpha coefficients were employed.

Table 3.2 shows the reliability coefficients of the different variables of study as tested.

Table 3.2: Reliability of the research instrument

Variables	No. of items	Cronbach's Alpha Value	Interpretation
Independent Variables			
Characteristics of training content	7	0.711	Acceptable
Training resources	7	0.724	Acceptable
Online media habits	7	0.703	Acceptable
Industry experiences	8	0.722	Acceptable
Attitudes towards online tools	9	0.742	Acceptable
Dependent Variable			
Online journalism self-efficacy	27	0.785	Acceptable
Overall average reliability	66	0.731	Acceptable

The results showed that the reliability coefficients of the different variables were as follows: characteristics of training content (0.711), training resources (0.724), online media habits (0.703), industry experiences (0.722), attitudes to online tools (0.742) and online journalism self-efficacy (0.785). Since the results showed that all the constructs had Cronbach Alpha values of 0.7 and above (with the average Cronbach's Alpha value being 0.731), the instrument was considered reliable, implying that constructs under

each of the variables were internally consistent and therefore, correctly measured the variables in question (George & Mallery, 2003; Creswell, 2013).

The validity of the research tool was also tested to ensure that the subscales created for the different variables in the tool were based on well-established knowledge constructs (Creswell, 2013). In this study, testing the validity of the instrument was done by soliciting feedback from expert opinion – the two research supervisors, five online journalism educators and three online news media editors. In addition to checking the clarity, format and general understanding of the instrument, the experts also examined how variables of study were operationalized, if these represented the breadth of knowledge in the study domain as well as how well the issues were measured by the proposed instrument. The use of expert sources to validate research instrument has been supported by evidence that demonstrates that experts give informed advice on such tools based on their training, wide knowledge or work experience in the domain (Alias, Mukhtar & Jenal, 2019). The focus group discussion and module analysis guides were validated by the research supervisors. Table 3.3 shows how the variables of study were operationalized and measured.

Table 3.3 Operationalization and measurement of study variables

Variable name	***Variable type***	***Measurement indicators***	***Statistical Measure***
Characteristics of training content	IV	• Digital skills variety • Theory vs practice balance • Relevance to industry	• Pearson Correlation • Linear Regression • ANOVA
Training resources	IV	• Access & quality of resources • Variety of training resources • Trainer competence	• Pearson Correlation • Linear Regression • ANOVA
Online media habits	IV	• Audience engagement level • Online tools usage frequency • Online accounts ownership	• Pearson Correlation • Linear Regression • ANOVA
Industry experiences	IV	• Skills gained from industry • Skills contributed to industry • Contacts with professionals	• Pearson Correlation • Linear Regression • ANOVA
Attitudes to online tools	IV	• Beliefs about online tools • Feelings about online tools • Behaviour with online tools	• Pearson Correlation • Linear Regression • ANOVA
Online journalism self-efficacy	DV	• Online journalism research • Ethical online publishing • Social media communication • Multimedia content creation • Innovating with online tools	• Descriptive statistics [Composite score]
Overall measure (all independent variables vs dependent variable)			• Multiple regression

***IV = independent variable; DV = dependent variable**

3.9 Data collection procedures and ethical guidelines

The data collection process commenced when the research was approved by the JKUAT (see Appendix VII), University of Rwanda (see Appendix VIII) and a permit to conduct research in Rwanda issued by the National Council for Science and Technology (NCST) (see Appendix VIX). This preceded a recommendation by the University of Rwanda, where the researcher was accepted as research associate upon the proposal receiving ethical clearance and a local supervisor assigned. Heads of the journalism schools were then contacted and briefed about the study. Logistics for meeting the respondents were then agreed. Two research assistants (with post-graduate qualifications) were engaged

and trained on how to record, collate and code data for analysis. The total number of coded survey responses from the questionnaire was 75. Following Holsti's (1969) formula, the intercoder reliability was 0.95, computed as follows:

2*M/N1+N2,

Where M was the number of codes they independently agreed on (i.e., 71). N1 and N2 were the total responses coded by each research assistant. Thus 2*71/75+75 = 142/150, i.e., 0.95.

Data was collected sequentially – it proceeded from the survey, FGDs then to content analysis of modules (see Figure 3.1). In conducting the survey and FGDs, rapport was first established with the respondents to ensure good comprehension of the study objectives and their active participation. Respondents were requested for honesty, openness and freedom in responding to (or opting out of) questions posed.

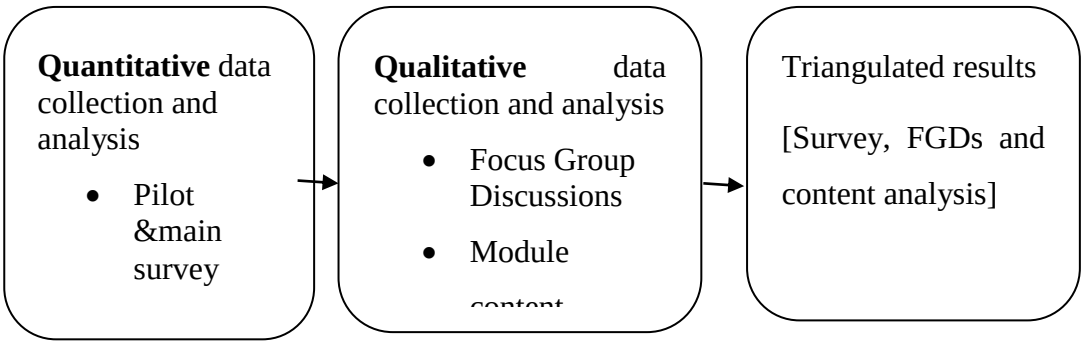


Figure 3.1 Sequential explanatory mixed methods research design

The first phase of data collection involved a pilot survey with 20 randomly sampled students (four students from each of the five journalism schools). The results were used to test the instrument reliability. Based on improvements suggested from the test (for example, removal of vague terms and clarification of instructions to follow among others), the modified questionnaires were then distributed to a sample of 182 students in

the main survey. The school heads assisted the researcher in providing the required class lists, bringing the respondents together in convenient locations and in distributing and picking up these questionnaires. During distribution, a briefing was done on the objectives of the survey and how to complete the questionnaires.

The survey took about two weeks to gather data. What followed was the descriptive analysis of OJSE responses (part 7 of the questionnaire) to determine the respondents' levels of their self-efficacy for online journalism as basis for selecting FGD participants. To obtain an individual's level of online journalism self-efficacy, maximum variation sampling was used. This involved identifying the composite scores of those who expressed general agreement (i.e., aggregate of 'Agree' and 'Strongly Disagree') and general disagreement (i.e. aggregate of 'Disagree' and 'Strongly Disagree') were computed. Those in middle ground 'Neutral' were considered undecided or uncertain. Those who fell in the general agreement category were considered to have high self-efficacy in executing the various online journalism tasks while those in the general disagreement category were indicated as having low self-efficacy to perform the online journalism skills.

Each FGD comprised a total of eight participants made up of four female participants and four male participants. The participants were identified through maximal variation random sampling of any four respondents possessing high self-efficacy for online journalism scores and any four with the low self-efficacy for online journalism scores. The rationale of targeting those with low and high scores was to obtain a balanced view of the broad range of perspectives (see Creswell, 2014) regarding the factors that played into the overall online journalism self-efficacy perceptions of the respondents. Regarding the size of a FGD, scholars like Serede & Mberia (2015) advocate for between six and nine members per FGD and a total of between three and six FGDs for studies that use mixed designs (like this study). In this study, eight participants per FGD were considered small enough to allow each participant to freely contribute their opinions and large enough to allow a wide variety of ideas regarding the online

journalism digital skills development discourse. The selected participants were contacted through the telephone numbers they had indicated on the questionnaires and asked to voluntarily participate. The FGDs were organized in convenient locations within the universities and moderated by the researcher in English. A FGD guide was used to set the parameters of the discussions and subsequent probes on issues raised during the discussions. The proceedings of each session were recorded (with the respondents' consent) and assurance of confidentiality of participant identity and responses given by the researcher. Each session lasted an average of one hour.

For the content analysis of the online journalism modules, the school heads or module lecturers were first requested to provide the full module descriptions of those modules that focused on online journalism. Some of these modules were also accessible on the university websites. Modules were then analyzed and coded for content or skills taught, methodology, assessment, facilities and learning outcomes. Qualitative themes or narratives emerging from these code categories were noted to be integrated in the overall discussion and interpretation of the study results. After data collection using the three methods, data was then separately analysed and the findings and interpretation of results triangulated to give a complete picture of the online journalism competence development in the schools studied.

During the data collection, ethical guidelines were strictly adhered to. This involved getting the necessary permission to collect data in the sites identified, briefing participants about the objectives of the study and what the researcher required of the respondents and maintaining the privacy of responses given (including safe-keeping of the recorded responses and completed questionnaires). In addition, confidentiality of responses was assured during the writing of the results when codes were used to represent the identity of the participants and the FGD groups they represented. This allowed anonymity of the responses.

3.10 Data analysis and presentation

The mixed-methods approach employed in this study necessitated the use of both quantitative and qualitative data analysis techniques. Analysis entailed scrutinizing data and processing it in a manner that could facilitate proper deductions and interpretations in line with study objectives. This is discussed below.

3.10.1 Quantitative data analysis

Questionnaires gathered were first cleaned before analysis. This involved checking for completeness, potential bias and clarity of responses. Incomplete, and therefore, non-responsive questionnaires were rejected. Two research assistants were engaged and oriented on how to code and enter the data into SPSS. After entering all the coded data, it was cleaned for entry errors before descriptive and inferential analysis were done for each study variable. Descriptive statistics relating to students' self-efficacy for online journalism were computed first. A composite score generated from the online journalism self-efficacy data aided in determining who would participate in the FGDs.

Beyond the descriptive analysis for each study variable (showing response patterns for each variable indicator), correlations were explored between the digital skills development factors and students' self-efficacy for online journalism. These helped to determine if the independent variables were related and with what magnitude. Further analyses were done on the data to explore the predictive power of the digital skills development factors on students' self-efficacy for online journalism. This analysis demonstrated to extent to which independent variables (singly and in combination with the others) explained or predicted the variances in students' self-efficacy for online journalism. The analysis was accomplished through linear and multiple regression analyses. Analysis of Variance (ANOVA) results from the regression analysis served to test the null hypotheses of the study at a confidence level of 95%.

To analyse the relative explanatory power of each of the digital skills development factors on the students' self-efficacy for online journalism, the linear regression model for each variable was postulated as follows:

Objective 1: $Y= \beta_0+ \beta_1X_1+\varepsilon$

Objective 2: $Y= \beta_0+ \beta_2X_2+\varepsilon$

Objective 3: $Y= \beta_0+ \beta_3X_3+\varepsilon$

Objective 4: $Y= \beta_0+ \beta_4X_4+\varepsilon$

Objective 5: $Y= \beta_0+ \beta_5X_5+\varepsilon$

Where:

Y = Online journalism self-efficacy (dependent variable)

β_0 = Constant

$\{\beta i; i=1,2,3,4,5\}$ = The coefficients for the various independent variables

X_1 = characteristics of training content; X_2 = training resources; X_3 = online media habits, X_4 = industry experiences; X_5 = attitudes towards online tools for professional development.

To analyze how the combined digital skills development factors together predicted the students' self-efficacy for online journalism, a multiple regression analysis was carried out with regression model postulated as follows:

$$Y= \beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\beta_5X_5+\varepsilon$$

Where:

β_0 = constant (α = constant term)

β_1-β_4= intercepts for the independent variables

Y= online journalism self-efficacy

X_1= characteristics of training content, X_2= training resources, X_3= online media habits, X_4= industry experiences, X_5= attitudes towards online tools for professional development, ε = error term.

The predictive power of the overall model was established through the R^2 value while the contributions of independent variables on the dependent variable were revealed by the respective values of their regression coefficients. A big regression coefficient coupled with a small p-value (i.e.<0.5) indicates strong predictive power of a given independent variable (Creswell, 2013).

ANOVA was conducted to test the goodness of fit of the model and the significance of the relationship between dependent and independent variable based on 5% level of significance. The regression coefficients observable from the ANOVA results helped in determining if the null hypotheses tested in each of the study objectives would be accepted or rejected.

3.10.2 Analysis of qualitative data

In analyzing and presenting qualitative data, Creswell (2009) suggests first organizing the data and classifying it into themes or narratives, in order to make sense of it. In analyzing the qualitative data from the FGDs in this study, opening coding was used. This allowed for identification and noting of units of meaning as they emerged from the discussion (not using a pre-defined list). First, the recorded discussions were transcribed. Then themes or narratives regarding the online journalism skills development process were identified as they emerged from the discussions. For easy thematic analysis and interpretation, these themes or patterns of meanings were subsequently categorized for easy discussion along each of the objectives of the study.

Data gathered from the content analysis of the online journalism modules was analyzed by describing the manifest content of the modules as well as identifying themes or narratives associated with the pre-defined categories of analysis – skills/content taught, teaching methodology, assessment techniques, teaching facilities and expected learning

outcomes. These themes or narratives were then used to make sense of the online journalism curriculum and teaching situation in the journalism schools studied.

After separately analyzing the quantitative and qualitative data, the results were then merged in the subsequent discussion and interpretation of findings in line with the study objectives. This harmonization of results also facilitated the drawing out of relevant conclusions, recommendations and possible areas of further study. The full results of these analyses are discussed in chapter 4.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presents and discusses the results of the study. The study aimed at exploring the role of selected digital skills development factors in predicting the online journalism self-efficacy of mass communication students in Rwanda. Specifically, the study sought to: a) investigate the role of course content in predicting the online journalism self-efficacy of undergraduate mass communication students in Rwanda; b) describe the role of training resources in predicting the online journalism self-efficacy of undergraduate mass communication students in Rwanda; c) determine the role of online media habits in predicting the online journalism self-efficacy of undergraduate mass communication students in Rwanda; d) assess the role of industry experiences in predicting the online journalism self-efficacy of undergraduate mass communication students in Rwanda and; e) analyze the role of attitudes towards online media tools for professional development in predicting the online journalism self-efficacy of undergraduate mass communication students in Rwanda.

Data was gathered through a triangulated approach involving a survey, five FGDs and content analysis of online journalism modules in five Rwandan journalism schools. While quantitative data was analysed using SPSS to determine response patterns and draw statistical inferences from the responses (at $p<0.05$ level of significance), qualitative results were analysed for themes or narratives underpinning the respondents' perceptions of their self-efficacy for online journalism and attendant factors. Both sets of results were then merged and discussed simultaneously in line with the study objectives.

In the next sections, the chapter describes the survey response rate, analysis of the characteristics of the respondents as well as detailed descriptive and inferential statistical results of the study variables. Interpretation and discussion of the results is done

following the study objectives. The chapter concludes with findings on the tested null hypotheses and a discussion of the optimal conceptual model deriving from the results.

4.2 Survey response rate

In total, one hundred eighty two questionnaires were distributed to respondents across the five journalism schools in Rwanda. However, the valid questionnaires gathered were 143, indicating a response rate of 78.6% per school as shown in Table 4.1 below.

Table 4.1: Response rate by schools

Institution surveyed	Sample taken	Valid questionnaires	% response
University of Rwanda	80	63	78.8
Mt Kenya University	16	11	68.8
Catholic Institute of Kabgayi	48	40	83.3
Christian University of Rwanda	19	14	73.7
East African University	19	15	78.9
Total	182	143	78.6

The feedback shows that except Mt Kenya University which had a response rate of 68.8%, all other universities had posted a response rate of above 70%, with the Catholic Institute of Kabgayi respondents participating at a rate of 83.3%. On the whole, the 78.6% rate was considered sufficient in line with research evidence which suggests that an overall response rate of between 70% and 75% is adequate to allow informed generalization of the results (Creswell, 2009; Mugenda & Mugenda, 2007; Kothari, 2004). For the five FGDs, all selected 40 respondents agreed to participate voluntarily.

4.3 Respondents' general information

The respondents' background data requested from the respondents was gender (male/female), option of study (journalism/communication), ownership of digital devices (Ipad, smart phone, laptop/desktop computer, audio recorder and digital or video camera) and ownership of active online media accounts (for example social media accounts). It has been argued that students' ownership of digital tools or experiences with them in a practical field like journalism and communication may foster their

innovative skills to try out skills they might need in the media industry (De Lara & García-Avilés, 2013).

4.3.1 Respondent selection by status of institution

Among Rwanda's 29 institutions of higher learning, only five offered degrees in journalism and communication by the time of this study. Out of the five institutions, University of Rwanda is the only public university while the rest (Mt Kenya University, Catholic Institute of Kabgayi, East African University and Christian University of Rwanda) are private. Table 4.2 shows how the respondents were represented in the institutions basing on the proportion of their population in each university.

Table 4.2: Institutional status of the respondents

Status of university	Total students (N)	Sample drawn (n)	% representation
Public	130	63	44.1
Private	163	80	55.9
Total	293	143	100

4.3.2 Respondents' gender category

Although the study endeavored to have balanced gender representation across the sampled population, this was only possible in the private schools category (40 females and 40 males). Out of the 63 respondents, results on Table 4.3 show that the only the University of Rwanda had a higher male representation (i.e. 41 respondents, accounting for 65% of the sample). For long, the university has registered a higher admission rate for males in the journalism and communication program than females. Although the myth of journalism being a man's domain and therefore, too risky politically is gradually being debunked in Rwanda (see Hakizimana, 2019), female enrolments in the discipline have only just begun to rise in recent times. For the purpose of this study, however, the 35% of women still remain significant given the randomness of the total sample drawn.

Table 4.3: Response by gender

Type of institution	Respondent's gender		Total
	Male	Female	
Public [n=1]	41 (65%)	22 (35%)	63
Private [n=4]	40 (50%)	40 (50%)	80
Total	81 (57%)	62 (43%)	143

4.3.3 Respondents' study options by gender and school

In Rwandan journalism schools (as elsewhere), students mainly specialize in either of two options at the final year of study, i.e. Journalism or Communication. Under the journalism option, students can chose to focus on broadcast (television, radio and film production) and print reporting and production. Under communication, the concentration of learning is mostly on public relations, advertising and marketing and development communication. With revolution in new media technologies, a common thread in these options is the need for students to master online or multimedia skills. This suggests that both options of study need to have sufficient focus on such skills to produce online-ready graduates. Table 4.4 shows the cross-tabulation of respondents in their options of study disaggregated by the type of institution they learn from.

Table 4.4: Respondents by study option

Status of institution	Gender	Respondent's study option		Total
		Journalism	Communication	
	Male	17 (41.5%)	24 (58.5%)	41
	Female	8 (36.4%)	14 (63.6%)	22
Total [Public]		25 (39.7%)	38 (60.3%)	63
	Male	24 (60%)	16 (40%)	40
	Female	22 (55%)	18 (45%)	40
Total [Private]		46 (57.5%)	34 (42.5%)	80
Grand Total		71 (49.7%)	72 (50.3%)	143

Table 4.4 shows that in the public university category, male respondents dominated female respondents in both study options – with the majority pursuing the communication option in both cases (58.5% males and 63.6% females). While the male

respondents had a 41.5 % representation in the journalism option, females were only at 36.4%. Although male respondents also dominated the journalism option in the private universities category, this was with smaller margins compared to the public category. For example, only 2 more males than females (out of 46) were pursuing the journalism option, while the same picture was replicated in the communication option. Out of 34 communication option respondents, 16 were males and 18 females.

4.3.4 Respondents' ownership of digital tools

Journalism and communication scholarship is considered equipment-intensive and therefore, owning devices that help in the production of media stories is considered a prerequisite for success in this domain of study (Daniels, 2012). Respondents were asked to indicate if they owned cameras, recorders, laptops, smartphones, desktops and ipads – equipment that has been associated with media productions journalism and communication education and practice (see Bethell, 2010). Table 4.5 shows their responses.

Table 4.5: Respondents ownership of digital tools

Own this device?	Recorder	Camera	Laptop	Smartphone	Desktop	Ipad
Yes	44.0 (30.8%)	42.0 (29.4%)	114.0 (79.7%)	131.0 (91.6%)	44.0 (30.8%)	19.0 (13.3%)
No	99.0 (69.2%)	101.0 (70.6%)	29.0 (20.3%)	12.0 (8.4%)	99.0 (69.2%)	124.0 (86.7%)
Total	143	143	143	143	143	143

The above results show that out of the 6 digital tools explored, majority of the respondents owned a laptop and a smart phone (at 91.6% and 79.7% respectively). Only a small number of respondents (13.3%) had an Ipad. Also observed was that less than half of the respondents had their own recorder and camera.

Majority ownership of a smart phone may not be surprising given the ubiquitous nature of the device among the young generation such as students. There is near-convergence of thought that today's youth is defined by their digital connectedness through the

mobile phone (Salaverría, 2011; Van Deursen & van Dijk, 2011; Schwalbe, 2009). The high ownership of laptops can also be mainly attributed to Rwanda government's policy (see Ministry of Education, 2016) requiring all university students to obtain loans from the Development Bank of Rwanda to procure laptops upon entry to the university. The increased use of mobile phones as multimedia devices capable of handling certain journalistic tasks like audio and video recording, is likely to affect students' ownership of the 'more traditional' tools like an audio recorder or a video/still camera.

4.3.5 Respondents' ownership of online media accounts

Increasingly, most youth in contemporary times now live their lives online as the social media revolution continues to hook the 'digital natives' to the expanding possibilities of the social networking sites (Sutherland & Ho, 2017). Knowing the types of online accounts students have is considered to bear on how socially networked they are and what that portends for their social and in some cases, professional lives (Dunne, Lawlor & Rowley, 2010). In this study, respondents were asked to mention all the active online accounts they have. Table 4.6 shows their responses. The initial list was expanded to include YouTube and Snapchat which were identified as key additions to the repertoire of online accounts during the pilot study phase.

Table 4.6: Ownership of online accounts

Do you own this	Facebook	Twitter	WhatsApp	Instagram	LnkedIn	Blog	Email	YouTube	Snapchat
Yes	135 (94%)	104 (73%)	138 (97%)	130 (91%)	43 (30%)	40 (28%)	138 (96%)	52 (36%)	43 (30%)
No	8 (6%)	39 (27%)	5 (3%)	13 (9%)	100 (70%)	103 (72%)	5 (4%)	91 (64%)	100 (70%)
	143	143	143	143	143	143	143	143	143

The above results demonstrate that majority of respondents are active on WhatsApp chatting platform and email – which account for about 97% of all active online accounts that the students possess. Social media accounts that attracted almost equal participation among the respondents include Facebook (94%) and Instagram (91%). Most of the respondents did not have active accounts with LinkedIn, Snapchat and YouTube social networking sites, with blogs attracting only 40 (28%) of the active respondents. On the whole, respondents were generally active on the majority of the social networks.

4.4 Descriptive analysis of study variables

In the following sections, descriptive statistics for each study variable are given and the results discussed together with findings from the FGDs and content analysis of the online journalism modules. This enabled meaningful interpretation of the data in the wider context of how relevant digital skills can be developed in the future media professionals for them to be confident to face the industry.

4.4.1 Characteristics of training content

The first objective investigated the predictive role of the characteristics of the module content on the students' self-efficacy for online journalism. Drawing from extant literature, the variety of skills taught, teaching focus (practice vs theory) and industry orientation of skills were selected to represent this variable. The results are shown in Table 4.7.

Table 4.7: Response rates for characteristics of training content

Construct	Indicator	SA	A	N	D	SD
Skill variety	Most modules integrate online content	23.78	41.96	15.38	16.78	2.10
	Diff. multimedia skills are taught	44.76	33.57	12.59	6.29	2.80
	Diff social media skills are taught	37.06	39.86	11.19	9.09	2.80
Theory vs practice	Teaching online journalism focuses more on practice than theory	48.25	27.97	13.29	6.29	4.20
	Evaluations focus on products created	32.17	41.26	15.38	9.09	2.10
Relevance to industry	Industry case studies (for example online news sites) were used to improve learning	24.48	44.06	13.29	10.49	7.69
	Skills taught include what the media industry currently needs	29.37	37.76	16.78	9.09	6.99
	AVERAGE	34.3	38.1	14.0	9.6	4.1

Key: SA = Strongly Agree; A = Agree; N = Neutral, D = Disagree; SD = Strongly Disagree

Combining the results of SA and A for easier interpretation, results indicated that most respondents (65.74%) affirmed that online issues are cross-cutting in most of the modules taught under the different mass communication programs – implying that students had been exposed to several aspects of new media technologies throughout the course of their study. While 15.38% of the respondents were non-committal on their judgment of this, 18.8% disagreed. Teaching in the online journalism modules was considered by a majority of the respondents (76.22%) as more focused on practical work than to theory. While 13.29% were non-committal about their views on this, this, 10.49% of the respondents seemed to think the modules were theoretically focused. As far as assessment of the acquisition of skills was concerned, majority of the respondents (73.43%) agreed that practical exercises (for example, production of blogs) were used to evaluate the students.

As to the nature of content taught in these modules, a combined majority agreed that social media skills (76.92%) and multimedia skills (78.33%) formed crucial components of the skills delivered. To gauge how online skills training matched with industry needs, 68.54% of the respondents opined that trainers regularly used cases or examples from the industry to prepare and deliver their content in class. This is confirmed by the question of whether online content taught is updated to industry standards. Most of the respondents (67.13%) affirmed this to be the case.

The general impression from the results is that the majority opinion favoured the current online content taught, the alignment of online skills with industry needs as well as the strong practical angle taken in teaching the online journalism modules. The average agreement response rate to these issues is 72.4%, with 13.7% expressing disagreement. A content analysis of the online journalism modules taught at the five journalism schools indicated that a wide variety of digital skills are expected to be taught. Table 4.8 shows a summary description of the skills taught and their prevalence across the five journalism schools.

Table 4.8: Digital skills in the online journalism modules analyzed

Content taught	Skills expected to be gained	Prevalence
Multimedia production	Produce news stories on different formats	100%
Social media production	Use diverse social media tools to tell news stories	100%
Audio & Video Editing	Use relevant software to edit stories for online	100%
Newspaper production	Produce online newspapers using the right software	80%
Writing for the web	Use proper conventions online news writing	80%
Online broadcasting	Produce and transmit radio and TV news online	20%
Online ethics	Being responsible and ethical in online publishing	80%
Online public relations	Use different online tools to do public relations	60%
Computer-assisted reporting	Conduct research with different Internet tools	20%
Photojournalism	Capture and integrate images in online stories	80%

The results show that all five online journalism modules (100%) focus mainly on skills in multimedia, social media and audio-visual editing. However, four out of five of these

modules (80%) specifically offer skills in photojournalism, online newspaper production, writing for the web and online ethics. A small number of the modules (20%) integrate online broadcasting and computer-assisted reporting as separate skills in their online journalism modules. These findings corroborate the survey results of the current study which indicated a prevalence of multimedia and social media production skills among the majority of respondents. Missing in all the modules analysed was content on emerging skills such as data journalism and visualization where artificial intelligence tools and algorithms are used to mine vast amounts of data to tell stories and make decisions based on this 'hidden data'. The issue of online media entrepreneurship as a subject that is gaining currency in most media schools was also not on the online journalism modules menu.

Further analysis revealed that apart from one school that offered the online journalism module across two years (i.e. online journalism I and II at the 2nd and 3rd year respectively), the rest offered the module at 2nd year. Splitting the online journalism module is consistent with scholarly evidence that underscores the need to manage the complex functional skills required under this type of a module by allocating adequate time to master each of the practical skills progressively (Jeanti, 2015).These findings on the possible role of training content characteristics in developing media students' efficacy for digital skills align well with empirical studies that have advocated for a coherent digital skills framework that endeavour to address the whole gamut of online media industry expectations (for example Tanner, 2014; Iyer, 2015; Jeanti, 2015; Ramachandran & Balaguru, 2014). Being a technology-driven industry, it has been suggested that media training departments focus on digital content and training approaches that produces future professionals with hands-on online skills (Pavlik, 2013).

When asked to describe how online journalism training was meant to help them as future professionals, FGD participants considered the objectives of the online journalism module under three themes: 'teaching how to professionally create and share online stories with others', 'exposing the future professionals to different tools of online news

production' and 'helping the students to prepare for careers in the online journalism and communication field'. One male participant in FGD4 justified online journalism skills thus: '[…] because the media industry is now depending on social media like Facebook, twitter and others to know what the audiences are thinking about their stories, I think we need to know how to work with such skills'. Another female participant in FGD1 noted that 'because the work environment is changing to social media and other technologies, we really need the skills. So, the [online journalism] module is really necessary for us'. In the opinion of a female participant in FGD2, 'teachers should ensure that the module gives them different skills to work with new technology, whether in public relations or journalism domains. Another participant made an observation that 'everyone is like a journalist because of social media. I think if we learn this module we will be better than them [audiences] in a professional way' (female participant, FGD5). The opinions expressed were consistent with studies that underscore the need for media industry stakeholders to recognize the rapid changes in technology and endeavour to prepare future professionals accordingly (Quinn, 2010).

Asked what practical skills they thought they gained from the content taught in the modules, FGD participants gave varied examples. For example, one female participant in FGD1 noted that they "learnt how to create blogs and update them and […] analyse news content…for example, [to identify] fake news in online news stories". Another mentioned having learnt web and social media skills: "We used Joomla to do creative web design ….I remember we also studied the use social media [though] in a theory course called Media and Society" (male participant, FGD4). A female participant in FGD3 noted how they could innovate with search engines to "access social media platforms to study them" and also "learnt how to develop and publish online stories, and produce the department newspaper online with Adobe InDesign". One female participant in FGD4 mentioned how they could "post videos online in Vimeo…and how to link these to stories". She also confirmed that they learnt how to observe ethical issues when posting materials online. This point was also mentioned by two male participants

in FGD1 and FGD5. In one of the schools that focused on online broadcasting as a key component of online journalism, several FGD participants affirmed their knowledge of practical skills in using mobile phones to capture, edit and post audio and video stories online. A female participant in FGD2 mentioned that the production of the school newspaper helped them to learn "how to use Adobe In Design even when installed on our laptops".

While the discussions did not capture the depth and breadth of all online skills learnt, views from the FGD participants showed that certain common areas like web design, blogs, newspaper production and social media tools like Twitter were the most common skills taught. This is in line with majority survey respondents who confirmed having been taught multimedia and social media production skills. While considering the above skills as crucial, scholars like Kaasbøll (2014) urge media educators to consider adding photojournalism and audio-visual production to complete the catalogue of priority skills for future professionals. These additions were observed in some modules and supported by FGD comments in the present study.

To test the common belief that the youth can teach themselves most online tools (see Kothari & Hickerson, 2016), FGD responses were divided. But most participants affirmed that online tools such as social media were easy to learn (or be taught by colleagues). For example, a female participant in FGD5 commented thus:

Most of the social media sites we know nobody taught us. We just discovered on our own but also through friends who are using them. So I guess learning even how to use them at work might be easy. You just become more formal.

A male participant in FGD1 seemed to support this view by observing that "Somehow when you try most of the social media sites you discover a lot [by] yourself. But also colleagues help to discover". However, some participants thought the lecturer needs to play a direct role in social media skills development by not assuming these tools are easy to master. One male participant in FGD3 observed that some lecturers 'assume that we know all, to have Facebook account and YouTube does not mean we can use them well

at work. I think lecturers can guide on the steps for professional use". One female participant in FGD1 noted: "even the lecturers do not have enough practical knowledge on things like web design…some studied before the new [journalism] softwares….so now they expected us to know many things as we are young[er]. It is not fair".

Although this apparent generational gap in digital competence is generally acknowledged, scholars suggest that effective training in such skills will only be achieved if the instructors adopt the right attitude and challenge themselves to fit into the dynamic media environment (Jeanti, 2015; Bethell, 2010; Iyer, 2015). In general, the modules analysed showed a bias towards practice. For example, module descriptions phrase these expected learning outcomes or objectives of the module in terms of the students ability to: "master all the techniques of web design", "manipulate all tools and techniques for example print, audio, TV and social media', "be exposed to hands-on skills in radio, newspaper, TV and blogs", "produce stories on internet platforms such as Youtube, Instagram, WhatsApp, Facebook, Twitter, etc. and "complete multimedia projects using video, text, audio, still images, and animated graphics". However, given the weight of the skills to be learnt, some FGD participants seemed to disagree that adequate time was allocated to master these skills. One FGD participant expressed his online journalism skills gaps wrought by lack of adequate hands-on exercises were captured by the following excerpt:

If you ask me how ready I am I would say I am in the middle. I am not ready to the extent I am convinced […] you know this online media is new. There is something I need to clarify. I miss [skills] like how to create blogs, website, although I can write a story and post. (Male participant, FGD5)

A male participant in FGD1 regretted that although they learnt good skills, he would have liked to know "how can I become rich by using using social media …I think me I needed to learn to how to use them …to make money. You know people nowadays are looking how to get many audiences online for money". In his support, another female participant quipped: "yes, we need to know how to social for business […] in order to

survive." Although the concept of monetizing news content was not expressly indicated as a learning objective in the analysed online journalism modules, new media researchers argue that having a strong online presence with quality stories that can attract many audiences is what many media houses and individuals have capitalized on for maximum monetary gains (Wenger & Owens, 2010).

The different skills gained by the FGD participants are largely consistent with the expected learning outcomes described in the online journalism modules. From the content analysis, the following excerpts from the module descriptions summarize the expected learning outcomes from the five online journalism modules: "students will have opportunities for practical skills that address the dynamic market needs", "students will know and understand what they need to work on radio, newspaper, TV and blogs [online] and all this comes with hands-on skills", "the integrated curriculum will enable students to harness the potential of digital media for both journalism and strategic communication", "the objective is to train professionals who can manipulate all tools and techniques used in […] social media" and "students will be able […] to dialogue, reflect, write, and complete multimedia projects using video, text, audio, still images, and animated graphics to tell stories in an interactive, digital environment".

Content analysis of the online journalism modules also revealed that teaching in the modules emphasized more practice than theory, with students expected to have acquired digital practical skills by the end of the classes. Examples of phrases used to describe practical teaching approach included "hands on, internet-supported and with various multimedia projects", "the module is mainly practical and will require students to demonstrate ability to produce different types of stories for the online platforms" and "the module adopts a practical approach to learning online skills […]". Although FGD participants generally commended that practical teaching approach adopted in most cases, some raised limitations as to practice time, narrow choice of skills taught and few resources to share among many students.

One important observation made during the content analysis was that some modules indicated a wide variety of digital skills to be studied, yet such modules were allocated a maximum of 20 credits (about 72 hours of face-to-face class time). The discordance between module descriptions and actual learning outcomes was evident in some opinions from the participants. For example, according to one module, students were expected to be able to produce news stories on YouTube, Facebook, Instagram, Twitter and WhatsApp. Yet many FGD participants confirmed that in class they only set up accounts on Twitter and blog but did only a few posts. The rest of the social media tools were not explored in class context, despite the modules having the maximum number of credits allowed.

Researchers argue that digital competence is demonstrated by the ability to create content in a variety of formats and effectively communicate it via different digital tools and applications (see Ferrari, 2013; Pew Research Center, 2014). While module descriptions fore-grounded a practical, hands-on approach to online journalism learning, some misgivings were raised by FGD participants about how the online modules were delivered. For example, one male participant from FGD1 lamented thus:

We should have done more practice, for example…how to use social media more professionally. Practical work should be more than the theory…may be lecturers can explain to students how to explore the social media […] and then increase the time for online searching.

A female participant from FGD5 criticized the wrong assumption of some lecturers about students' ability to teach themselves digital journalism skills:

Some lecturers already think that …now that you are at university, you should learn these online skills on your own…they don't say it but they expect us to know. For example, that is why we are given group assignments in most of these online journalism assignments to teach each other.

Another female participant in FGD4 also mentioned the time limitation for practice:

When we were learning thoses courses, we focused on theory…though we know about things like Instagram and others we didn't know how to organize news…yes, we did something but for me I think the challenge was few hours [for practice] in a week.

Challenging lecturers to adjust their approach to teaching this module, a male participant from FGD2 suggested that:

> […] lecturers have to be available to guide students in their practice […] that is why we pay money. We need to balance theory and practice… ok I know we dotcoms are ahead [of some of them] but they need to play their roles that is why we have computers.

In assessing the skills leant in the online journalism classes, content analysis showed that students were assessed summatively through a combination of theory and written exam in two modules. The rest evaluated students' skills through several practical online journalism projects that accounted for the overall grade. One issue raised by the some FGD participants was the tendency for lecturers to give practical productions in large groups which means some students did not participate actively. In the words of one male participant from FGD2, "producing a news story as a group is good but also bad because, we know some people don't want to participate. But we get same marks at the end". A female participant from FGD1 supported the synergy in group productions in the online journalism class: I remember when we were told to make a small website for our school. I think it was our colleague Jean Baptiste who helped us because he had developed a website before. So, we also learnt from him. But everyone brought his story for the website.

Although some studies consider today's journalism education as mainly biased towards the traditional journalistic skills (for example, Oselydnu & Hornburg, 2011), results of this study show that Rwandan journalism schools are making efforts to balance the traditional skills of news production with modern ones by integrating new media content in the curriculum to align with the expectations of the workplace.

The foregoing discussion demonstrates the role of appropriate content and teaching approaches in fostering digital preparedness for future media professionals. The findings resonate with research evidence which calls for a balanced mix of digital skills that can be taught in a journalism course, the need for collaborative academia-industry relationships to identify relevant journalism skills to be taught as well as creating the right environment for adequate practice to master the skills (Veglis, 2013; Tanner, 2014).

4.4.2 Training resources

The second study objective assessed the predictive role of training resources in students' self-efficacy for online journalism. Drawing insights from relevant literature (for example Cochrane et al. 2013; Bor, 2014; Kwanya, 2014), this objective was indicated by the availability, accessibility, appropriateness and adequacy (diversity) of the technical resources used in teaching online journalism as well as perceptions of instructor competence. Table 4.9 shows the results.

Table 4.9: Response rates for training resources

Construct	Indicator	SA	A	N	D	SD
Access & quality of facilities	Software and hardware resources are adequate for online skills training	20.28	38.46	18.88	18.88	3.50
	Library has manuals on multimedia production skills	29.37	33.57	15.38	20.28	1.40
	Internet is often reliable	28.67	30.07	22.38	13.99	4.90
	Internet is accessible at many sites on the campus	49.65	30.07	13.99	4.90	1.40
Trainers' competency	Instructors know most online media tools	24.48	36.36	16.78	19.58	2.80
Variety of training tools	Mobile phones are used to teach online stories production	41.96	41.26	7.69	5.59	3.50
	We use online tutorials to improve our journalistic learning	35.66	38.46	11.89	10.49	3.50
AVERAGE		32.9	35.5	15.3	13.4	3.0

Key: SA = Strongly Agree; A = Agree; N = Neutral, D = Disagree; SD = Strongly Disagree

An assessment of the accessibility and adequacy (quality) of the online journalism training resources indicated general agreement to these issues. Aggregated responses showed that more than half of the respondents (58.74%) considered the teaching resources (software and hardware) as sufficient for the online skills courses. On exploring the accessibility to and use of these online sources through several internet connection sources, results indicated that 58.74% of the respondents considered internet connectivity as reliable. While a majority (79.72%) agreed on the possibility to access and use internet for learning purposes at different spots (for example computer labs, campus hotspots and through the mobile phones), only 6.3% disagreed while 13.99% did not show any inclination. The library was also regarded by 62.94% of the respondents as a crucial internet site to access online journalism learning sources. As to whether trainers exhibited competence on online journalism training, majority opinion (60.84%) affirmed the self-efficacy of trainers and ability to deliver the skills required. To supplement training given in class, it was imperative to enquire if respondents leveraged the 'teaching' power of internet resources. To this end, 74.12% of the respondents confirmed accessibility of online tutorials to improve their journalism skills. While 11.89% of them showed no inclination, 13.99% of the respondents confirmed never eliciting the power of the free online tutorials to augment their levels of online production skills.

To teach the online journalism modules, content analysis of the modules revealed that some of the technical resources were in place (or would be required). These included computer laboratories (with adequate number of computers), Internet connectivity as well as access to library reference materials. While one module described the physical learning environment as "internet-supported", another described the available resources as a "hub of innovative digital labs, convergent newsrooms and integrated curriculum". In another module, the teaching resources were indicated as "adequate computers and reliable internet connection (including wireless)". Although the use of mobile phones in journalism production was mentioned by some FGD participants, this resource was not

explicitly indicated in most of the module descriptions. Some modules also emphasized the use of external sources of journalistic learning like guest speakers and relevant industry case studies. This showed an emphasis on strengthening the academia-industry linkage. One FGD participant commended the partnership between her school and the Fojo Media Institute for investing in the use of mobile phones for multimedia production: "this training with mobile phone has really helped us […] without enough computer in the labs and other production equipment, I thank the school and our volunteers from Sweden…producing stories for online news sites looks easy now". (Female participant, FGD1)

Despite module descriptions indicating the availability of adequate training resources, some FGD participants considered these as exaggerated. Consider one comment from a female participant in FGD2: "Yes, the modules look well written but not everything is true. For instance, saying we will study with modern computers, latest software and internet connection […] this does not always happen as equipment like labs are not always available". Another participant observed: "sometimes when you read the module description, you can think wow, we shall study and do a lot of practice. But this does not happen because of time to practice…even materials are never enough for everyone" (male participant, FGD3). Thus, although the module descriptions indicated the presence of latest multimedia production facilities, this was refuted by some FGD participants who considered the equipment modest.

On the whole, the findings agree with scholarly opinion that effective development of online skills require a connected multimedia environment where students have unfettered access to the resources to practice their multimedia production skills (Alves, de Souza Filho, Moura & Brito, 2014; Switzer & Switzer, 2013). Although the module descriptions reviewed emphasized the existence of adequate online training resources to practice (possibly only used as a marketing gimmick), some FGD participants did not corroborate this. As illustrated by the following comments, an upgrade of the resources would have boosted the online journalism skills of the students: "I cannot say I am good

at online media tools in this university. I didn't get enough access to internet. It was made difficult by relocation of the school, although I can somehow create a website" (Male participant, FGD1), "You can't talk about online skills without network (sic). I can't blame our lecturers because of being more theoretical than practical…It is the problem of materials…and the university is bringing more students without considering number of resources". (Male participant, FGD1)

To confirm the extent of mobile phones use in multimedia production, in place of the 'more traditional' cameras and recorders, participants generally responded in the affirmative (almost in unison). However, underscored the limitations of a phone as a multimedia production tool expressed thus: "Yes, a mobile phone is an often-used tool especially when they give us internet connection [bundles] for learning purposes [...] though it is sometimes slow. If there a permanent internet hotspot at the campus, it would be better" (Male participant, FGD5), "A smart phone is good because I can take pictures and upload stories on my blog. But we can't use smart phones for editing …that is why we need cameras". Another participant noted that rigidity of some media houses in using new media tools: "Some organizations still believe in the cameras and recorders…they can't accept stories from mobile phones". (Female participant, FGD3)

Although the participants' comments might have merit, other scholars assert that using more affordable media platforms like mobile phones saves media training schools from having to chase the last new media gadget on the market (Jeanti, 2015). Researchers have argued that a cell phone and the necessary digital curiosity are all that media students require to produce quality news stories (Cohen, 2013; Bethell, 2010). While some participants commended the level of online journalism training resources in their schools they observed that students themselves had underutilized them. For example, one female participant in FGD1 noted: "For me I can say that we have the resources. We have 2 studios, enough computer labs, even though [they] cannot satisfy all of us and the wireless is available. The software is also updated. I think we practice more." A male

participant in FGD3 observed that generally the computer labs are accessible but "[…] the students have to play their role".

Although the participants' comments have merit, Jeanti (2015) asserts that using more affordable media platforms like mobile phones saves media training schools from having to chase the last new media gadget on the market. While some participants commended the level of online training resources in their schools, they quipped that students themselves had underutilized them. For example, a female participant in a FGD, observed thus: "For me I can say that we have the resources. We have 2 studios, enough computer labs, even though [they] cannot satisfy all of us and the wireless is available. The software is also updated…..I think we practice more". Her Male participant in another FGD added, "I think the labs are accessible…but they [university] have done their best…the students have to play their role too". (FGD3).

In a nutshell, results showed some well-defined module descriptions but which fell short of the adequate and appropriate resources to run the trainings. The challenge of inadequate training infrastructure highlighted by some FGD participants in this study is consistent with studies (for example that have considered constrained resources as having made it difficult for many journalism schools to adequately introduce and train courses (like web development and online news productions) which are Internet-dependent.

4.4.3 Online media habits

The third study objective examined the role of students' online media habits in predicting students' self-efficacy for online journalism self-efficacy in Rwanda. Empirical research suggests that such online habits can be conceptualized as the exposure to online tools, usage behavior including frequency and actual roles played (whether as only consumer or as prosumer – both consumer and producer) and the motivation or readiness to keep up-to-date with different online skills. Table 4.10 shows the cross-tabulated results under this objective.

Table 4.10: Response rates for online media habits

Construct	Indicator	SA	A	N	D	SD
Engagement with online audiences	I create, post and share new stories, ideas, images, etc. on my networks	54.55	31.47	11.19	1.40	1.40
	I often read other people's posts without giving feedback	30.77	36.36	16.08	11.19	5.59
	I have created groups on my social media networks and keep adding new members	33.57	30.07	6.99	18.88	10.49
Online media usage frequency	I regularly use my social media tools to catch up with news	64.34	30.77	4.20	0.70	0.00
	I regularly follow media professionals online	57.34	32.17	6.99	2.80	0.70
Online accounts ownership	I have several active online media accounts	16.78	23.08	19.58	25.17	15.38
	I always explore new online tools and skills to learn	22.38	29.37	25.17	16.78	6.29
	AVERAGE	40.0	30.5	12.9	11.0	5.7

Key: SA = Strongly Agree; A = Agree; N = Neutral, D = Disagree; SD = Strongly Disagree

To assess the online behaviour of the students, respondents indicated whether they considered themselves active (actively produce and share content with others) or passive (just readers/viewers of content that is posted by others). Aggregated results revealed

that majority (86.02%) considered themselves prosumers, indicating that they were active in creating and sharing posts as well as consuming what others posted. Conversely, fewer respondents accessed and read other people's posts without necessarily giving feedback. 63.64% affirmed that they had led in the creation and updating of online member groups (for example WhatsApp and Facebook) to share common stories with interested colleagues.

On the frequency of usage of different online tools, majority of the respondents (95.11%) were regular users of different social media tools. In addition, 89.51% of them actively followed and interacted with the online works of their favourite industry professionals, indicating possible professional inspiration from the practitioners. Although keeping an active online account may be an indicator of continuous engagement with other online audiences, this study's results revealed that only about 40% of the respondents kept their accounts active. Around 41% of the respondents did not regularly visit their different online accounts. Asked if they regularly explored emerging online tools, about 52% of them showed their enthusiasm to discover and learn new online skills.

The general impression created by the respondents' online media habits was that of online-active group which actively participates in different content creation and sharing activities, is fairly in touch with the online works of other professionals and is keen to learn emerging technologies. The results resonate well with studies that underscore the role of audience participation in user-generated content (UGC) in different social networking sites. Such participation is considered crucial in not only providing users with quick information sources, but also participate in devising new ways of story-telling on the online platforms (Kautsky & Widholm, 2008). Furthermore, scholars like Aifan (2015) argue that if many students are engaged in online activities there is a high possibility of using online tools to teach themselves important skills as they discover and experiment with different features of these online tools.

The fact that online behavior may lead to incidental professional learning was supported by some FGD participants who attested that they had gained useful knowledge by engaging with online audiences. Some participants thought that what one did online could impact on how they are viewed at work. Here are sample comments: “I don’t think it is important to teach social media creation in journalism school…but may be the content to put in them in a professional way” (female participant, FGD1); “For me I think they [social media] are like addiction. Since I always visit my social media it is easy to do many tasks with them” (female participant, FGD4); “Yes I use internet a lot for searching the news and […] trending topics. In this way I update myself. I think I have gained good skills” (male participant, FGD1)

Others believed they were confident to perform online journalism tasks since they “use Youtube to learn how to edit using Adobe Premiere”, “like writing stories and posting online”, “have a blog which I regularly update”, “always take pictures and post them, then people comment on them […]”. In the opinion of one male participant from FGD1, feedback is key to improving his social media skill: “I took pictures when we were in *Umuganda* [community work]. I liked how the Mayor of Kigali commented about the pictures and I was encouraged to do more”. Although a few FGD participants considered having many social media accounts as a job marketing tool, some considered it more important to “know the audience you target with these tools and what information they need […] since you cannot force audiences on tools they do not use” (Female participant, FGD 3)

Despite individual online media habits being associated with professional learning, some participants were of the view that the habits might not necessarily replace formal learning. For example, one participant commented that ‘the way you publish online…you may publish bad things that will affect you after in your profession…you need care (female participant, FGD1). Another thought that real professional skills were better taught formally: ‘even with high online media activities, if you do not have good journalism writing skills, it may not help’ (male participant, FGD5). Although the

reviewed modules did not expressly indicate the role of individual online behavior in the students' own digital skills development, some modules indicated that students were expected to do more practice on their own, possibly due to the ease with which their usage features can be learnt without the intervention of the instructor.

While the results of the present study largely support evidence that individual use of online media tools may contribute to professional learning, the debate is still inconclusive given divergent scholarly viewpoints. For example, Robson & James' (2011) survey on whether the use of social media by PR practitioners could influence their use of it in real practice indicated a direct link. The social media behaviour provided the necessary confidence in actual professional performance.

4.4.4 Industry experiences

This fourth study objective determined the role of industry experiences in predicting the students' self-efficacy for online journalism. These experiences were conceptualized as the online skills gained during fieldwork (internships), creation and maintenance of professional online spaces like blogs, websites, etc; contribution of stories to online news sites (solicited or unsolicited), industrial case studies in class, and participation in online coverage of actual news events (for example live tweeting and skyping). Table 4.11 shows the cross-tabulated results under this objective.

Table 4.11: Response rates for industry experiences

Construct	Indicator	SA	A	N	D	SD
Skills gained from industry	I learnt to use different online tools during my internship	53.15	25.87	4.90	6.99	9.09
	I participated in online news production for an organisation	23.78	28.67	18.88	19.58	9.09
	I have done live online coverage of an event	29.37	34.27	6.29	11.89	18.18
Contributions to industry	I have developed social media accounts for organisations	14.69	20.98	13.99	22.38	27.97
	I contributed stories to online news media	16.08	41.96	18.88	14.69	8.39
	Class practical work involved actual industry online productions	14.69	41.96	26.57	9.09	7.69
	I participated in design and production of our school newspaper, online radio, etc.	23.08	24.48	11.19	23.08	18.18
Contacts with professionals	I use the works of other professionals to improve my journalistic skills	51.05	35.66	9.79	3.50	0.00
	AVERAGE	28.2	31.7	13.8	13.9	12.3

Key: SA = Strongly Agree; A = Agree; N = Neutral, D = Disagree; SD = Strongly Disagree

Industry experience was considered as the online practical exposure that respondents gained or contributed in the media industry as they carried out their official fieldwork, during volunteer work or application exercises in class that addressed industry needs. The role of fieldwork in boosting the online journalism skills of the respondents was evident from the combined results that showed that 79.02% of the respondents affirmed having gained practical skills like social media during their fieldwork. While more than half of the respondents indicated that they had acquired practical skills in online stories production, 63.64% were exposed to online live coverage (for example through Tweeting and Skyping of events like workshops) for the host media houses. Scholars (for example Iyer, 2015) indicate that such exposure to live coverage with social media tools is pivotal in transferring the future professional from the 'social' to the 'professional' touch of employing such tools for practical professional applications.

About 58% of the respondents considered themselves regular contributors of stories to online news sites. Contributing stories (solicited or unsolicited) to the news media has been touted as one excellent way to not only improve one's visibility in the market but also develop self-efficacy for news writing, if the stories get published. As to whether the respondents had participated or helped to develop social media accounts for different organizations, about 36% of the respondents said that they had participated in the creation and maintenance of some online accounts for some organizations.

Most of the respondents generally appreciated the use of real industry cases in the teaching of online journalism skills. About 57% of them considered the class practicums to be aligned to industry practice, possibly implying that the practical exercises were relevant for their practical learning. While scholarly journalism (for example school newspaper, campus radio/TV station, etc) is regarded as an instrumental tool of preparing the future professionals for the industry (McDevitt & Sindorf, 2012), only a few respondents (47.56%) in this study considered themselves active participants in their school's extra-curricular practical journalism activities for example contributing stories to online school magazine). Most of the respondents (86.71%) indicated that they

frequently followed what other professionals in the industry were posting online, indicating that they kept tabs with the industry and possibly drew important gratifications for others' works.

In summary, an interrogation on the issues relating to online work-related experiences revealed that, based on the average response rate, about 60% of the respondents considered their online work-related experiences as a potential contributor to their readiness to work in the online workplace. These findings are congruent with other similar studies that underscore the critical role played by 'real-world' scenarios or practical exposure in the professional skills development of the students. In line with Bandura's (1986) assertion that self-efficacy for performing a given task is best gained through observing others performing similar tasks and mastering the skills or behavior learnt, the respondents' participation in actual production events and simulated case studies can be argued to potentially heighten their beliefs in their ability to perform similar online journalism tasks when they eventually graduate to the industry. Experiences with such authentic scenarios as the industry has been considered crucial in giving the 'professional meaning to the direct experience gained' (Palilonis, 2010; p 23).

As mentioned earlier, the rationale of most online journalism modules taught (as indicated in their descriptions) was to train work-ready graduates for the dynamic online media environments. The module descriptions had market-focused themes such as "extensive market survey done […] before designing the program", "[…] course content and facilities will help you compete on the job market", "students will obtain practical skills to meet the market needs", and; "[…] embracing the technology changes that are transforming the communication industries". These descriptions portrayed the centrality of 'work-readiness' as a driving force in the design and delivery of the modules. The practical focus (mainly project work) in a number of the modules, as part of continuous and summative assessments, also attested to the urgency of training for the industry.

Focus group participants commended how their online journalism skills were developed 'on the field, with many attributing their online journalism readiness to the tangible

skills they got during internships. For example, comments about having learnt to use social media tools in live events were common. The following remarks attest to the role of online work-related experiences in developing important online skills among the respondents':

During my internship at the Gisagara district Mayor's offices, I learnt many things like creating a website […] and hosting or publishing videos on district events in the YouTube channel.. I also posted local stories on Twitter and Facebook pages of the district. (Male participant, FGD1)

A female participant from FGD5 noted how she developed her web development skills: "I have done a website at my place of internship *Ni Nyampinga* [Queen]. So, I am ready […] I learnt this skill when I started doing volunteer work in different organizations during my holidays". Another female participant in FGD4 commended the internship done at the Rwanda Television which enabled her to "go to the field, get some photos and develop some script to send directly to the studio…sometimes we skyped directly from the field to the studio". A FGD1 male participant experience "live use of social media networks like Twitter, Facebook and WhatsApp during talk shows where we could interact with audiences through their comments". A number of FGD participants also confirmed being ardent followers or consumers of professional works of news media practitioners. For example, one female participant in FGD3 followed professionals like RTV's Cleophas Barore and Jean Paul Kagabo because they "always update their online stories". A female participant in FGD2 said she regularly read and commented on the tweets of her lecturer, Dr Kayumba since the tweets "educate me, so every day I have to check what he has written […] although I don't like some of his politics". While one male participant in FGD1 commends certain Youtube videos (like from a research lecturer called Lewis) for 'teaching' him how to do his final memoire (research), a female participant in FGD5 is keen on learning "how to ask questions in live interviews" so she follows different interview shows online, especially on Youtube. Learning from peers is a central component of Bandura's self-efficacy theory which

underscores the role of modeling other people's behavior through a social persuasive process that instills confidence to believe that one can perform like his or her peers through observation.

These FGD comments generally support the role of pre-employment online media exposure positively influencing students' eventual performance on the job. This validates claims by scholars like LaRose, Mastro & Eastin (2001) that having had previous positive experiences with a technology is likely to lead to high self-efficacy beliefs in using the technology again in the future. Opinions from the different focus group discussions confirmed the survey results which demonstrated a majority of the respondents linking their work-related online experiences to a high level of online journalism self-efficacy.

The role of media houses as 'teaching hospitals' (see Anderson et al., 2011) for journalism schools is evident from this study. Use of simulations or live online journalism experiences in the field have been observed to encourage students to innovate with different tools as they work in real world settings (Mensing, 2010; Robinson, 2013). It has also been argued that integrating study with work not only boosts the students' work readiness but also teaches the future professionals the need to maintain active relationships with the practitioners even after studies (Correa, 2010).

4.4.5 Attitudes to online tools for professional development

The fifth and final research objective aimed at assessing how attitudes to online media as tools for professional development could predict students' perceived online journalism self-efficacy. Of interest here was respondents' perceptions of online media tools as catalysts of their future employment, as part and parcel of their future survival in the industry, as industry game-changers, their impact on other traditional journalistic skills like writing, editing and self-expression, as trusted sources for professional growth, ability to learn such tools on-the-go as well as tools for competitive positioning of future

professionals. Table 4.12 shows the cross-tabulated results of the response rates under this objective.

Table 4.12: Response rates for attitudes to online tools

Construct	Indicator	SA	A	N	D	SD
Beliefs	Knowledge of online tools can get me employed	66.43	29.37	2.80	0.70	0.70
	Online tools can teach me new skills for my future job	72.03	26.57	1.40	0.00	0.00
	I believe my career depends on knowledge of new media technologies	51.05	33.57	9.09	2.80	3.50
Feelings	Using online tools decreases my ability to do journalism professionally	30.07	38.46	13.29	12.59	5.59
	The media industry depends on new media tools to survive	34.27	40.56	16.78	6.29	2.10
	Online tools are not always trusted sources of professional information	25.87	23.08	25.87	18.88	6.29
Behaviour	I am always ready to adopt any new online tools that emerge	56.64	37.06	4.90	1.40	0.00
	As a future professional, I learn about all new media technologies	65.73	25.87	7.69	0.70	0.00
	Anybody is able to learn how to use different online tools	55.24	26.57	7.69	5.59	4.90
	AVERAGE	50.8	31.2	9.9	5.4	2.6

Key: SA = Strongly Agree; A = Agree; N = Neutral, D = Disagree; SD = Strongly Disagree

An analysis of the perceptions regarding the place of online tools in the professional lives of the respondents showed that such tools were generally acknowledged as determinants of the professional online performances of media professionals. While the aggregated responses showed a great number of respondents (95.8%) considered the online tools as strong catalysts of their future employment, 84.62% acknowledged that knowledge of new media technologies was crucial in their future work. As if to confirm

the contribution of such tools in their future jobs, the vast majority (98.6%) thought the online tools were crucial in teaching the types of skills that the future media professionals would be expected to master for industry readiness.

Asked if the online tools had a potentially negative impact on their professional skills (e.g writing and self-expression), many respondents (68.53%) did not affirm this. This implied that only around 32% thought that exposure to such tools would eventually reduce their capacity to express themselves well. The media industry was positioned as highly dependent on the online tools for their competitive advantage, with majority responses (75.03%) favouring this view. While this may be positive, it is likely to put the industry on the edge (Jeanti, 2015) to attract and keep audiences with their dynamic tastes and preferences, as online technologies develop exponentially. Supporting empirical evidence on trust with online sources (for example Flores, 2010), online news sources were not regarded as fully trustworthy for professional purposes. This opinion was split between those who agreed (48.95%) and those who did not (25.17%), with 25.87% remaining neutral about it. This divided opinion suggested that perceptions regarding this issue may have involved a balancing act between the obvious positive and negative effects of relying on online sources for storytelling.

Regarding interest in developing online skills learning, the majority of respondents (93.7%) considered themselves ready to learn emerging online tools, probably to increase their repertoire of skills for industry readiness. Also, the respondents largely opined that media professionals needed to be ready to learn all types of online tools as they emerged to make them competitive in the dynamic industry. This view attracted a 91.6% level of agreement among the respondents. The ease with which emerging online tools can be adopted for professional purposes was expressed by most respondents (81.81%) when they suggested that anybody could learn the tools. This majority view seemed to suggest that the barriers of accessing and learning with online tools were low enough to allow future professional to teach themselves different online skills.

On the whole, respondents expressed positive sentiments about the central position being played by new media technologies in shaping the nature and form of future journalism and communication practice. These tools were considered important levers of professional growth due to their characteristics of opening up opportunities of free learning experiences for future media professionals. A general overview of the different journalism programs in Rwanda indicated an inclusion of ICT modules in almost all years of study. For the online journalism modules analysed, all were allocated the maximum number of credits (20) and given a practical focus. This emphasis suggests that schools recognize the weight that such modules should carry in preparing the future media professionals for the industry.

The findings also confirm previous research which established relationships between students' attitudes to technology and the development of their digital competence. For example, Holmström and Siljebo (2013) considered the values of using new media technologies in enhancing students' personal and professional lives. Focus Group Discussion participants generally expressed positive opinions regarding online tools as drivers of their careers. One recurrent theme in participants' attitudes towards online tools for professional development is the unavoidability of the increasing role of technology in shaping the competition for audiences in the industry. One participant observed that "learning new media skills is a must for people in order to fit in the changing work environment" (Female participant, FGD2). According to one participant in FGD1, "to love the news media profession and succeed in it requires one to be ready to learn new skills and face its challenges". Another participant in FGD5 observed: "since the media industry is now almost driven by technology, we cannot avoid it …we have to try and keep ahead by discovering many things about what is happening social media'. (Male participant, FGD1)

In line with the positive FGD opinions regarding online tools, a report by the Project for Excellence in Journalism (2004) held that positive attitudes about new media technologies could be explained by a surge in internet dependency due to its nature as a

trusted source of information for different purposes. This support the provision of the technology acceptance model by Davis (1989) that having positive attitudes regarding the ease of use and usefulness of a technology is associated with people's positive beliefs in their confidence to successfully use that technology.

4.5 Summary of independent variable responses

To illustrate the general response rate regarding the foregoing digital skills development factors considered to impact the online journalism readiness of the respondents, Table 4.13 shows the aggregated results.

Table 4.13: Aggregated response rates by variables

	content characteristics	**Training resources**	**Online habits**	**Industry experiences**	**Attitudes to online tools**	**Average**
Generally Agree (SA+A)	72.4	68.4	70.5	59.9	82	70.6
Neutral	14	15.3	12.9	13.8	9.9	13.2
Generally Disagree (SD+D)	13.6	16.3	16.6	26.3	8.1	16.2
Total response rates (%)	100	100	100	100	100	100

Key: SA=Strongly Agree; A=Agree; N=Neutral; D=Disagree; SD=Strongly Disagree

From the results, it was evident that statements regarding attitudes to online tools for professional development attracted the highest agreement rate (82% of the respondents) followed by online training content characteristics (72.4%). Online media habits had an aggregate agreement rate of 70.5%, while 68.4% of the respondents agreed with issues regarding the online training resources. About 60% of the responses agreed with attributes of online work-related learning experiences as instrumental in preparing the students for online work in the industry.

4.6 Online journalism self-efficacy

As the dependent variable of the study, students' levels of their 'online journalism self-efficacy' were assessed on the basis of their self-evaluations in their confidence to effectively carry out online journalism research, create and manipulate content for multimedia platforms, use social media to communicate effectively, observe ethical principles in online journalism and devise innovative ideas using online tools to address organizational problems. These 'online journalism self-efficacy' indicators were adapted from Ferrari's (2013) digital competence framework and contextualized into online journalism practice.

Table 4.14 shows the cross-tabulated results on 'online journalism self-efficacy' variable.

Table 4.14: Response rates for online journalism self-efficacy

Construct/Indicators	SA	A	N	D	SD
Online journalism research I can identify good online sources in producing different news stories	42.66	48.95	5.59	2.80	0.00
I can use online tools to know what is trending in my news beat	53.15	37.06	8.39	1.40	0.00
I can distinguish credible from fake online story sources	32.17	41.26	16.78	5.59	4.20
I can properly attribute online sources for my news story	27.27	54.55	16.08	2.10	0.00
I can analyse audience reactions about a news story	44.06	43.36	10.49	2.10	0.00
I can find different online multimedia elements that can accompany a news story	32.17	49.65	15.38	2.10	0.70
Communicating with social media toolsI can use different social media tools to engage media audiences	65.03	28.67	4.90	1.40	0.00
I can participate in Skype discussions with story sources	18.88	30.77	23.08	14.69	12.59
I can create a professional image of myself and an organization using social media tools	45.45	36.36	11.89	2.10	4.20
I can moderate online discussions to avoid spread of bad messages	44.06	37.76	11.89	4.90	1.40
Creating multimedia contentI can create and organise content with online collaboration tools (for example electronic calendars)	25.87	41.96	16.78	11.89	3.50
I can create multimedia presentations to tell a news story	41.96	38.46	10.49	6.29	2.80
I can edit digital photographs or other graphic images using appropriate software for a story	35.66	34.97	19.58	7.69	2.10
I can create groups for social media like micro-blogs, video-sharing sites, wikis, etc.	24.48	30.77	24.48	12.59	7.69
I can design and layout a newspaper or magazine using the appropriate software	20.28	46.85	18.88	9.09	4.90
I can create and manage the website of an organization.	20.28	38.46	21.68	10.49	9.09
I can use my phone to capture and transfer photos, audios and videos in online sites	73.43	23.78	2.80	0.00	0.00
I can use appropriate software to create or mine, analyse and news stories from huge data sources	7.34	10.24	18.59	63.83	0.00
Journalism netiquette I can protect my professional image online	51.05	30.77	15.38	2.10	0.70
I can protect the online privacy of news sources	39.86	37.06	18.18	4.20	0.70
I can establish the reliability of online stories or story sources	31.47	46.15	16.08	5.59	0.70
I can apply Rwanda's code of journalism ethics relating to online publishing	49.65	35.66	10.49	2.80	1.40
Problem-solving with online media tools	31.47	46.85	15.38	5.59	0.70
I can identify the future digital needs of journalistic work					
I can combine my traditional journalism skills with multi-media capability	31.47	52.45	11.89	2.10	2.10
I can advise on new media tools to use in an organisation	39.16	51.05	6.29	2.80	0.70
I can help to develop a policy for new media use in a media house	39.16	44.06	9.79	4.90	2.10
I am adaptable to any new media technologies	51.05	39.86	6.29	1.40	1.40
AVERAGE	39.6	40.1	13.1	4.8	2.4

Key: SA = Strongly Agree; A = Agree; N = Neutral, D = Disagree; SD = Strongly Disagree

The level of students' online journalism research skills is indicative of how students can leverage internet tools to accomplish desired journalistic learning goals. Aggregated results showed that majority respondents perceived themselves capable of conducting online research to facilitate creation of news stories (91.61%) and also research what stories are trending on different news platforms in line with their preferred beats (90.21%). In their online research activities, 73.43% of respondents expressed their efficacy to distinguish fake news sources from the real, credible sources.

While an equal number of the respondents could properly attribute online sources and identify relevant multimedia elements for a news story (81.82% respectively), a slightly higher number (87.42%) indicated that they had the requisite analytical skills to collate and make sense of audience reactions to different stories on the online platforms. Regarding communication with social media tools, slightly less than half of the respondents (49.65%) were confident in using Skype for professional communication. Most respondents also expressed their confidence in their ability to employ a diverse range of new media tools to engage audiences (93.7%), create and maintain a professional online image by the content they posted (81.81%) and moderate online discussions to check incidences of hate speech. As to the respondents' practical online content creation skills, the ability to use of a mobile phone to capture and transfer images and sounds to online stories was affirmed by the majority respondents at 97.21%. This was followed by the respondents expressed ability to use online data to create stories (92.31%), their ability to use a variety of audio, visual and textual images to tell a multimedia news story (80.42%), the respondents' ability to use appropriate editing software to edit images for online stories (70.63%) and the ability to create and work with online collaborative tools such as digital calendars (67.83%).

It was evident that the ability to create websites and online tools such as video-sharing sites and participate in wikis attracted a lower rate of agreement than other content

creation tasks. In addition, it was noteworthy that majority of the students (about 64%) did not feel confident to use appropriate software to conduct data journalism – mine, analyze and develop stories from huge amounts of 'hidden' data. This might be understood in the context of not having such skills taught in the online journalism modules analyzed.

Generally, the study results demonstrated that most respondents were conscious of the ethical and moral issues underpinning online news production. While about 82% of the respondents knew how to protect their professional images online, 76.92% of them expressed their capacity to ensure the privacy of online sources used in news production. It was also clear that most of the respondents could readily understand and apply Rwanda's code of journalism ethics regarding publishing online stories. This is to do with respect and care for people's privacy, sensitivity to publishing online images especially of people in distress, hate speech and observing moral decency in what is put online.

Respondents were also asked if their experiences with different online skills in the course of their learning made them feel they could advise organizations on effective use of such online tools to boost audience engagement. Results showed that 78.32% of them expressed their ability to help media organizations to identify how online tools such as social media can be leveraged to shore up more audiences to their news products. While 90.21% thought they could advise the organizations which tools to use for better competitive advantage, slightly above 80% of them expressed their ability to develop a policy guiding the use of new media technologies in such organizations. Only about 10% of the respondents indicated that they were not adaptable to future online technologies. Thus majority (90.91%) could keep up with the trends in online technologies and thereby position themselves favourably to offer guidance to organizations.

The highest levels of self-efficacy were expressed in the online journalism research and problem-solving with new media tools. These were closely followed by journalism

netiquette and communicating with social media. The ability to create multimedia content was next. On average, about 80% of the respondents agreed that they were confident of performing the different online journalism tasks, indicating a generally high self-efficacy for online journalism across the respondents surveyed. This also implied that about four out of five of the respondents assessed themselves confident to execute most of the tasks listed under online journalism. While 13% of them could not specifically given an assessment on their level of confidence to perform the online journalism tasks, only about eleven out of the total 143 respondents (7.2%) posted low self-efficacy for online journalism. Further inferential statistical tests served to confirm the significance of these results especially as predicted from the predictor variables. This is discussed in the next sections.

4.7 Correlation Analysis

To assess the possible existence and strength of a two-way linear relationship between the digital skills development factors and the students' self-efficacy for online journalism, Pearson's correlation analysis was carried out on the data. The correlation coefficient was tested for its statistical significance by a measure of probability of 0.05. The resulting correlation coefficient (between -1 and +1) demonstrates the intensity of a relationship between the variables. While a value of 0 indicates no relationship, -1 and +1 values show negative (inverse) and positive (direct) linear relationships respectively. The intensities and directness of relationships are therefore determined by how close or far values are to these extreme values.

Table 4.15 shows the multiple correlation analysis between the digital skills development factors and online journalism self-efficacy of the respondents studied.

Table 4.15: Correlation matrix of independent variables and dependent variable

		TC	TR	OH	IE	ATT	OJSE
Characteristics of train content (TC)	Pearson Correlation	1					
	Sig. (2-tailed)						
Training resources (TR)	Pearson Correlation	.540**	1				
	Sig. (2-tailed)	.000					
Online media habits (OH)	Pearson Correlation	.243**	.229**	1			
	Sig. (2-tailed)	.003	.006				
Industry experience (IE)	Pearson Correlation	.400**	.357**	.165*	1		
	Sig. (2-tailed)	.000	.000	.049			
Attitudes to online tools (ATT)	Pearson Correlation	.327**	.304**	.184*	.296**	1	
	Sig. (2-tailed)	.000	.000	.028	.000		
Online Journalism Self-Efficacy (OJSE)	Pearson Correlation	.450**	.496**	.270**	.527**	.413**	1
	Sig. (2-tailed)	.000	.000	.001	.000	.000	

**Correlation significance at 0.01 level (2-tailed). *Correlation significance 0.05 level (2-tailed)

Cohen's (1992) rules of thumb were used as the basis for interpreting the observed correlation coefficients. Thus, correlation coefficients between -0.3 and +0.3 implied a weak correlation between the predictor variables and the criterion variable; values between -0.5 and -0.3 (or between 0.3 and 0.5) indicated a moderate correlation between the predictor variables and the criterion variable; values between -0.9 and -0.5 (or between 0.5 and 0.9) signified a strong correlation between the predictor variables

and the criterion variable and; values between -1 and -0.9 (or between 0.9 and 1.0) showed a very strong association between the predictor variables and the criterion variable.

In a nutshell, the correlation matrix revealed varying levels of interdependence between the criterion variable, online journalism self-efficacy and its predictor variables. This interdependence ranged from weak to strong (at 95% confidence level). The correlations were as follows: characteristics of the training content (moderate but significant correlation, i.e. r=.450, p-value .000), training resources (moderate but significant correlation, i.e. r=.496, p-value .000), online media habits (weak but significant correlation, i.e. r=.270, p-value .001), industry experiences (strong and significant correlation, i.e. r=.527, p-value .000) and attitudes towards online tools for professional development (moderate but significant correlation, i.e. r=.413 p-value .000). The low p-values (between 0.000 and 0.001) indicated that the predictor variables correlated well with the online journalism self-efficacy of the students. The strongest and most significant correlation was between industry experiences and online journalism self-efficacy while the weakest and least significant correlation was between online media habits and online journalism self-efficacy. This suggests that as industry experiences improve, the respondents' level of online journalism self-efficacy is also likely to increase. On the other hand, the online media habits were a weak factor in the respondents' beliefs on their readiness to do professional work with online tools. These results further confirmed that the variables did not suffer from multicollinearity problems since the respective correlation coefficient values were ≤0.8 as recommended by researchers like Tabachnick and Fidell (2007).

These results were consistent with other studies which argued that the most suitable technique for developing a person's digital skills is through experiential learning – which enables learners to create meaning of what they learn from direct experience obtained from real-world scenarios (Daniels, 2012; Palilonis, 2010). The findings from this study further showed that majority of the respondents greatly benefited from new

media skills gained during their internship, participation in live online reporting events, and interacting directly with industry professionals through their online networks.

Evidence suggests that students' online media habits may not necessarily correlate with their digital competencies for professional work. For example, Narasimhamurthy (2014) argues that although a digital culture might be associated with certain important online skills by virtue of being able to explore, experiment and play with different online tools, this habit does not necessarily apply to all youth. Furthermore, Internet use by the youth has been seen to be underpinned by '[…] mundane forms of communication and information retrieval as opposed to innovation for professional learning' (Buckingham, 2007, p. 14).

The characteristics of the online training content and online training resources had a positive moderate correlation with the students' online journalism self-efficacy. Although these factors have been mentioned as key to formal journalism learning, it seemed that their contribution was not so significant. From the FGDs, it was apparent that though schools had fairly 'connected multimedia environments' (Switzer & Switzer, 2013, p.18), the unlimited exploitation of the online connectivity was not always guaranteed.

On the whole, the results implied that course content, training resources, online media habits, industry experiences and attitudes to online tools had a significant potential to improve the online journalism self-efficacy of the mass communication students in Rwanda. Any positive improvement in each of these factors is, therefore, expected to have a resultant improvement in the students' online journalism self-efficacy. These findings are in congruent with evidence that shows that, with the fast-evolving digital media technologies, there is need for a comprehensive description of types of online skills required and improving the environment in which these skills will be built for the digital work-readiness of the future professionals (Iyer, 2015; Jeanti, 2015).

After determining the nature of relationships between the predictor variables and the criterion variable, a step-by-step regression analysis of these variables follows. This

will help to identify the best predictors of the students' self-efficacy for online journalism among content, resources, online habits, industry experiences and attitudes towards online tools.

4.8 Regression analysis

To form the basis for statistically confirming or disconfirming the null hypotheses that assumed no significant predictive relationships between the digital skills development factors and the students' online journalism self-efficacy, a regression analysis was necessary. This also helped in identifying the magnitude and direction of the independent variables on the dependent variable, in order to draw appropriate conclusions about the population on the basis of the study sample. However, before conducting this analysis, researchers argue that several assumptions about the data must be tested for bias-free results to be realized; otherwise, the researcher may draw invalid or unscientific conclusions not supported by the data (Creswell, 2013).

4.8.1 Diagnostic tests for assumptions of data

Researchers recommend that empirical data be tested for any potential bias or negative observations that may interfere with sound statistical inferences or modeling of results. Among other assumptions, good statistical analyses involving correlation and regression models assume that the study data sets are derived from normally distributed populations (giving non-distorted relationships and better generalisable results) and that the data do not suffer from multicollinearity, homoscedasticity and (Bryman, 2007; Bryman & Bell, 2011). To obtain accurate estimations of the regression analysis results, the study tested the normality, multicollinearity and heteroscedasticity assumptions of data used in this study.

4.8.1.1 Test for normality of data

To avoid the problem of highly skewed or kurtotic variables, Shapiro Wilk's test of normal distribution was run on the independent variables. In line with this test, the null hypothesis, which assumes data does not derive from a normally distributed

population, would be rejected if the test's p-value statistic was found to be less than 0.05, indicating that data was not normally distributed. According to the results (see Table 4.16), the p-values of all independent variables were given as: characteristics of training content (0.156), training resources (0.083), online media habits (0.096), industry experiences (0.061), attitudes to online tools (0.072) and online journalism self-efficacy (0.186).

Table 4.16: Shapiro Wilk's normality test results

	Unstandardized Coefficients		**Standardized Coefficients**	**Shapiro-Wilk's Test**	
	B	Std. Error	Beta	t	Sig.
(Constant)	0.494	0.429		1.152	0.251
Characteristics of content	0.104	0.073	0.112	1.427	0.156
Training facilities	0.178	0.059	0.232	2.987	0.083
Online media habits	0.136	0.081	0.111	1.676	0.096
Industry experiences	0.258	0.055	0.33	4.658	0.061
Attitudes to online tools	0.255	0.084	0.208	3.038	0.072
Online journalism self-efficacy	0.392	0.072	0.296	3.235	0.186

Since all the study variables had p-values of greater than 0.05, the null hypothesis was not accepted leading to the conclusion that the constructs for all the fitted variables were derived from normally distributed populations.

4.8.1.2 Test for multicollinearity of data

Independent variables that are closely correlated may produce erroneous estimates of coefficient values and, therefore, give misleading conclusions about their relationship with the dependent variable. To ensure the independent variables did not significantly influence each other thereby occasioning errors in how they relate with the dependent variable, the Multicollinearity test was done on these independent variables using the Variance Inflation Factor (VIF) and tolerance statistics. According to Myers' (1990)

rule of the thumb, variables without multicollinearity should have a tolerance statistic of less than one while their corresponding VIFs should be greater than 10. Table 4.17 shows the results of the test.

Table 4.17: Multicollinearity test results

	One sample Kolmogorov-Smirnov Test		**Shapiro-Wilk's Test**		**VIF**	**Tolerance values**
	t	Sig (p-value)	t	Sig. (p-value)		
(Constant)		0.000	1.152	0.251		
Characteristics of content	0.122	0.000	1.427	0.156	1.232	0.034
Training resources	0.109	0.000	2.987	0.083	1.236	0.112
Online media habits	0.076	0.000	1.676	0.096	1.078	0.000
Industry experiences	0.069	0.000	4.658	0.061	1.532	0.156
Attitudes to online tools	0.124	0.000	3.038	0.072	1.371	0.049
Online journalism self-efficacy	0.036	0.000	3.934	0.084	1.378	0.132

From the findings, it was shown that the independent variables had tolerance values of between 0.000 and 0.156 and VIF values of between 1.078 and 1.532. Since these sets of values fell in the acceptance region of the test, it was concluded that all the independent variables were not correlated and therefore, were not expected to inflate the results of the subsequent regression analysis tests.

4.8.1.3 Test for heteroscedasticity of data

Linear regression models assume that the variances of the residuals from the model are constant and unrelated to the independent variable. Good sample data is expected to bear normal and equal variances throughout the sample distribution (heteroscedasticity) – otherwise, results with unequal variances may present misleading interpretation and conclusions. This study used the Glejser's (1969) heteroscedasticity test whose rule of thumb is that if the significant value of the test

result is greater than 0.05, the data is said to have no heteroscedasticity and therefore well distributed. Table 4.18 displays the results.

Table 4.18: Heteroscedasticity test results

	Unstandardized Coefficients		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	1.423	1.245		1.583	.003
Characteristics of training content	.034	.052	.042	1.362	.004
Training resources	.075	.067	.048	2.485	.003
Online media habits	.049	.083	.028	1.631	.000
Industry experiences	.031	.057	.017	0.692	.000
Attitudes towards online tools	.082	.092	.051	3.038	.003

Based on regression of the dependent variable as proposed by Glejser, all the t-statistic values of the explanatory variables are greater than the hypothetical 0.05 and therefore significant. Therefore, following Glejser's decision criterion no problem of heteroscedasticity was observed in the data.

4.9 Hypotheses testing

The study was premised on null hypotheses that postulated no predictive relationships between each of the selected digital skills development factors and the students' self-efficacy for online journalism. Thus, H_0: $\beta_1=0$ vs H_1: $\beta_1\neq0$ for each of the study objectives. Regression analysis was conducted to empirically confirm if these factors were significant predictors of online journalism self-efficacy among mass communication students in Rwanda. To test the respective hypotheses in line with each of the study objectives, bivariate regression analyses of the mean scores of the respective variable constructs were assessed at 95 percent confidence level. A summary multivariate analysis was then done to show the joint predictive power of the digital skills development factors on the students' self-efficacy for online journalism. The criterion for accepting or rejecting the null hypothesis was that the null hypothesis

would be rejected if the p value is greater than 0.05 and accepted if the p-value is less than 0.05.

4.9.1 Regression of characteristics of training content on online journalism self-efficacy

In relation to the first study objective that sought to determine whether the characteristics of training content predicted the online journalism self-efficacy of mass communication students in Rwanda, the null hypothesis was stated as follows:

> **H_{01}**: Characteristics of training content do not significantly predict the online journalism self-efficacy of mass communication students in Rwanda.

To test this hypothesis, a simple linear regression analysis model was used to test the predictive nature of these characteristics of the training content on online journalism self-efficacy. The predicted model was fitted as follows: online journalism self-efficacy, $Y = \beta_0 + \beta_1 X_1 + \varepsilon_i$. The results presented in Table 4.19 indicate the goodness-of-fit of the regression model that was used to explain the variation of student's self-efficacy for online journalism as predicted by the characteristics of training content.

Table 4.19: Model summary for characteristics of training content and OJSEa

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	.450[a]	.203	.197	.501

a. Predictors: (Constant), Characteristics of training content
b. Dependent Variable: Online journalism self-efficacy (OJSE)

Results revealed that the characteristics of training content were satisfactory in explaining online journalism self-efficacy. This was demonstrated by the coefficient of determination, $R^2 = 0.203$, which meant that 20.3% of variations in the online journalism self-efficacy could be explained by the characteristics of the online training content (on their own in the model). The remaining 79.7% could only be attributed to factors beyond the model. Without the constant variable, however, the characteristics

of the training content explained the variations in students' self-efficacy for online journalism by 19.70% (as shown by the adjusted R^2 of .197). Other factors excluded from the model account for the remaining 80.3%. The correlation coefficient between the observed and predicted values (R = 0.450) of online journalism self-efficacy depicted a positive correlation between online journalism self-efficacy and the characteristics of the training content. The standard error of estimate (.501) indicated the average deviation of the independent variable (characteristics of the online training content) from the line of best fit.

To ascertain if the overall proposed regression model had statistically significant goodness-of-fit (at 5% significance), ANOVA results [F(1,142=35.356, p-value<0.000)] in Table 4.20, indicate that a significant relationship existed between the characteristics of the training content and online journalism self-efficacy of the students. This indicates that the proposed model had a statistically significant goodness-of-fit, and could therefore, be reliable in demonstrating the predictive power of content characteristics on the online journalism self-efficacy of the students.

Table 4.20: Analysis of variance on characteristics of training content and OJSEa

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	8.882	1	8.882	35.356	.000[b]
	Residual	34.919	142	.251		
	Total	43.801	143			

a. Dependent Variable: Online journalism self-efficacy (OJSE)
b. Predictors: (Constant), Characteristics of training content

A test of the significance of the regression of the characteristics of training content and online journalism self-efficacy (see Table 4.21) indicated the existence of a positive significant relationship between the characteristics of training content and online journalism self-efficacy (β=0.416, t=5.946, p-value <0.000).

Table 4.21: Coefficients of characteristics of training content and OJSEa

Model 1		Unstandardized Coefficients		Standardized Coefficients		
		B	**Std. Error**	**Beta**	**t**	**Sig.**
1	(Constant)	2.473	.275		8.978	.000
	Characteristics of training content	.416	.070	.450	5.946	.000

a. Dependent Variable: Online journalism self-efficacy (OJSE)

The observed positive linear relationship implied that a unit improvement in the characteristics of training content was bound to increase the probability of online journalism self-efficacy of the respondents by a factor of 0.416 (41.6%), keeping other factors constant. The equation to predict online journalism self-efficacy from the characteristics of training content (X_1), as the only independent variable was therefore, formulated as follows:

Online journalism self-efficacy = 2.473 + 0.416 (content characteristics) + Ɛ…… (Equation 4.1)

With the p-value 0.000<0.05, the H_{01} was therefore rejected and a conclusion taken that the characteristics of training content significantly predicted the online journalism self-efficacy of mass communication students in Rwanda.

The findings of this study relate well with scholars who caution journalism schools against the failure to adapt their training content and resources which potentially exposes their programs not only to possible failure but also negatively affecting the career paths of their graduates (McDevitt & Sindorf, 2012; Poynter, 2013). In her audience study exploring the conceptions of news in the converged media environment, Robinson (2013) advocates for a more interactive and process-oriented journalism teaching approach where students create their professional spaces in the online environment and own the conversations they generate with audiences. The

author advocates for journalism schools to adopt an approach where content and the learning process are based on student-audience interactions.

The findings of an insignificant contribution of the training content to the students' self-efficacy for online journalism are surprising in the sense that content is the essence of what students learn and main basis of acquiring the skills. Yet the results may be explained in the context of lack of a coherent framework on the range of digital skills that the future professionals are expected to have. Evidence suggests that without such a framework determining the real content and how to deliver is becomes a challenge (Tanner, 2014; Pavlik, 2013). As was evident from some FGD participants, the assumptions by some journalism educators on the extent to which social media tools should be taught to the 'digital natives' and the depth of teaching practical areas like web design (all in one 20-hour credit module) complicates the debate on the ideal content to cover.

In contextualising Bandura's sources of self-efficacy information in the current study, the journalism instructors' belief in the ability of students to teach themselves skills like social media may be considered as an attempt to verbally persuade students to believe in themselves or their collective efficacy to explore and learn new digital skills on their own. However, this assumption is not always correct as the participants observed. As suggested by some FGD participants, the role of direct intervention by the journalism instructor during practical online news production sessions is underlined by evidence which considers the 'millennial generation' not able to gain professional digital competence without inspiration from their educators – even with adequate infrastructure (Deuze, 2017). Moreover, in teaching journalism, some scholars have advocated for a balance between journalism theory and practice, cautioning that focusing too much on practice would negate the essence of a journalism degree which should be distinguished from the tertiary certification (Du & Lo, 2014; Jeanti, 2015; Kim & Freberg, 2017).

4.9.2 Regression of training resources on online journalism self-efficacy

The second objective of the study aimed at determining the role of training resources in predicting the online journalism self-efficacy of mass communication students in Rwanda. The null hypothesis was stated as follows:

> **H_{02}:** Training resources do not significantly predict the online journalism self-efficacy of mass communication students in Rwanda.

To test this hypothesis, a simple linear regression analysis model was used to test the predictive role of training resources on the students' online journalism self-efficacy. The predicted model was fitted as follows: online journalism self-efficacy, $Y = \beta_0 + \beta_2 X_2 + \varepsilon_i$. The results presented in Table 4.22 below represent the goodness-of-fit of the regression model used in explaining the variation of the students' online journalism self-efficacy as a result of training resources.

Table 4.22: Model Summary of training resources and OJSEb

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
11	.496[a]	.246	.240	.488

a. Predictors: (Constant), Training resources
b. Dependent Variable: Online journalism self-efficacy (OJSE)

The coefficient of determination ($R^2 = 0.246$) shows that 24.6% of any variations in the students' self-efficacy for online journalism could be explained by training resources (fitted on their own in the regression model). The remaining 75.4% could be explained by factors outside the model. In the absence of the constant variable, training resources predicted the variations in online journalism self-efficacy by 24% (as shown by the adjusted R^2 of .240). Other factors excluded from the model account for the remaining 76%. The correlation coefficient between the observed and predicted values (R = 0.496) of online journalism self-efficacy demonstrated a positive correlation between online journalism self-efficacy and training resources. The standard error of estimate

(.488) indicated the average deviation of the independent variable (training resources) from the line of best fit.

To test if the proposed regression model had statistically significant goodness-of-fit at 5% significance, ANOVA results [F(1,142=45.255, p-value<0.000)] in Table 4.23, indicated that a significant relationship existed between training resources and the students' self-efficacy for online journalism. This implied that the proposed model had a statistically significant goodness-of-fit, and could therefore, be relied on to demonstrate the predictive power of training resources on the students' self-efficacy for online journalism.

Table 4.23: ANOVA for training resources and OJSEa

Model 1	Sum of Squares	df	Mean Square	F	Sig.
Regression	10.758	1	10.758	45.255	.000[b]
Residual	33.043	142	.238		
Total	43.801	143			

a. Dependent Variable: Online journalism self-efficacy (OJSE)
b. Predictors: (Constant), Training resources

Results of the test of significance of the regression of training resources and online journalism self-efficacy (see Table 4.24) indicated that a positive significant relationship existed between training resources and the students' self-efficacy for online journalism (β=0.380, t=6.727, p-value <0.000).

Table 4.24: Coefficients of training resources and OJSEa

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.642	.219		12.045	.000
	Training resources	.380	.056	.496	6.727	.000

Dependent Variable: Online journalism self-efficacy (OJSE)

A positive linear relationship between training resources and students' self-efficacy for online journalism meant that a unit improvement in the training resources occasioned

an increase in the probability of the students' self-efficacy for online journalism by a factor of 0.380 (38%), keeping other factors constant. To predict online journalism self-efficacy (Y) from training resources (X_2) as the only independent variable, the equation was formulated as follows:

Online journalism self-efficacy = 2.642 + 0.380 (training resources) + Ɛ…… (Equation 4.2)

With the significance of the relationship between training resources and online journalism self-efficacy being p-value 0.000<0.05, the H_{02} was rejected with the conclusion that indeed training resources had a significant and positive influence on the self-efficacy for online journalism among mass communication students in Rwanda.

The role of resources in the acquisition of digital skills (or any skills for that matter) among students, cannot be overemphasized. The association between training resources and students' self-efficacy for online journalism has been exemplified in studies that underscore the necessity for the right mix of technical resources to enhance the online story-telling ability and experiences of future media professionals (Hirst & Treadwell, 2011; Wenger & Owen, 2012; Quinn, 2010; Bor, 2014). The findings in this study, therefore, blend well with this school of thought.

Although most of the survey respondents in this study agree that online journalism teaching resources serve their journalistic learning needs, some FGD participants doubted the sustainable significance of these resources what with bulging student numbers. These findings support media stakeholder concerns that teaching of evolving new media skills will inevitably challenge instructors while redesigning their training content, determining the ideal infrastructure, as well as allocating time for practice (Finberg & Klinger, 2014). The infrastructural challenges cited in this study strike a familiar chord with many journalism schools globally. But scholars suggest leveraging the freely-available online production tools as first small-steps to inculcating

professional skills of journalism in the new media age (Hirst & Treadwell, 2010; Iyer, 2015).

Consistent with this study's results, an enabling environment with adequate and accessible resources has been associated with effective technology use. For example, students who perceive a technology as convenient to use and easily accessible have reported higher levels of engagement with these technologies. This is coupled with beliefs that the technologies will help them meet their personal and professional needs (Hubbard & Romeo, 2012; Tas, 2016). In his study on how journalistic learning strategies (value of tasks given, how resources were used and critical thinking skills introduced) predicted the level of students' professional journalism self-efficacy, Broaddus' study revealed that these strategies had significant collective predictive power (R^2=0.137) on how the students assessed their confidence to perform journalism tasks.

The role of the right environment (including resources, infrastructure and organizational policies) are considered critical in Bandura's social cognitive theory and Davis Technology Acceptance Model. As the results of this study show, students who positively regard the online journalism learning environment (resources used, competence of instructors, adequacy and appropriateness of the tools used among others) also consider themselves confident to perform online journalism tasks. In line with Davis' TAM, the students who are motivated to use new media tools for their ease of use (e.g. user-friendly features and ability to discover new knowledge through free online tools such as software editing tutorials among others) and benefits derived from using such tools (e.g., improved communication, networking and content creation skills) rated themselves highly in their self-efficacy for online journalism. This implied that students should be encouraged to interact with as many online tools as possible and guided on how they can take advantage of such tools for personal and professional growth.

4.9.3 Regression of online media habits on online journalism self-efficacy

The third objective of the study sought to determine the role of online media habits in predicting the self-efficacy for online journalism among mass communication students in Rwanda. The null hypothesis was stated as follows:

> **H_{03}**: Online media habits do not significantly predict the self-efficacy for online journalism among mass communication students in Rwanda

This hypothesis was tested using a simple linear regression analysis model to demonstrate the predictive role of these online media habits on the students' self-efficacy for online journalism. The predicted model was fitted as follows: online journalism self-efficacy, $Y = \beta_0 + \beta_3 X_3 + \varepsilon_i$. The results presented in Table 4.25 present the goodness-of-fit of the regression model used in explaining the variation of online.

Table 4.25: Model Summary for online media habits and OJSEb

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	.270[a]	.073	.066	.540

a. Predictors: (Constant), Online media habits aggregate
b. Dependent Variable: Online journalism self-efficacy (OJSE)

Online media habits were found to be satisfactory in explaining the self-efficacy for online journalism among mass communication students in Rwanda. This is evidenced by a coefficient of determination of 0.073 which implied that 7.3% of any variations in the online journalism self-efficacy could be explained by online media habits (on their own in the model). The remaining 92.7% is explained by factors external to the model variables. Excluding the constant variable, the online media habits showed the variations in online journalism self-efficacy by 6.6% (as indicated by the adjusted R^2 of .066), with other factors excluded from the model accounting for 93.4%. The correlation coefficient between the observed and predicted values (R = 0.270) of online

journalism self-efficacy depicted a positive correlation between online journalism self-efficacy and online media habits. The standard error of the regression (.540) indicated the average distance of the independent variable (online media habits) from the fitted regression line.

To ascertain if the proposed regression model had statistically significant goodness-of-fit at 5% significance, ANOVA results in Table 4.26 indicated that a significant but low relationship exists between online media habits and online journalism self-efficacy of the students, i.e. $F(1,142=10.955$, p-value<0.001). This implied that the proposed model had a statistically significant goodness-of-fit, and could therefore, be relied on to demonstrate the predictive power of online media habits on the online journalism self-efficacy of the students.

Table 4.26: ANOVA results for online media habits and OJSEa

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3.200	1	3.200	10.955	.001[b]
	Residual	40.602	142	.292		
	Total	43.801	143			

a. Dependent Variable: Online journalism self-efficacy (OJSE)
b. Predictors: (Constant), Online media habits

A test of the significance of the regression of the students' online media habits and their self-efficacy for online journalism (see Table 4.27), revealed that there was a positive significant relationship between the students' online media habits and their self-efficacy for online journalism ($\beta=0.332$, $t=3.310$, p-value <0.001).

Table 4.27: Coefficients for online media habits and OJSEa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.799	.393		7.119	.000
	Online media habits	.332	.100	.270	3.310	.001

a. Dependent Variable: Online journalism self-efficacy (OJSE)

With the observed positive linear relationship, it is clear that one unit improvement in online media habits accounted for an increase of the probability of the students' self-efficacy for online journalism by a factor of 0.332 (33.2%), holding other factors constant. Consequently, to predict students' self-efficacy for online journalism from their online media habits (X_3) as the only independent variable, the equation was formulated as follows:

> Online journalism self-efficacy (Y) = 2.799 + 0.332 (online media habits) + Ɛ….. (Equation 4.3)

With the p-value 0.001<0.05, the H_{03} was therefore rejected by concluding that the students' online media habits significantly and positive influenced their self-efficacy for online journalism among mass communication students in Rwanda. The findings espouse scholarly evidence that individual digital behavior can inadvertently lead to positive professional outcomes, for example, by improving their online self-expression (Theiss, 2018). Furthermore, by considering the online platforms as second nature to their lives, the 'tech-savvy' generation is likely to get socialized into a techno-culture which eventually builds important networks for possible personal and professional growth (Sutherland & Ho, 2017). A study by Cunha, van Kruistum & van Oers (2016) observed a direct relationship between the use of different social networking sites and positive collaborations and engagement with peers and professionals.

Another study by Kumar, Liu & Black (2012) also indicated that students infused their personal digital skills (for example creating online content) into a participatory and collaborative culture for formal purposes with their trainers. Correa's study (2010) showed that although digital skills did not predict how students used social media like Facebook socially, such skills significantly predicted how Facebook usage facilitated their informational and mobilization skills. In addition, Sutherland and Ho's study (2017) found that majority of undergraduate students affirmed that social media exposure would boost their digital brand, professional networks and employability in

general. Findings in the current study therefore give credence to the professional value of online exposure to new media tools.

However, contrary to the results of this study, some scholars have observed that personal exposure to new technologies does not automatically instill confidence to use such tools in the actual workplace. For example, Koranteng, Wiafe and Kuada (2019) investigated how students' online social networking activities affected their personal and professional engagement with the online tools. Their results showed an insignificant relationship between the use of such online sites and students' professional learning. Another study by Hirst and Treadwell (2010) also indicated that despite students being heavy consumers of social media content, most are rather passive in producing and sharing newsworthy content beyond their immediate social circles. However, these scholars suggest that such students' familiarity with social media tools can be harnessed and integrated in curriculum design. As some FGD participants in this study suggest, journalism educators might assume the 'digital natives' competence to perform online journalism tasks (on account of their wide online exposure). But Hirst and Treadwell (2010) argue that today's web-savvy students should be taught how to detect unethical issues in using different online tools like social media as develop their news stories.

The fact that online behaviour was positively associated with development of important personal and professional skills lends credence to Davis' TAM and Bandura's social cognitive theory. Students who thought that being active online, subscribing to several online accounts, frequent use of different online tools as well as following the online works of their significant professionals also believed that they were competent to do different online journalism tasks upon graduation. As postulated by Bandura, self-efficacy can be boosted through observational learning (in this case, students learning from what others post online – their colleagues and professionals), affirmative feedback (in this case, by participating in online discussions and getting positive comments on the posts they make or comments by online journalism

instructors regarding their ability (as 'digital natives') to discover a lot of skills on their own, given their long exposure. The results of this study confirm Davis' TAM proposition that if technology users find a technology easy to use and beneficial, they will likely improve their liking for it and learn as much as possible from it – therefore, increase their confidence to use it in different settings and circumstances. Thus, as studies (e.g. Bethell, 2010; Iyer, 2015) indicate, media instructors should always leverage the digital culture of their students when designing and delivering the content.

4.9.4 Regression of industry experiences on online journalism self-efficacy

The fourth study objective sought to determine the role of industry experiences in predicting the self-efficacy for online journalism among mass communication students in Rwanda. The null hypothesis was stated as follows:

> **H_{04}**: Industry experiences do not significantly predict the self-efficacy for online journalism among mass communication students in Rwanda.

A simple linear regression analysis model was used to test this hypothesis and show the predictive role of these industry experiences on the students' self-efficacy for online journalism. The predicted model was fitted as follows: online journalism self-efficacy, $Y = \beta_0 + \beta_4 X_4 + \varepsilon_i$,

Results on Table 4.28 show the goodness-of-fit of the regression model used in explaining the variation of students' self-efficacy for online journalism as a result of the industry experiences.

Table 4.28: Model Summary for industry experiences and OJSEb

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	.527[a]	.278	.272	.477

a. Predictor: (Constant), Industry experiences
b. Dependent Variable: Online journalism self-efficacy (OJSE)

The results indicate that industry experiences were satisfactory in explaining self-efficacy for online journalism among mass communication students in Rwanda. This is supported by the coefficient of determination (R^2=0.278), which implied that 27.8% of the students' self-efficacy for online journalism could be explained by industry experiences. Furthermore, taking constant as zero, the industry experiences explain the changes or variations in students' self-efficacy for online journalism by 27.2% (as shown by the adjusted R^2 of .272). Other factors outside the model accounted for the remaining 72.8%. The correlation coefficient between the observed and predicted values (R = 0.527) of online journalism self-efficacy depicted a positive correlation between online journalism self-efficacy and industry experiences. The standard error of estimate (.477) indicated the average deviation of the independent variable (industry experiences) from the regression line of best fit.

To confirm if the proposed regression model had a statistically significant goodness-of-fit (at 5% significance), ANOVA results in Table 4.29 indicated that a significant relationship exists between the industry experiences and the students self-efficacy for online journalism, i.e. [F(1,142=53.426, p-value<0.000)]. This implies that the proposed model had a statistically significant goodness-of-fit, and could be relied on to demonstrate the predictive power of industry experiences on the online journalism self-efficacy of the mass communication students.

Table 4.29: ANOVA results for industry experiences and OJSEa

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	12.161	1	12.161	53.426	.000[b]
	Residual	31.640	142	.228		
	Total	43.801	143			

a. Dependent Variable: Online journalism self-efficacy (OJSE)
b. Predictors: (Constant), Industry experiences

A test of significance of the regression of industry experiences and students' self-efficacy for online journalism (see Table 4.30) revealed that a positive significant

relationship existed between industry experiences and students' online journalism self-efficacy (β=0.411, t=7.309, p-value <0.000).

Table 4.30: Coefficients for industry experiences and OJSEa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.647	.202		13.115	.000
	Online work-related learning experiences	.411	.056	.527	7.309	.000

a. Dependent Variable: Online journalism self-efficacy (OJSE)

This observed positive linear relationship means that any unit improvement of the industry experiences improved the students' self-efficacy for online journalism by a factor of 0.411 (or 41.1%), keeping other factor constant. Therefore, to predict the students' self-efficacy for online journalism from the industry experiences (X_4) as the only independent variable, the regression equation was formulated as follows:

Online journalism self-efficacy (Y) = 2.647 + 0.411 (industry experiences) + Ɛ… (Equation 4.4)

With the regression coefficients having a p-value 0.000<0.05, the H_{04} was therefore rejected with a conclusion that industry experiences significantly predicted the mass communication students' self-efficacy for online journalism. These results concur with the social cognitive theory by Bandura which recognizes the practical mastery of skills as the greatest contributor of one's self-efficacy for performing a given set of skills. In addition, empirical studies have shown this positive relationship between work experiences and confidence to perform related tasks. For example, Reiche, Kraimer and Harzing's study (2011) found that work-integrated experiences were positively and significantly correlated with students' career prospects and perceived fit at work. Olusegun (2015) opines that extra-curricula experiential activities provide students with practical platforms in the industry that may serve to stem their feelings of

inadequacy arising from resource limitations affecting their training institutions. Hodgson and Wong's (2011) study confirms that if students can model the works or performance of other practicing professionals (for example through regular consumption of their stories), this behavior can boost their confidence in performing like the professionals after graduation. The authors also underscore the importance of inviting practitioners to give views that help to benchmark the expected standards of performance for the future professionals.

A study by Stapleton, Luiz and Chatwin (2017) demonstrated that the more people used Instagram, the more they compared themselves with other users on the platform. Although such comparison is likely to negatively affect one's esteem, the authors argued that participating in online social networks enables people to get inspired and learn from others, depending on the messages that are shared. In line with Bandura's self-efficacy theory, such social persuasion or feedback from others contribute to the development of self-efficacy for a given skill. The notion that effective learning is more through practice than through theory is embodied in an age-old proverb by the Confucian philosopher, Xunzi: "I hear and I forget; I see and I remember; I do and I understand" (Newton, 2013).

The results also confirm Kolb's experiential learning theory which underscores the importance of real practical exposure as the foundation of concrete and authentic learning. Thus, students who rate their field experiences (case studies, practicums, participation in scholarly journalism like online school newspaper, contributing stories to online news media among others) as having exposed them to different professional skills also reported high online journalism self-efficacy. This implies that journalism instructors and students need to emphasize out-of-class practical work that will strengthen their skills to face the online market place.

4.9.5 Regression of attitudes to online tools on online journalism self-efficacy

The fifth and final objective of the study determined the role of attitudes to online tools for professional development in predicting the self-efficacy for online journalism among mass communication students in Rwanda. The null hypothesis was stated as follows:

> **H_{05}**: Attitudes towards online tools for professional development do not significantly predict the self-efficacy for online journalism among mass communication students in Rwanda.

By use of a simple linear regression analysis model, this hypothesis was tested for its potential to predict how attitudes to online tools for professional development may predict the online journalism self-efficacy of the mass communication students in Rwanda. The predicted model was fitted as follows: online journalism self-efficacy, $Y = \beta_0 + \beta_5 X_5 + \varepsilon_i$. Table 4.31 presents the results of the goodness-of-fit of the regression model that was used to explain the variation of the students' self-efficacy for online journalism in relation to their attitudes regarding online tools for professional development.

Table 4.31: Model Summary for attitudes to online tools and OJSEb

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	.413[a]	.170	.164	.511

a. Predictors: (Constant), Attitudes to online tools for professional development
b. Dependent Variable: Online journalism self-efficacy (OJSE)

The model summary showed that the coefficient of determination (R^2) was 0.170. This means that showed that 17% of the variation in the students' self-efficacy for online journalism could be explained by their beliefs, feelings and behavior towards new media technologies as tools of professional development. Therefore, factors that were left out of the model accounted for 83% of the students' self-efficacy for online

journalism. Leaving out the constant variable, these students' attitudes towards online tools for professional development explained 16.4% of the variations in students' self-efficacy for online journalism by (as shown by the adjusted R^2 of .164), with other factors beyond the model accounting for the rest. The correlation coefficient between the observed and predicted values (R = 0.413) of online journalism self-efficacy depicted a positive correlation between the students' self-efficacy for online journalism and their attitudes to online tools for professional development. The standard error of estimate (.511) indicates the average deviation of the independent variable (attitudes to online tools for professional development) from the line of best fit.

The ANOVA results in Table 4.32 showed that the goodness-of-fit of the proposed regression model was statistically significant at 5% significance, i.e. F(1,142=28.510) and p-value<0.000. This confirmed that a significant relationship exists between attitudes towards online tools for professional development and the students' self-efficacy for online journalism.

Table 4.32: ANOVA results for attitudes to online tools and OJSEa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.455	1	7.455	28.510	.000[b]
	Residual	36.346	142	.261		
	Total	43.801	143			

a. Dependent Variable: Online journalism self-efficacy (OJSE)
b. Predictors: (Constant), Attitudes to online tools for professional development

The test of the significance of the regression of attitudes towards online tools for professional development and online journalism self-efficacy (see Table 4.33) indicate that a positive significant relationship existed between attitudes towards online tools for professional development and online journalism self-efficacy (β=0.507, t=5.339, p-value <0.000).

Table 4.33: Regression coefficients for attitudes towards online tools and OJSEa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.945	.404		4.808	.000
	Attitudes to online tools	.507	.095	.413	5.339	.000

a. Dependent Variable: Online journalism self-efficacy (OJSE)

The demonstrated positive linear relationship imply that (keeping other factors constant), a unit improvement in attitudes towards online tools for professional development, led to an increase in the probability of the students' self-efficacy for online journalism by a factor of 0.507 (50.7%). To predict online journalism self-efficacy from attitudes towards online tools for professional development (X_5) as the only independent variable, the equation was formulated as follows:

Online journalism self-efficacy (Y) = 1.945+0.507 (attitudes to online tools) + Ɛ…….. (Equation 4.5)

With the regression coefficient indicating a p-value 0.000<0.05, the H_{05} was therefore rejected and a conclusion made that attitudes towards online tools for professional development exerted a significant and positive predictive influence on the mass communication students' self-efficacy for online journalism. The positive relationship between the students' attitudes towards online tools for professional development and their self-efficacy for online journalism is consistent with other studies that found associations between the way students perceive technology as an important professional learning tool and their development of key digital skills. For example, Popa and Topala's study (2018) assessed the attitudes of 200 undergraduate students' regarding their digital competencies for training themselves with technology. They established that students with favorable attitudes to digital tools for professional development had frequently used such tools. In addition, those who expressed more satisfaction with their digital learning experiences had freely exploited online tools.

A 2012 study carried out by Akbari, Eghtesad and Simons found that students' attitudes in using Facebook to learn English significantly predicted their language competence. Wu and Tsai's study (2006) on attitudes and internet self-efficacy drew on a sample of 1,313 Taiwanese university students and found a strong correlation between Internet attitudes and the students' self-efficacy for general internet functions (e.g research) as well as using email to communicate. Students' Internet attitudes were therefore considered critical indicators in predicting their self-efficacy for internet work.

Although the results of this study show a generally positive attitude towards online tools for professional development, issues raised by some FGD participants especially relating to risks of online identity are consistent with studies like Romero-Rodríguez and Aguaded's (2016) who surveyed journalism students' information consumption habits in online platforms. Despite most students confirming that they taught themselves most skills on the internet, they underscored the need for proper instruction on the proper use of online content. In addition, a study by Prescott, Wilson & Becket (2013) investigated students' perceptions of the use of Facebook in the context of online professionalism. Students indicated that they needed guidance on the consequences of their online behavior and especially how to maintain a professional presence to avoid bad publicity to future employers.

As evident in the results of the current study, the predictive power of attitudes in the self-efficacy of online journalism is supportive of Davis' (1989) TAM model. In the context of this Model, since attitudes have been associated with how individuals evaluate a technology in relation to its ease of use and usefulness or benefits to his or her job, the results of this study have been extrapolated to prove that mass communication students' positive evaluations of the online tools should be seen in the light of their easy accessibility, usage and manipulability in professional contexts after graduation. Thus, the more mass communication students' feel comfortable with the different online tools, believe that different online tools are the future and survival of

the industry and are willing to explore any emerging new media tools, the more they are likely to feel positive for their use in online journalism practice. In addition, having no anxiety or fear for the technologies (as espoused by Bandura) boosts the confidence of the students to use them at personal and professional levels.

4.10 Multiple regression analysis

To explore how much variance in the students' self-efficacy for online journalism can be predicted by the combination of content characteristics (β_1, X_1), training resources (β_2, X_2), online habits (β_3, X_3), industry experiences β_4, X_4) and online attitudes (β_5, X_5), multiple regression analysis was conducted. Table 4.34 shows the degrees of association of the five independent variables to the online journalism self-efficacy.

Table 4.34: Overall model summary for the IVs and DV

R	R^2	Adjusted R^2	Std. Error of the Estimate
.675[a]	.455	.435	.420

a. Predictors: (Constant), characteristics of training content, training resources, online media habits, industry experiences, attitudes to online tools for professional development

Key: IVs = Independent variables DV = Dependent Variable

Results from the overall model equation $Y= \beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\beta_5X_5+\varepsilon$

, indicated a 0.455 degree of association between content characteristics, training resources, online media habits, industry experiences, attitudes towards online tools for professional development and the students' self-efficacy for online journalism. This model coefficient implies that 45.5% of the variance in the students' self-efficacy for online journalism was predicted by a combination of these five independent variables. The small difference between R and Adjusted R^2 indicated that the independent variables had good construct validity.

The ANOVA results (see Table 4.35) demonstrate that the overall model was significant with all the independent variables having joint explanatory powers of the students' self-efficacy for online journalism. The F statistic of 22.552 (5, 138) and p-value 0.000<0.05 demonstrated a statistically significant overall model capable of explaining the joint predictive relationship of the independent variables on the dependent variable. Therefore, it was evident that the characteristics of training content, training resources, online media habits, industry experiences and attitudes to online tools for professional development had jointly predicted the level of self-efficacy for online journalism among mass communication students in Rwanda. This demonstrated that the model applied to show the link between the digital skills development factors and online journalism self-efficacy of mass communication students in Rwanda was a good fit for regression analysis.

Table 4.35 ANOVA for multiple regression results of IVs and DVa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.935	5	3.987	22.552	.000[b]
	Residual	23.867	138	.177		
	Total	43.801	143			

a. Dependent Variable: Online journalism self-efficacy

b. Predictors: (Constant), Characteristics of training content, training facilities, online media habits, industry experiences, attitudes to online tools for professional development

The regression coefficients of the prediction of online journalism self-efficacy by the given digital skills development factors are shown on Table 4.36. From these results, industry experiences (B=.258, p<0.05) had the most positive and significant predictive power on the students' self-efficacy for online journalism. This was followed by training resources (B=.178, p-value .003) and attitudes to online tools for professional development (B=.255, p<0.05). While the online media habits (B=.136, p>0.05) and the characteristics of the training content (B=.104, p>0.05) had positive predictive relationships with online journalism self-efficacy, their levels of significance in the model were moderate.

Table 4.36: Coefficients of overall regression model of IVs and DVa

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.494	.429		1.152	.251
Characteristics of training content	.104	.073	.112	1.427	.156
Training facilities	.178	.059	.232	2.987	.003
Online media habits	.136	.081	.111	1.676	.096
Industry experiences	.258	.055	.330	4.658	.000
Attitudes to online tools	.255	.084	.208	3.038	.003

a. Dependent Variable: Online journalism self-efficacy

Thus, the overall model was significant in establishing the relationships. The corresponding goodness of fit of the overall model, predicted as $Y = \beta 0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$, was therefore, fitted as follows:

> Online journalism self-efficacy (Y) = 0.494(predicted intensity value of online journalism self-efficacy when other variables are 0) + 0.104(characteristics of training content) + 0.178 (training resources) + 0.136(online media habits) + 0.258 (industry experiences) + 0.255 (attitudes to online tools for professional development) + ε…….... (Equation 4.6)

Results from the null hypothesis tests (at 5% level of significance) revealed that the independent variables had positive relationships of varying statistical significance with online journalism self-efficacy of mass communication students in Rwanda as follows: characteristics of training content (t=1.427, p=0.156>0.05), training resources (t=2.987, p=0.003<0.05), online media habits (t=1.676, p=0.096>0.05), industry experiences (t=4.658, p=0.000<0.05) and attitudes towards online tools for professional development (t=3.038, p=0.003<0.05).

The results of the coefficient regression implied that including all factors in the overall model (content characteristics, training resources, online habits, industry experiences

and attitudes regarding online tools) and taking constant as 0, the online journalism self-efficacy of the students was a factor of 0.494 or 49.4%.

The positive relationships exhibited served to validate the conclusion that all the independent variables satisfactorily explained their prediction on the mass communication students' ability to work in professional online environments (evidenced by their combined 45.5% prediction). Further, the regression analysis results and the test of significance results showed that H_{01} and H_{03} were accepted while H_{02}, H_{04} and H_{05} were rejected. Acceptance of the null hypotheses in favor of the characteristics of training content and online media habits, on the one hand, was on the basis of their insignificant yet positive relationship with online journalism self-efficacy. On the other hand, training resources, industry experiences and attitudes to online tools for professional development were rejected for their significant and positive relationships with the students' self-efficacy for online journalism– contrary to their null hypotheses. The summary of the hypotheses results is shown in Table 4.37.

Table 4.37: Summary of Hypotheses Test results

NB: Criteria: Reject hypothesis if p-value>0.05, otherwise do not reject

Hypothesis	Results	Decision
H_{O1}: Training content does not significantly predict the Rwandan mass communication students' self-efficacy for online journalism.	β=.104, p=0.156	Accept H_{01} Not significant predictor
H_{O2}: Training resources do not significantly predict Rwandan mass communication students self-efficacy for online journalism	β=.178, p=0.003	Reject H_{02} Significant predictor
H_{O3}: Online media habits do not significantly predict Rwandan mass communication students' self-efficacy for online journalism	β=.136, p=0.096	Accept H_{03} Not significant predictor
H_{O4}: Industry experiences do not significantly predict Rwandan mass communication students' self-efficacy for online journalism	β=.258, p=0.000	Reject H_{04} Significant predictor
H_{O5}: Attitudes towards online tools for professional development do not significantly predict Rwandan mass communication students' self-efficacy for online journalism	β=.255, p=0.003	Reject H_{05} Significant predictor

4.10.1 Optimal conceptual model

The overall results showed that in combination, training content, training resources, online media habits, industry experiences and attitudes towards online tools for professional development positively predicted on the students' self-efficacy for online journalism (45.5%). However, the predictive power of online media habits and training content was insignificant, in conformity with the null hypotheses. Thus, in this study, the revised model to predict students' self-efficacy for online journalism would ideally comprise an optimal combination of training resources, industry experiences and attitudes towards online tools. However, when analysed independently, each of all these predictor variables had positive and significant predictive power on the students' self-efficacy for online journalism. This is consistent with scholarly evidence that has found these variables as important factors in boosting confidence to perform digital journalism tasks (see Stoker, 2015; Mihailidis & Shumow, 2011; Jones, Ramanau, Cross, & Healing, 2010; Iyer, 2015; Aifan, 2015; Yakin & Erdel, 2012).

Although this study does not statistically confirm one model that accommodates all the independent variables, these variables cannot be ignored given their relevance in empirical studies. For the online media habits, some studies have already shown that personal online behavior does not automatically lead to self-efficacy for professional work (e.g Koranteng, Wiafe & Kuada, 2019; Hirst &Treadwell, 2010). Although training content is expected to be crucial to skills development, results in this study should spur further inquiry into the insignificance of their contribution to the students' self-efficacy for online journalism.

Theoretically, the findings of this study broadly support Bandura (Social Cognitive Theory), Davis (Technology Acceptance Model) and Kolb (Experiential Learning theory). It was evident that students who positively regarded Bandura's sources of self-efficacy (mastery of experiences, vicarious experience, social learning and attitudes or anxiety towards online tools), Davis' ease of use and benefit of the online tools for professional development as well as Kolb's experiential learning as critical to

authentic learning (for example, of online skills) had high sense of their efficacy for online journalism. Thus, these theories contributed important concepts that could explain students' development of their online journalism skills. As supported by empirical literature, the findings imply that developing digital skills in the online journalism context requires a combination of the right digital exposure, field experiences, real scenarios (like case studies, practicums, scholarly journalism among others) to boost learning, the right learning environment (resources and content) as well as positive attitudes towards online tools as crucial in future careers among the media students.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This study sought to explore the role of digital skills development factors in predicting the self-efficacy for online journalism among mass communication students in Rwanda. The specific objectives were to: a) investigate the role of course content in predicting the self-efficacy for online journalism among undergraduate mass communication students in Rwanda; b) describe the role of training resources in predicting the self-efficacy for online journalism among undergraduate mass communication students in Rwanda; c) determine the role of online media habits in predicting the self-efficacy for online journalism among undergraduate mass communication students in Rwanda; d) assess the role of industry experiences in predicting the self-efficacy for online journalism among undergraduate mass communication students in Rwanda and; e) analyze the role of attitudes towards online media tools for professional development in predicting the self-efficacy for online journalism among undergraduate mass communication students in Rwanda.

This chapter gives a summary of the results from the study, including relevant conclusions, recommendations for improvement and suggestions for further research in this area.

5.2. Summary of key findings

The key findings of the study are discussed in line with questions that guided the realization of the study objectives. These are discussed below.

5.2.1 What is the role of characteristics of content in predicting the self-efficacy for online journalism among undergraduate mass communication students in Rwanda?

Survey results established that the online journalism content taught at the journalism schools included about 80% of multimedia production and social media content.

Overall, the skills that featured most in the training content were web design, newspaper production, social media, blogs, social media (especially Twitter) and shooting, editing and posting of audio and video content online. Respondents largely considered these skills as relevant to the industry. Although content analysis of most of the online journalism modules indicated a wide mix of digital skills expected to be taught, FGD participants noted a narrowed choice of skills eventually taught.

In addition, challenges like instructors overrating the ability of students to teach themselves social media production skills and inadequate time to practice were raised. Content taught was positively correlated with the respondents' self-efficacy for online journalism ($r=.450$, $p<.05$), implying that the improving the characteristics of the content taught would lead to a corresponding increase in the students' self-efficacy for online journalism. Regression results indicated that content explained a fifth of the variance in the students' self-efficacy for online journalism (20.3%), when explored independently. However, in the overall model, this variable had a positive predictive relationship but insignificant with the respondents' online journalism self-efficacy in the overall model ($\beta=.104$, $p>0.05$). Therefore, the null hypothesis was accepted to support the prediction that the content taught in online journalism modules does not significantly predict the students' self-efficacy for online journalism work.

The findings contradicted empirical research which suggests that self-efficacy for the digital environment is anchored on digital skills content that aligns with evolving needs of the industry (Iyer, 2015; Hirst & Treadwell, 2011). However, debate still rages on what constitutes the right mix of online skills for future media professionals. It has been argued that the type of curriculum to be adopted for journalism education in the new media age should be a deliberate choice between media educators and practitioners (Cindy, 2015; Seelig, 2010).

5.2.2 What is the role of training resources in predicting the self-efficacy for online journalism among undergraduate mass communication students in Rwanda?

About 60% of the respondents expressed that the training resources were adequate, with internet being accessible at different campus hotspots and computer labs. They also thought that instructors were competent in different online skills. About three quarters of the respondents (74.12%) consulted free online tutorials to improve their web design and video/audio editing skills. Mobile phones were also gradually being used for multimedia production classes. Some module descriptions seemed to exaggerate the availability of facilities as confirmed by FGD participants. The participants noted inadequate access to the labs, many students sharing few online resources (for example internet and labs) and the inadequacies of mobile phones in production as key challenges.

Inferential analyses revealed that training resources correlated moderately but significantly with the students' self-efficacy for online journalism ($r=.496$, p-value 0.000). Thus, improving the training resources was expected to moderately boost the students' self-efficacy for online journalism. Regression results established that this variable predicted about a quarter of the respondents' variance in their self-efficacy for online journalism (24.6%).

The null hypothesis was rejected based on the finding of a positive significant predictive relationship between training resources and the students' self-efficacy for online journalism ($\beta=.178$, $p<0.05$). This relationship aligns well with scholarly arguments that in order to develop proper skills needed by the industry, media training institutions should update their infrastructure to align with the changing news production and sharing practices (Kwanya, 2014; Wenger & Owens, 2012).

5.2.3 What is the role of online media habits in predicting the self-efficacy for online journalism among undergraduate mass communication students in Rwanda?

Results showed most respondents were active producers and consumers of online content in selected social media tools. In addition, more than half of them were open to exploring any new online tools that emerge. While online media habits were generally commended, some focus group discussion participants urged 'caution' with the attendant risks of damaging ones identity by publishing irresponsible content. There was also concern that lecturers did not adequately teach how to use the different social media tools for professional purposes.

Inferential analyses showed that online media habits had weak but positive correlation with the respondents' self-efficacy for online journalism ($r=.270$, $p>0.05$). Regression results indicated that these habits had a small predictive power of 7.3% in the variance for respondents' self-efficacy for online journalism. While the online habits had a positive relationship with online the respondents' online journalism self-efficacy, this was insignificant ($\beta=.136$, $p>0.05$).The null hypothesis was therefore accepted. Consistent with the study results, scholars opine that although many students may feel comfortable using different social media tools, they might rarely use these tools for promoting journalistic content or engaging with professional audiences if not properly guided (Hirst & Treadwell, 2011). Yet evidence also draws a positive link between what people do online and their professional growth (Hatlevik & Christophersen, 2013; Hatlevik, Gudmundsdottir & Loi, 2015).

5.2.4 What is the role of industry experiences in predicting the self-efficacy for online journalism among undergraduate mass communication students in Rwanda?

Industry experiences including fieldwork and exposure to school media (for example publishing online newspapers and online radio) positively boosted most respondents' (79.02%) perceived preparedness for online journalism work. Slightly more than half of the respondents (58.04%) also produced online stories for online news sites and

regularly read, viewed or listened to online news stories from their favourite practitioners. Most FGD participants commended the role of internships in developing important workplace skills like web design, live tweeting of events, posting and sharing stories on institutional social networking sites like Facebook as well as skyping in a few cases.

Inferential analyses showed that industry experiences had strong and positive correlation with the respondents' self-efficacy for online journalism ($r=.527$, $p<0.05$). Regression results indicated that the industry experiences could significantly predict 27.8% of the variance in students' self-efficacy for online journalism. Basing on the positive and significant predictive relationship between industry experiences and the students' self-efficacy for online journalism ($\beta=.258$, $p<0.05$), the null hypothesis was rejected and a conclusion made that industry experiences do indeed predict the students' self-efficacy for online journalism. These results are in accord with Kolb's (1984) experiential learning theory that underscores the importance of adopting a learning approach that connects theory with practical (e.g by using authentic scenarios), where students can directly 'experience' and relate with the theory taught.

5.2.5 What is the role of attitudes towards online tools for professional development in predicting the self-efficacy for online journalism among undergraduate mass communication students in Rwanda?

The possibility of using online media tools for developing journalistic skills was affirmed by most respondents. Online tools were perceived as critical in developing communication skills and other skills relevant to the workplace. That the media industry is becoming dependent on these tools for competitiveness was affirmed by 75% of the respondents. Respondents expressed positive attitudes towards online tools by indicating their ease of use to learn, rich sources of stories, anonymity and to some small extent, trustworthiness as news sources. Most respondents agreed that future media professionals need to harness the power of online tools to build good online profiles and learn skills that might boost their employment opportunities.

Inferential analysis results showed that students' attitudes towards online tools for professional development moderately but significantly correlated with their self-efficacy for online journalism ($r=.413$, $p<0.05$). This implied that the respondents' positive attitudes towards online tools were associated with their positive appraisal of their self-efficacy for online journalism. Regression results confirmed this association by showing that attitudes towards online tools could significantly predict 17% of the variance in the respondents' self-efficacy for online journalism. On the basis of a positive and significant predictive relationship between attitudes towards online skills and the respondents' online journalism self-efficacy ($\beta=.255$, $p<0.05$), the null hypothesis was rejected. As scholars like Trilling & Fadel (2009) assert, acquiring of the right digital skills competencies will require the learners to adopt positive attitudes to the wide possibilities of any technology. They need to adapt to the changing demands of these new technologies in order to keep updated on emerging professional demands around the technologies.

In the context of the TAM, since attitudes have been associated with how individuals evaluate a technology in relation to its ease of use and usefulness or benefits to his or her job, the results of this study have been extrapolated to indicate that mass communication students' positive evaluations of the online tools should be seen in the light of their easy accessibility, usage and manipulability in professional contexts after graduation. Thus this model aptly demonstrated that the way a technology is perceived by users is associated with their beliefs in its ability to boost their confidence to use it for different purposes.

5.3 Conclusions

In consideration of the above main findings of the present study, the following conclusions are made. On the whole, Rwandan mass communication students appreciate the types of digital skills taught and the practical approach of delivering them. Save for discrepancies in the module descriptions and lack of adequate time to practice, it is evident that journalism schools in Rwanda have made good strides

towards preparing the future media professionals for the digital industry. In the context of Bandura's social cognitive theory, the nature of course content and resources can be contextualized under the 'environment' that contributes to the mass communication students' self-efficacy for online journalism. Thus, from the results, students with high levels of self-efficacy for online journalism are more likely to agree to the quality of the learning environment (content and methods of delivery) in which digital skills necessary to work in an online environment are developed.

As far as the training resources are concerned, results indicate that the journalism schools have endeavored to install facilities that facilitate students' in-class and out-of-class journalism learning. The fact that students explore alternative tools like mobile phones and free online tutorials to complement the instructor's inputs is a welcome substitute to the more expensive journalism equipment. Concerns by some FGD participants regarding student numbers that do not match the digital resources, erratic internet connections as well as module descriptions that seem to exaggerate resource availability, need attention. Contextualizing Davis' (1989) technology acceptance model into the results of this study, the ease of use and benefits derived from using freely available tutorials as well as everyday mobile phones to learn multimedia productions can be considered an important boost to the students' self-efficacy for online journalism work.

Generally, the respondents in this study fit the description of 'digital natives' going by their active online presence. Their online habits have incidental learning effects – they have developed certain journalistic skills by virtue of being online. According to Kolb's experiential learning theory, learning is concretized through repeated trials. Thus, habits formed online are expected to lead students to discover 'professional' ways of using the online tools. Moreover, Bandura's self-efficacy theory asserts that enactive mastery experiences coupled with vicarious learning (for example learning professional behavior from others online) increase people's self-efficacy in an online environment. However, as studies show, online habits do not guarantee professional

learning. In this study, the fact that these habits did not significantly predict the students' self-efficacy for online journalism may be a confirmation of these studies. Evidence suggests that instructors should deliberately show students the linkage between such online habits and professional learning in order to cultivate innovation and reflection with the tools as instruments of professional growth (Prensky, 2001).

With results indicating that industry experiences had the most significant predictive power for the students' self-efficacy for online journalism, field experiences are the sure bet to developing online-ready mass communication graduates. Kolb's experiential learning theory elucidates the role of authentic scenario-based experiences in developing important competencies necessary for work. By extrapolating Kolb's theory to the results of the current study, the role of work experiences in boosting the mass communication students' beliefs in their confidence to execute different online journalism skills was evident from the survey responses as well as the FGD accounts. Moreover, from the standpoint of Bandura's social cognitive theory, the 'environment' of learning online journalism skills can be extended to workplace experiences (for example during internships). Therefore, students with high levels of self-efficacy for online journalism are therefore more likely to agree to the quality of the fieldwork environment where skills necessary to work in an online environment are developed.

Judging from the responses, most respondents appreciate online tools as drivers of mass communication students' future careers. They acknowledge that the survival of the news media industry lies with its ability to continuously appropriate emerging technologies to keep ahead of competition. That most respondents are ready and willing to learn media tools as they emerge is testament to their attitudes towards a technology revolution which needs to be embraced for survival. In the context of Davis' (1989) technology acceptance model, the positive attitudes towards online tools for professional growth (as exhibited by the respondents in this study) may point to the students' beliefs in the power of online tools to improve their skills for future careers. Thus Rwandan mass communication students' positive attitudes towards online tools

associate with their intentions or perceived ability to use these tools to enrich their professional growth.

The general conclusion arrived at from this study's is that since all the digital skills development factors predicted the students' self-efficacy for online journalism at different levels of significance, they all demonstrate potential to shape the development of online skills competence. However, to fully realize the objectives of preparing the future media professionals for the digital industry, it is imperative to address a number of issues raised by the study respondents and also noted in the reviewed modules. Recommendations regarding these issues are discussed in the next section.

5.4 Recommendations

Drawing from the findings of this study, the following recommendations are proffered.

1) Since the mastery of different online journalism skills cannot be done in one module (as is the case in four of the five journalism schools), this study recommends to instructors that online journalism skills be taught right from first year to enable gradual mastery of the skills by the time of graduation. For example, students can be required to create and maintain professional online profiles (for example social media accounts, personal websites or blogs) which can form part of their assessment on how active one has been online – uploading professional content on blogs, social media links with professionals, keeping a personal website and contributing stories to online news sites among others.

2) Respondents raised the mismatch between what some online journalism modules described as the skills or content to be taught and what is actually taught. This study recommends that journalism instructors should carefully review the online journalism modules (in partnership with industry stakeholders) to indicate priority skills given the number of credits of the module and required practice time.

3) Arising from some respondents' concerns that some instructors overrate the students' online habits to be able to teach themselves professional online skills (given their digital culture), it is recommended that online journalism trainers understand the online media diet of their students and leverage these skills in their trainings. For example, students need to be taught how to differentiate professional from personal use of social media and how their personal online behavior can impact on their image or identity in the eyes of future employers. Moreover, scholars have argued that the different ways in which 'digital natives' and instructors process information must be borne in mind when training (Prensky, 2001). The trainers should endeavor to be as techno-savvy as the students to avoid being viewed as playing catch up by the students, as some FGD participants observed.

4) To address the challenge of increasing student numbers against shrinking online journalism learning resources, this study recommends that journalism schools either increase the digital learning facilities or cut back on student enrolments to ensure only a manageable number is efficiently catered for by the resources available.

5.5 Areas for further research

Although the purpose of any research is to discover new knowledge, this study cannot claim to have been exhaustive especially due to the dynamic nature of online journalism education and practice. To further knowledge on the development of digital competence among future media professionals, this study proposes the following areas for future research:

1. Future research could investigate the insignificant contribution of the characteristics of the training content in predicting the students' self-efficacy for online journalism. This might involve interviewing online journalism

instructors and other industry experts to understand how the digital skills/contents are determined and the way the modules are delivered.

2. To gauge the students' online journalism self-efficacy, this study took a composite score of the five online journalism skills - online journalism research, multimedia content creation, social media communication, online ethics and problem-solving with social media. A separate investigation on how the independent variables of this study might influence respondents' confidence in each of these online journalism skills is merited. For example, how do online media habits predict the students' confidence to conduct online journalism research?

3. Since this study was limited to students' self-assessments rather than objective practical evaluation, the results are likely to be incongruent with the students' actual competencies. Future research would, therefore, involve actual practical online journalism assignments (and actual grades obtained in the online journalism tasks) to gauge students' actual performance and ability on given online journalism tasks. Though difficult to execute, scholars consider such practical assessments as capable of presenting the most credible and consistent results (Creswell, 2013).

4. The predictive power of the overall study model indicated that 45.5% of the variations in online journalism self-efficacy were explained by content characteristics, training resources, online media habits, industry experiences and attitudes towards online tools for professional development – leaving 54.5% unexplained, hence, a research gap. Further studies should explore the role of other factors like gender, length of experience with technology, motivation for success in online journalism work, study option, digital capital, and family background among others in the students' self-efficacy for online journalism. Evidence indicates that such factors bear on how students perceive the development of their digital competencies in different domains.

5. This study can be replicated with a longitudinal approach where the students' self-efficacy for online journalism is evaluated at different times in their academic progression. Such a study would provide important indicators of how the online skills are being developed among the future media professionals and the extent to which the course content, facilities, students' online behavior, industry experiences and attitudes towards online tools are contributing to this online journalism preparedness.

6. This study focused on final year students (future graduates). A follow-up of the students as working professionals might establish the role of different workplace factors that enhance or impede their self-efficacy for online journalism. These factors may include further on-the-job training, editorial policies regarding social media use in journalism practice and use of online tools for actual news production among others. Findings from such a study can inform journalism school instructors on how best to integrate industry culture into the online journalism classes.

REFERENCES

Abe, P. & Jordan, N. (2013). Integrating social media into the classroom curriculum. *About Campus*, *18*(1), 16-20.

Aifan, H. A. (2015). *Saudi Students' Attitudes toward Using Social Media to Support Learning*. Unpublished PhD thesis, University of Kansas.

Ajzen, I. & Fishbein, M. (1980). *Understanding Attitudes and Predicting Social Behavior*, Prentice-Hall: Englewood Cliffs, NT

Akbari, E., Eghtesad, S. & Simons, R. (2012). *Students' attitudes towards the use of social networks for learning the English language*. Retrieved from: http://conference.pixelnline.net/ICT4LL2012/common/download/Paper_pdf/357-IBT70-FP-Akbari-ICT2012.pdf.

Alampay, E. (2006). Analyzing socio-demographic differences in the access and use of ICTs in the Philippines using the capability approach. *The Electronic Journal of Information Systems in Developing Countries*, *27*(5), 1-39.

Alias, E., Mukhtar, M. & Jenal, R. (2012). Instrument Development for measuring the acceptance of Unified Communications & Collaborations: A Content Validity Study. *International Journal of Advanced Computer Science and Applications, 10*(4), 187-193.

Alves, K. C., de Souza Filho, G., Moura S. & Brito F. (2014). Collaborative learning in digital journalism: Using JCollab for journalists' education. *Brazilian Journalism Research, 10*(1).

Amukuzi, M. and Kuria, G. (2019) Influence of Media Training on the Competence of Journalists in Kenya: Perceptions of Standard Group Limited Managers and

Senior journalists. *African journal of business, economics and industry*, *1*(1), 1410 - 6779.

Anderson, C., Glayser, T., Smith, J. & Rothfeld, M. (2011). Shaping 21st century journalism: Leveraging a "teaching hospital model" in journalism education. *Media Policy Initiative*. Washington, New America Foundation: 38.

Ashimwe, E. (2020, December 18). New media commission directive on YouTubers triggers mixed reactions. *The New Times*. Retrieved from: https://www.newtimes.co.rw/news/new-media-commission-directive-youtubers-triggers-mixed-reactions.

Badia, A., Meneses, J., Fàbregues, S. & Sigalés, C. (2015). Factors affecting school teachers' perceptions of the benefits of digital media in education. *RELIEVE*, *21*(2).

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1997). *Self-efficacy: The exercise of control.* New York: W.H. Freeman and Company.

Bartlett, IJ. E., Kortlik, J. W. &Higgins C. C. (2001). Operational Research: Determining appropriate sample size in survey research. *Information Technology, Learning and Performance Journal*,*19*(1), 43-50.

Becker, L., Vlad, T and Kalpen, K. (2012). Annual survey of mass communication enrolments: enrolments decline for second year in a row. *Journalism & Mass Communication Educator, 67*(4), 333–361.

Benson, V. & Morgan, S. (2016). Social university challenge: constructing pragmatic graduate competencies for social networking. *British Journal of Educational Technology*, *47*(3), 465-473.

Berg, B. L. & Lune, H. (2012). Qualitative Research Methods for the Social Sciences. 8thed. UK: Pearson.

Bethell, P. (2010). Journalism students' experience of mobile phone technology: implications for journalism education. *Asia Pacific Media Educator*, *20*, 103-114.

Beyene, Z. (2012). The role of media in ethnic violence during political transition in Africa: The case of Rwanda and Kenya. Unpublished Doctoral dissertation, University of Nebraska at Lincoln, USA.

Bhuiyan, S.I. (2010). Teaching media convergence and its challenges. *Asia Pacific Media Educator*, 115-122.

Bizimungu, J. (2020, October 12) Top five social networking platforms in Rwanda. *The New Times*. Retrieved from: https://www.newtimes.co.rw/news/top-five-social-networking-platforms-rwanda

Blayone, T, Mykhailenko, O., vanOostveen, R., Grebeshkov, O., Hrebeshkova, O. & Vostryakov, O. (2017). Surveying digital competencies of university students and professors in Ukraine for fully online collaborative learning. *Technology, Pedagogy and Education.*

Bor S. E. (2014). Teaching social media journalism: Challenges and opportunities for future curriculum design. *Journalism & Mass Communication Educator,* 69, 243–255.

Brady, K., Holcomb, L. and Smith, B. (2010). The use of alternative social networking sites in higher educational settings: A case study of the e-learning benefits of Ning in education. *Journal of Interactive Online Learning, 9*(2).

Briggs, M. (2007). Journalism 2.0: How to Survive and Thrive. *USF Tampa Bay Open Access Textbooks Collection,* Book 2.

Broaddus, M. B. (2012). Students' writing self-efficacy, motivation, and experience: Predictors in journalism education. (Smengage) among professionals in higher education. *International Journal of Cyber society education, 10(*1), 1-16.

Brown C., Czerniewicz, L. & Noakes, T. (2016). Online content creation: looking at students' social media practices through a Connected Learning lens. *Learning, Media and Technology, 41*(1), 140-159.

Brown, T., & Collins, S. (2010). What ''they'' want from ''us'': Industry expectations of journalism graduates. *Electronic News, 4*(2), 68-82.

Bryman, A. (2007). Barriers to integrating quantitative and qualitative research. *Journal of Mixed Methods Research, 1*, 8-22.

Bryman, A., & Bell, E. (2011). *Business research methods*. USA: Oxford University Press.

Buckingham, D. (2007). Media education goes digital: an introduction. *Learning, Media and Technology, 32*(2), 111-119.

Burns, K. (2011). Teaching research methods with social media. In M. Thomas (Ed.), *Digital education: Opportunities for social collaboration* (pp. 195-218). New York, NY: Palgrave Macmillan.

Caballero, C., & Walker, A. (2010). Work readiness in graduate recruitment and selection: A review of current assessment methods. *Journal of Teaching and Learning for graduate employability, 1*(1), 13-25.

Calvani, A., Fini, A., Ranieri, M., & Picci, P. (2012). Are young generations in secondary school digitally competent? A study on Italian teenagers. *Computers & Education, 58*(2), 797–807.

Campbell, O., Cleland, J., Collumbien, M. & Southwick, K. (1999). *Social science methods for research on reproductive health.* Geneva: World Health Organization.

Canute W. J. (2012). Caribbean Media Convergence: Towards a New Caribbean Journalist. *Caribbean Quarterly, 58*(2-3), 28-42.

Castaneda, L., Murphy, S. & Hether, H. J. (2005). Teaching, print, broadcast and online journalism curriculum: a case study assessing a convergence curriculum. *Journalism & Mass Communication Educator, 60* (1), 57-70.

Celik, V., and Yesilyurt, E. (2013). Attitudes to technology, perceived computer self-efficacy and computer anxiety as predictors of computer supported education. *Computer Education, 60*, 148–158.

Chaka, C. (2011). Research on Web 2.0 digital technologies in education. In M. Thomas (Ed.), *Digital education: Opportunities for social collaboration* (pp. 37-59). New York, NY: Palgrave Macmillan

Cindy, R (2014, April 28). Are journalism schools teaching their students the right skills? Retrieved from: https://www.niemanlab.org/2014/04/

Cindy, R. (2015). Developing and accessing experiential learning opportunities. *Teaching Journalism and Mass Communication*, *5*(1), 22-32.

Cochrane, T., Sissons, H., Mulrennan, D. & Pamatatau, R. (2013). Journalism 2.0: Exploring the impact of mobile and social media on journalism education. *International Journal of Mobile and Blended Learning*, *5*(2), 22-38.

Cohen, J. N. & Mihailidis, P. (2013). Exploring curation as a core competency in digital and media literacy education. *Journal of Interactive Media in Education, 24*(3), 25-29

Cohen, L. (1992). Power Primer. *Psychological Bulletin*, *112*(1) 155-159.

Cooper D. & Schindler P. (2006). *Business Research Methods*. (9th ed.). N.Y: McGraw-Hill

Cooper, C. R. & Schindler, P. S. (2011). *Business Research Methods,* (11th Ed.). McGraw-Hill Publishing, Co. Ltd. New Delhi-India.

Correa, T. (2010). The participation divide among ‘‘online experts’’: experience, skills and psychological factors as predictors of college students’ web content creation. *Journal of Computer-Mediated Communication, 16* (2010), 71–92.

Covello, S. (2010). *A review of digital literacy assessment instruments.* New York: Syracuse University,

Cremedas, M. & Lysak, S. (2011). New media skills competency expected of TV reporters and producers: a survey. *Electronic News, 5*(1), 41-59.

Creswell, J. W. (2014). Research design: Qualitative, quantitative, and mixed methods London: Sage.

Creswell, J.W. (2013). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Thousand Oaks, CA: Sage publications.

Creswell, J.W., & Clark, P. (2011). *Designing and conducting mixed methods research*. 2nd Edition. Thousand Oaks: Sage Publications.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16,* 297-334.

Cullen, T., Tanner, S., O'Donnell, M. & Green, K. (2014). Industry needs and tertiary journalism education: Views from news editors In *Transformative, innovative and engaging. Proceedings of the 23rd Annual Teaching Learning Forum*, 30-31 January 2014 Perth: The University of Western Australia.

Cunha, F. R., da, Jr, van Kruistum, C., & van Oers, B. (2016). Teachers and Facebook:

Daniels, S. (2012). Young journalists today: journalism students' perceptions of the ever-evolving industry. Unpublished MA thesis, University of North Texas.

Davis, F. (1989). Perceived usefulness, perceived ease of use and user acceptance of information technology. *MIS Quarterly*, *13*(3), 319–339.

De Lara, A. & García-Avilés, J. A. (2013). Examining competences in online journalism at Spanish Universities: The case of the Miguel Hernández University. *Journal of Applied Journalism & Media Studies, 2*(2), 245-263.

Deng, L. & Tavares, N. (2015). Exploring university students' use of technologies beyond the formal learning context: A tale of two online platforms. *Australasian Journal of Educational Technology, 31*(3), 313-327.

Deuze, M. (2017). Considering a possible future for digital journalism. *Mediterranean Journal of Communication, 8*(1), 9-18.

Diddi, A. & LaRose, R. (2006). Getting hooked on news: Uses and Gratifications and the formation of news habits among college students in an internet environment. *Journal of Broadcasting & Electronic Media*, *50* (2),193-210.

Du, Y. R. & Lo, E. (2014). The gap between online journalism education and practice: A Hong Kong Study. *Journalism & Mass Communication Educator*, *69*(4), 415–434.

Dunne, A., Lawlor, M. & Rowley. (2010). Young people's use of online social networking sites – a uses and gratifications perspective. *Journal of Research in Interactive Marketing*, *4*(1), 46-58.

Elavsky, M., Mislan, C. & Elavski, S. (2011). When talking less is more: Exploring outcomes of Twitter usage in the large-lecture hall. *Learning, Media and Technology*, *36*(3), 215-233.

Eliasson, E. & Jaakkola, M (2014). Learning by reading: Journalism students' news consumption in Sweden and in Finland and its pedagogical implications. *Mediane.* Retrieved from: https://www.coe.int/t/dg4/cultureheritage/mars/mediane/

Ferrari, A. (2012). *Digital competence in practice: An analysis of frameworks*. Institute for Prospective Technological Studies, European Union: JRC Technical Reports.

Ferrari, A. (2013). DIGCOMP: *A Framework for Developing and Understanding Digital Competence in Europe.* Technical Report JRC83167, European Commission Joint Research Centre Institute for Prospective Technological Studies, Seville Spain, Luxembourg: Publications Office of the European Union.

Ferrucci, P. (2017). “We’ve Lost the Basics”: Perceptions of journalism education from veterans in the field. *Journalism & Mass Communication Educator,* 1–11.

Flores, F. (2010). Convergence in Journalism: implications for the higher education of journalism students. Unpublished Phd Dissertation, Iowa State University, USA.

Freedom House (2020). *Rwanda: freedom on the net 2020 country report. Retrieved From digital skills to tangible outcomes project report*. Retrieved from: www.oii.ox.ac.uk/research/projects/

Gall, J., Gall, M. & Borg, W. (2014). *Educational Research. An Introduction*. (6th Ed.). New York: Longman.

Gangadharbatla, H., Bright, L. F. & Logan, K. (2015). The Role of social and mobile media in news consumption. *What is Journalism? Conference,* Portland, Oregon, April 9 – 11.

George, D. & Mallery, P. (2003). *SPSS for windows step by step: A simple guide and reference.* 11.0 update, (4th ed.). Boston: Allyn and Bacon.

Glejser, H. (1969). A new test for heteroskedasticity. *Journal of the American Statistical Association, 64*(235), 315–323.

Goodfellow, R. (2011). Literacy, literacies and the digital in higher education. *Teaching in Higher Education, 16*(1), 131-144.

Gugerty, C. A. (2011). Internships in Public Relations and Advertising: The Nature of the Experience From the Student’s Perspective. Master’s thesis, University of South Florida.

Habumuremyi, E. (2011). Balancing freedom of expression: the need for limitations and responsibilities in Rwanda. Global Info Society watch report. Retrieved from: https://www.giswatch.org/en/country-report/freedom-expression/rwanda

Hakizimana, E. (2019, March 26). Mindset, culture hinder females from having ownership and leadership in Rwanda's media. *Rwanda Inspirer*. Retrieved from: https://rwandainspirer.com/2019/03/26/mindset-culture-still-hinder-females-to-have-ownership-and-leadership-in-rwandas-journalism .

Hamzah, A., & Mustafa, S. E. (2014). Digital Readiness of Malaysian Journalists. *Advances in Journalism and Communication, 2*, 58-67.

Hargittai, E. & Hinnant, A. (2008). Digital inequality: Differences in young adults' use of the Internet. *Communication Research, 35*(5), 602–621.

Hargittai, E. (2005). Survey measures of web-oriented digital literacy. *Social Science Computer Review*, *23*, 371–379.

Hartshorne, R. & Ajjan, H. (2008). Investigating faculty decisions to adopt web 2.0 technologies: theory and empirical tests. *The Internet and Higher Education*, *11*, 71-80.

Hatch, J. A. (2002). *Doing qualitative research in education settings.* Albany, NY: State University of New York Press.

Hatlevik, O. E., & Christophersen, K.-A. (2013). Digital competence at the beginning of upper secondary school: identifying factors explaining digital inclusion. Computers & Education, *63*, 240–247.

Hatlevik, O. E., Guomundsdóttir, G. B., & Loi, M. (2015). Digital diversity among upper secondary students: A multilevel analysis of the relationship between

cultural capital, self-efficacy, strategic use of information and digital competence. *Computers and Education*, *81*, 345–353.

Higher Education Council (Republic of Rwanda). (2019). *Accredited institutions* [of higher learning]. Retrieved from: https://hec.gov.rw/index.php?id=16

Hirst, M. & Treadwell, G. (2011). Blogs bother me: Social media, journalism students and the curriculum. *Journalism Practice, 5*, 446–461.

Hodgson, P. & Wong, D. (2011). Developing professional skills in journalism through blogs. *Assessment & Evaluation in Higher Education, 36*, 197–211.

Hofstetter, C. , Zuniga, S. & Dozier, D. (2009) Media self-efficacy: Validation of a new concept. *Mass Communication & Society*, *4*(1):61-76.

Holmstrom, T. & Siljebo, J. 2013. Developing digital competence or exploring teaching with digital technologies? An organizational study of municipalities' development of upper secondary school students' digital competence. Unpublished Masters Thesis, Umeo University, Sweden.

Hou, S. (2017). Measuring social media active level (smactive) and engagement level

Hsieh, J., Huang, Y. -M. &Wu, W. -C. (2017). Technological acceptance of LINE in flipped EFL oral training. *Computuers and Human Behaviour, 70*, 178–190.

Huang, E. (2009). The causes of youth's low news consumption and strategies for making youths happy news consumers. *Convergence, 15*(1), 105-122.

Hubbard, P. & Romeo, K. (2012). Diversity in learner training In *Computer-assisted language learning: Diversity in research and practice.* Stockwell, G. (ed). Cambridge: Cambridge University Press, 33–48.

INTERNEWS. (2020). Rwandan journalists urged to embrace mobile journalism. Retrieved from: https://internews.org/news/covid-19-rwandan-journalists-urged-embrace-mobile-journalism.

Iordache, E., Mariën, I., & Baelden, D. (2017). Developing digital skills and competences: A quick-scan analysis of 13 digital literacy models. *Italian Journal of Sociology of Education*, *9*(1): 6-30.

Ireri, K. (2017). Exploring Journalism and Mass Communication Training in Kenya: A National Survey. *Journalism & Mass Communication Educator* 1–15.

Iyer, P. (2015). Competencies for future newsrooms in Australia: a mid-career learning strategy for journalists. Unpublished Phd Thesis, University of Wollongong, Australia.

Izquierdo, I., Olea, J. & Abad, F.J. (2014). Exploratory factor analysis in validation studies: Uses and recommendations. *Psicothema*, *26*(3), 395-400.

Jeanti, S. (2015). Doing it for real: designing experiential journalism curricula that prepare students for the new and uncertain world of journalism work. *Coolabah*, *16*.

Jegede, P. O., Dibu-Ojerinde, O. O. & Ilori, M. O. (2007). Relationship between ICT

Jiang, S. & Rafeeq, A. (2019). Connecting classroom with newsroom in the digital Age: An investigation of journalism education in the UAE, UK and USA. *Asia Pacific Media Educator*. 1-20.

Jjuuko, M. & Njuguna, J. (2019). Confronting the challenges of journalism education in Rwanda in the context of educational reforms. *Journal of Scholarship of Teaching and Learning in the South*, *3*(2), 49-67.

Jones, C., Ramanau, R., Cross, S. & Healing, G. (2010) Net generation or digital natives: is there a distinct new generation entering university? *Computers and Education, 54*(3), 722-732.

Jones, D. (2016). Using digital tools in WIL to enable student journalists' real world learning In S. Barker, S. Dawson, A.Pardo, and C. Colvin (Eds.), *Show Me The Learning*. *Proceedings ASCILITE 2016 Adelaide, 2016,* pp. 294-299.

Joo, Y. J., So, H. J., & Kim, N. H. (2018). Examination of relationships among students' self-determination, technology acceptance, satisfaction, and continuance intention to use K-MOOCs. *Computers & Education*, *122*, 260-272.

Kaasbøll, J. (2014). *Developing digital competence - learning, teaching and supporting use of information technology.* Retrieved from: https://www.uio.no/studier/emner/matnat/ifi/INF3280/v14/pensumliste/kaasboll2014developingdigitalcompetence11-15.pdf

Kanigel, R. (2014). Course Remix: Meshing Reporting Skills and Multimedia Storytelling. *EducationShift.* Retrieved from: http://mediashift.org/2014/03/course-remix-meshing-reporting-skills-and-multimedia-storytelling/

Kautsky, R., & Widholm, A. (2008). Online methodology: analysing news flows of online journalism. *Westminster Papers in Communication and Culture, 5,* 81-97.

Kelleher, C. D. (2014). *A consideration of development journalism in the context of Rwandan newspapers*. Unpublished MA thesis, University of Texas at Austin.

Kim, C. & Freberg, K. (2017). The state of social media curriculum: exploring professional expectations of pedagogy and practices to equip the next generation of professionals. *Journal of Public Relations Education,* 2(2). Retieved from https://aejmc.us/jpre/2016/12/14/the-state-of-social-media-curriculum-exploring-professional-expectations-of-pedagogy-and-practices-to-equip-the-next-generation-of-professionals/#pdf

Kocadere, S. A., & Aşkar, P. (2013). Contribution and frequency of use of social media tools: teaching practice example. *Elementary Education Online*, *12*(4), 1120-1132.

Kolb, D. (1984). *Experiential Learning: experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice Hall.

Koranteng, F., Wiafe, I. & Kuada, E. (2019). An empirical study of the relationship between social networking sites and students' engagement in higher education. *Journal of Educational Computing Research, 57*(5), 1131–1159.

Kothari, A. & Hickerson, A. (2016). Social media use in journalism education: faculty and student expectations. *Journalism & Mass Communication Educator*, *71*(4), 413–424.

Kothari, C. (2011). *Research Methodology: Methods and Techniques.* New Delhi: New Age International Publishers.

Kumar, S, Liu, F. & Black, E. W. (2012). Undergraduates' collaboration and integration of new technologies in higher education: Blurring the lines between informal and educational contexts. *Digital Culture & Education, 421,* 248-259.

Kwanya, T. (2014). Effectiveness of ICT education in schools of journalism in Kenya. *Journal of Mass Communication and Journalism, 4*, 221.

Larkin, J. (2008). *Convergence journalism: Towards a new media landscape*. University of Canterbury. Retrieved from: www.saps.canterbury.ac.nz/docs/robert_bell_report_feb09.pdf

LaRose, R. & Eastin, M. (2001). Internet self-efficacy and the psychology of the digital divide. *Journal of Computer-Mediated Communication, 6*(1).

Lewis, B. K. (2010). Social media and strategic communication: Attitudes and perceptions among college students. *Public Relations Journal, 4*(3).

Litt, E. (2013). Measuring users' Internet skills: a review of past assessments and a look toward the future. *New Media & Society*, *15*(4), 612-630.

Lowrey, W. & Becker, L B. (2015). The impact of technological skill on job-finding success in the mass communication labor market. *Journal of Mass Communication Quarterly, 78*(4), 754-770.

Macnamara, J. & Zerfass, A. (2015). Social media in organizations: The challenges of balancing openness, strategy, and management. *International Journal of Strategic Communication, 6*(4), 287–308.

Maddux, J. E. (Ed.). (2013). *Self-efficacy, adaptation, and adjustment: Theory, research, and application*. London, UK: Springer Science & Business Media.

Marinho, S. & Pinto, M. (2006). *Practices and attitudes towards the media of journalism students: a case study at the University of Minho.* Proceedings of the 1st Luso-Galician Congress of Journalistic Studies, Santiago de Compostela, 29 and 30 October 2006. Porto: Universidade Fernando Pessoa.

McDevitt, M. & Sindorf, S. (2012). How to kill a journalism school: The digital sublime in the discourse of discontinuance. *Journalism & Mass Communication Educator, 67,* 109-118.

McNaught, C., Phillips, R., Rossiter, D. & Winn, J. (2000). Developing a framework for a useable and useful inventory of computer-facilitated learning and support materials in Australian universities. Canberra: DETYA. Retrieved from: http://www.dest.gov.au/highered/eippubs1999.htm .

Media High Council (2014) *Media business growth with capacity needs assessment Report*, Kigali. Retrieved from: www.mhc.gov.rw

Media High Council. (2013). A five-year strategy developed for the Media High Council, Rwanda (2014-2019). Retrieved from: www.mhc.gov.rw

Media High Council. (2013). Baseline research report on cultural and local content production in Rwanda's media sector. Retrieved from: www.mhc.gov.rw

Meelissen, M. & Drent, M. (2008). Gender differences in computer attitudes: Does the school matter? *Computers in Human Behavior*, *24*(3), 969-985.

Mensing, D. (2010). Rethinking [again] the future of journalism education. *Journalism Studies*, *11*(4), 511-523.

Mew, L., and Honey, W. H. (2010). Effects of computer self-efficacy on the use and adoption of online social networking. *Intenational Journal of Virtual Communities and Social Networking*, *2*, 18–34.

Mihailidis, P. & Shumow, M. (2011). Theorizing journalism education, citizenship and new media technologies in a global media age. *Taiwan Journal of Democracy*, *7* (2), 1-21.

Ministry of Education (Rwanda) (2016). *ICT in education policy*. Retrieved from: https://mineduc.gov.rw/fileadmin/user_upload/pdf_files/ICT_in_Education_Policy_approved.pdf

Ministry of Local Government (Rwanda). (2014). *Rwanda National Media Policy 2014*. Retrieved from: www.minaloc.gov.rw.

Ministry of Youth and ICT (Rwanda). (2015) *Smart Rwanda 2020 Master Plan.* Retrieved from: www.myict.gov.rw

Moran, M., Seaman, J. & Tinti-Kane, H. (2011). *Teaching, learning, and sharing: How today's higher education faculty use social media. Babson Survey Research Group*. Retrieved from: https://scirp.org/reference/referencespapers.aspx?referenceid=2642777

Mugenda, O. & Mugenda, A. (2007). *Research methods. Quantitative and qualitative approaches*. Nairobi: Acts Press.

Mwai, C. (2017, November 7). Local media mulls survival in digital age. *The New Times*. Retrieved from: www.newtimes.co.rw.

Mwesigye, E. (2018). *Social media and information literacy among the youth in Rwanda: case study of school of journalism and communication, university of Rwanda*. Unpublished MA Thesis, Mt Kenya University, Kigali, Rwanda.

Myers. (1990). *Classical and modern regression with applications.* Boston: PWS-Kent.

Nah, S. and Chung, D. (2009). Rating citizen journalists versus pros: Editors' views. *Newspaper Research Journal, 30*(2), 71–83.

Narasimhamurthy, N. (2014) Cultural Impact and Gender on Indian Young Adults in Using Social Networking Sites. *International Journal of Interdisciplinary and Multidisciplinary Studies, 1*, 113-125.

Nasution, R., Rusnandi, L., Qodariah, E., Arnita, D. & Windasari, N. (2018). The evaluation of digital readiness concept: existing models and future directions. *The Asian Journal of Technology Management, 11(*2), 94-117.

Ndahiro, T. (2010). Media watchdogs in a post-genocide Rwanda: A Caveat, *Friends of Evil*. Retrieved from: friendsofevil.wordpress. Com/2010/11/30/media-watchdogs-in-a-post-genocide-rwandaa-caveat.

Newton, J. (2013). Incidental vocabulary learning in classroom communication tasks. *Language Teaching Research*, *17*(2), 164-187.

Nistor, C. (2015). *Journalism education and professional practices - transnational network for the integrated management of post-doctoral research in the field of Science Communication (CommScie)'* contract no. POSDRU/89/1.5/S/63663. Retrieved from: https://docplayer.net/12004938-Journalism-education-and-professional-practices

Nordenstreng, K. (2008). Soul-searching at the crossroads of journalism education. *Media Development, 3*, 38-42.

Ntirenganya, E. (2020, October 28). Media High Council roots for specialised reporting. *The New Times*. Retrieved from: https://www.newtimes.co.rw/news/media-high-council-roots-specialised-reporting.

O'Donnell, P. & McKnight, D. (2012). *Journalism at the speed of bytes.* Sydney, Australia: Media Entertainment and Arts Association.

Obaid, E. (2011). *The role of Social Networking in supporting subject matters from student's viewpoints.* Islamic University of Al Emam Mohammed Bin Saud. The arabic content in Internet conference, challenges and difficulties.

Ol, J. (2017). A Comparative Study of Digital Competence and Response to Digital Innovations by Korean and Nigerian Newspaper Journalists. *Journal of Mass Communication and Journalism, 7*(3), 1-6.

Oluchi, E. (2016). Media convergence: a paradigm shift in journalism education in Nigeria. *Review of Journalism and Mass Communication, 4*(1), 19-42.

Olusegun, O. (2015). Journalism trainers and newspapers editors agree on internship as a weak link in journalism training in Nigeria. *International Journal of Humanities and Social Science, 5*(4), 104-111.

Oselydnu, Y. & Hornburg, R. (2011). The gap between online journalism education and practice: The twin Surveys. *Journalism & Mass Communication Educator, 5*(50), 217-230.

Palak, D., & Walls, R. T. 2009. Teachers' beliefs and technology practices: A mixed-methods approach. *Journal of Research on Technology in Education*, *41*, 417-441.

Palilonis, J. (2010). Research-informed design exercises enhance audience understanding among visual communication Students. *Journalism & Mass Communication Educator,* 414-429.

Pavlik, J. & McIntosh, V. (2011). Digital technology: implications for democracy. *Brazilian Journalism Research, 7*(11), 95-116.

Pavlik, J. V. (2013). A vision for transformative leadership: Rethinking journalism and mass communication education for the twenty-first century. *Journalism & Mass Communication Educator, 68*, 211-221.

Pegrum, M. (2011). Modified, multiplied, and (re)mixed: Social media and digital literacies. In M. Thomas (Ed.), *Digital education: Opportunities for social collaboration* (pp. 9-35). New York, NY: Palgrave Macmillan.

Pew Research Center. (2010). New media, old media: how blogs and social media agendas relate and differ from the traditional press. *Project for excellence in journalism*, 1-28.

Pew Research Center. (2014). The growth in digital reporting: What it means for journalism and news consumers. *State of the News Media*, 2014. Retrieved from: https://www.pewresearch.org/wp-content/uploads/sites/8/2017/05/state-of-the-news-media-report-2014-final.pdf

Picard, R. (2014). Deficient tutelage: Challenges of contemporary journalism education. Keynote address to *toward 2020: New Directions in Journalism Education Conference*, Ryerston University, Toronto, May 31, 2014.

Pirzada, K., & Khan, F. (2013). Measuring relationship between digital skills and employability. *European Journal of Business and Management*, *5*(24), 124-133

Polites, G. L., & Karahanna, E. (2012). Shackled to the status quo: the inhibiting effects of incumbent system habit, switching costs, and inertia on new system acceptance. *Management Information Systems Quarterly*, 21–42.

Popa, D. & Topală, I. P. (2018). Students' digital competencies, related attitudes and self-directed learning. *The International Scientific Conference eLearning and Software for Education*, *3*, 90-95.

Powers, E. (2012). Learning to do it all. *American Journalism Review*, *34*(1), 10-13.

Poynter Institute for Media Studies. (2013). *State of Journalism Education 2013,* Poynter, News University.

Prescott, J., Wilson, S. & Becket, G. (2013) Students' attitudes towards Facebook and online professionalism: subject discipline, age and gender differences. *Health and Social Care Education, 2*(2), 3-10.

Provoke (2015). *What does the PR professional of the future look like? The Holmes Report*. Retrieved from: https://www.provokemedia.com/research/article/what-does-the-pr-professional-of-the-future-look-like

Punie, Y. & Cabrera, M. (Eds.) (2006). *The Future of ICT and Learning in the Knowledge Society.* Luxembourg: European Commission.

Purcell, K., Rainie, L., Mitchell, A., Rosenstiel, T. & Olmstead, K. (2010). *Understanding the participatory news consumer*. Retrieved from: https://www.pewresearch.org/internet/2010/03/01/understanding-the-participatory-news-consumer/

Purdie, F., Ward, L. J., McAdie, T. M., King, N., & Drysdale, M. (2013). Are work-integrated learning (WIL) students better equipped psychologically for work post-graduation than their non-work-integrated learning peers? Some initial findings from a UK university. *Asia Pacific Journal of Co-operative Education, 14*(2), 117-125.

Quinn, S. (2010). Opportunities for journalism education in an online entrepreneurial world, *Asia Pacific Media Educator*, *20*, 69-80.

Ragnedda, M., Ruiu, M. L., & Addeo, F. (2020). Measuring digital capital: An empirical investigation. *New Media & Society*, *22*(5), 793-816.

Ramachandran, P. & Balaguru, A. (2014). Innovations to broadcasting curriculum to meet workplace expectations. *Procedia - Social and Behavioral Sciences*, *123*, 160 – 169.

Reiche, B. S., Kraimer, M. L., & Harzing, A.-W. 2011. Why do international assignees stay? An organizational embeddedness perspective. *Journal of International Business Studies*, *42*, 521-544.

Robinson, S. (2013). Teaching journalism as process: A proposed paradigm for J-School curricula in the digital Age. *Teaching Journalism and Mass Communication*, *3*(1), 1-12.

Robson, P., & James, M. (2011). Trialling PR2.0: An exploratory study of the non-capital city practitioner's social media use. *Asia Pacific Public Relations Journal*, *12*(2), 19-40.

Romero-Rodríguez, L. M. & Aguaded, I. (2016). Consumption of information and digital competencies of journalism students from Colombia, Peru and Venezuela. *Convergencia*, *23* (70), 1405-1435.

Rosen, L. D., Whaling, K., Carrier, L. M., Cheever, N. A., & Rokkum, J. (2013). The Media and Technology Usage and Attitudes Scale: An empirical investigation. *Computers in Human Behavior*, *29*(6), 2501-2511.

Rosenbaum, S (2014). *A qualitative study of the effectiveness of the University of Nebraska-Lincoln's Journalism program for preparing students for the workplace*. Unpublished Master's Thesis, University of Nebraska, Lincoln.

Royal, C. (2015). Developing and accessing experiential learning opportunities. *Teaching Journalism and Mass Communication*, *5*(1), 22-32.

Rwanda Governance Board (2018). *Rwanda Media Barometer*. Kigali, Rwanda.

Sagrista, M. & Matbob, P. (2016). The digital divide in Papua New Guinea: Implications for journalism education. *Pacific Journalism Review, 22*(2), 20-34.

Salaverría, R. (2011). Online journalism meets the university: ideas for teaching and research. *Brazilian Journalism Research, 7*(1I), 137-152.

Schepman, A., Rodway, P., Beattie, C., & Lambert, J. (2012). An observational study of undergraduate students' adoption of (mobile) note-taking software. *Computers in Human Behavior*, *28*(2), 308–317.

Schwalbe, C. B. (2009). Leveraging the digital media habits of the millennials: Strategies for teaching journalism courses. *Southwestern Mass Communication Journal*, *25*, 53–68.

Seelig, M. (2010). Journalism and mass communication education: The impact of technology on pedagogy. *Exploration in Media Ecology*, 245-258.

Selwyn, N. (2009). Faceworking: exploring students' education-related use of Facebook. *Learning, Media and Technology*, *34*(2), 157–174.

Serede, G. S. & Mberia, H. (2019). 'Last seen now': Explaining teenage identities and social capital on social network sites in Kenya. *Journal of Development and Communication Studies, 6*(1), 18-35.

Shittu, A.T., Kamal, M. B., & Ahmad, T. B (2011). *Investigating students' attitude and intention to use social software in higher institution of learning in Malaysia.*

Presented at the e-learning and distance education conference held in Riyadh, Kingdom of Saudi Arabia. 21-24 February, 2011.

Singer, J. (2008). Posting for points: Edublogs in the JMC curriculum. *Journalism & Mass Communication Educator*, *63*, 10–27.

Singer, J. B. (2011). Journalism in a network In Deuze, M. (Ed), *Managing Media Work,* Thousand Oaks: Sage.

Spyridou, L., Matsiola, M., Veglis, A., Kalliris, G. & Dimoulas, C. (2013). Journalism in a state of flux: journalists as agents of technology innovation and emerging news practices. *International Communication Gazette, 75*(1), 76-98.

Spyridou, P & Veglis, A (2008). The contribution of online news consumption by journalism professionals: likelihood patterns among Greek journalism students. *Journalism*, 9 (1) 52-75.

Stapleton, P., Luiz, G., & Chatwin, H. (2017). Generation validation: The role of social comparison in use of Instagram among emerging adults. *Cyberpsychology, Behavior, and Social Networking*, *20*(3), 142-149.

Steensen, S. (2011). Online journalism and the promises of new technology: a critical review and look ahead. *Journalism Studies, 12* (3), 311-327.

Stoker, R. (2015). An investigation into blogging as an opportunity for work-integrated learning for journalism students. *Higher education, skills and work-based learning*, *5*(2), 168-180.

Sue, R. (2013). Teaching Journalism as Process": A proposed paradigm for J-School curricula in the digital age. *Teaching Journalism and Mass Communication*, *3*(1), 1-12.

Sutherland, K. & Ho, S, (2017). Undergraduate perceptions of social media proficiency and graduate employability: A pilot study. *Higher Education, Skills and Work-Based Learning*, *7*(3), 261-274.

Switzer, J. & Switzer, R. (2013). The myth of the tech-Savvy Student: the role of media educators in a Web 2.0 World. *Journal of Media Education*, *4*(4).

Tabachnick, B. G. & Fidell, L. S. (2007). *Using multivariate statistics.* New York: Allyn and Bacon/Pearson Education.

Tanner, S. (2014). *Graduate qualities and journalism curriculum renewal: Balancing tertiary expectations and industry needs in a changing environment.* Unpublished PhD thesis, Edith Cowan University.

Tas, Y. (2016). The contribution of perceived classroom learning environment and motivation to student engagement in science. *European Journal of Psychology Education,* 31, 557–577.

Tellería, A. (2012). Online journalism design: Evolution, criteria and challenges. *Matrizes*, 5(2), 269-285.

Terzis, G. (2009). *European journalism education.* Bristol (UK): Intellect.

Tess, P. (2013). The role of social media in higher education classes (real and virtual): A literature review. *Computers in Human Behavior*, *29*, A60–A68.

Tezci, E., & İçen, M. (2017). High School Students' Social Media Usage Habits. *Online Submission*, *8*(27), 99-108.

Theiss, C. E. (2018). *Adapting to change in the Swiss German media industry: Identifying and developing competencies needed by journalists and editors to*

cope with future market needs - A collective case study. Unpublished PhD dissertation, Andrews University.

Trilling, B. & Fadel, C. (2009). *21st century skills: Learning for life in our times*. San Francisco: Jossey-Bass.

UNESCO (2007). UNESCO Series on Journalism Education Model Curricula for Journalism Education. Paris: UNESCO Retrieved from: https://unesdoc.unesco.org/ark:/48223/pf0000221199.page=103

UNESCO (2021) African journalism schools to benefit from UNESCO partnership with Google News Initiative. Paris: UNESCO Retrieved from: https://www.unesco.org/en/articles/african-journalism-schools-benefit-unesco-partnership-google-news-initiative

UNESCO. (2017). *Working group on education: Digital skills for life and work*. Paris: UNESCO

UNESCO. (2018). *Digital skills critical for jobs and social inclusion*. Paris: UNESCO. Retrieved from: https://en.unesco.org/news/digital-skills-critical-jobs-and-social-inclusion. Paris: UNESCO

Using online groups to improve students' communication and engagement in education. *Communication Teacher, 30*(4), 228–241.

Van Deursen, A. & van Dijk, J. (2010). Measuring Internet skills. *International Journal of Human-Computer Interaction, 26*(10), 891–916.

Van Deursen, A., & van Dijk, J. (2011). Internet skills and the digital divide. *New Media Society, 13*(6), 893-911.

Veglis, A. (2015). *Teaching Data Journalism in the School of Journalism & Mass Communication - Greece.* Paper presented at Ejta 2015, Narrative Journalism and Storytelling on Digital Platforms (Teacher Conference), Milan, Italy.

Veglis, A. & Spyridou, P. (2008). The contribution of online news consumption by journalism professionals: likelihood patterns among Greek journalism students. *Journalism*, *9*(1) 52-75.

Veglis, A. (2010). Teaching Data Visualization in Journalism Students. *IEEE Learning Technologies* Retrieved from: http://ikee.lib.auth.gr/record/214147?ln=en

Veglis, A. (2013). Education of Journalists on ICTs: Issues and opportunities. *Journal of Applied Journalism & Media Studies*. 2(2), 265-279.

Vinogradova, S., Melnik, G. & Pantserev, K. (2018). Transformation of media education in the digital age: to the issue of training specialists in the field of communications. *Media Education*, *1*, 18-27.

Vivian, R. (2011). University students' informal learning practices using Facebook: help or hindrance? In R. Kwan, C. McNaught, P. F. L. Wang, & K. C. Li (Eds.), *enhancing learning through technology. Education unplugged: Mobile technologies and web 2.0* (*Vol. 177*, pp. 254–267). Berlin: Springer.

Wang, C., Shannon, D. & Ross, M. (2012). Student' characteristics, self-regulated learning, technology self-efficacy, and course outcomes in online learning. *Distance Education*, *34*(3), 302-323.

Wecker, M. (September 28, 2012). New LinkedIn endorsements may benefit college students. Retrieved from: http://www.usnews.com/education/best-colleges/articles/2012/09/28/new-linkedin-endorsements-may-benefit-college-students_print.html.

Wenger, D. H. & Owens, L C. (2010). Help wanted 2010: An examination of new media skills required by top U.S. news companies. *Journalism & Mass Communication Educator, 67*(1), 9–25.

Wenger, D., & Owens, L. C. (2013). An examination of job skills required by top U.S. broadcast news companies and potential impact on journalism curricula. *Electronic News, 7*(1), 22–35.

White, A. (2012). The digital labour challenge: Work in the age of new media. *Working paper*. Geneva, Switzerland: ILO

William, Z., Barry, B., Jon, C. & Mitch, G. (2013). *Business Research Methods*. UK: Cengage Learning.

Wotkyns, K. (2014). Curriculum development in the digital age of journalism. *GSTF Journal on Media & Communications, 2*(1). 1-6.

Wright, D. K., & Hinson, M. D. (2009, March). An analysis of the increasing impact of social and other new media on public relations practice. In *12th annual International Public Relations Research Conference, Miami, Florida* (pp. 1-22).

Wu, Y., & Tsai, C. (2006). University Students' Internet Attitudes and Internet Self-Efficacy: A study at three Universities in Taiwan. *Cyberpsychology & Behavior, 9,* 441-450.

Yakin, M. & Erdel, O. (2012). Relationships between self-efficacy and work engagement and the effects on job satisfaction: A survey of certified public accountants. *Procedia – Social and Behavioral Sciences, 58,* 370-378.

Yamane, T. (1967). Statistics: An introductory analysis, 2nd edition: New York: Harper and Row.

Yang, S. (2016). Multimedia news storytelling as digital literacies: An alternative paradigm for online journalism education. *Journalism,* 1–23.

Ying, R. D. (2010). Teaching journalism and mass communication in the trend toward convergence: A content analysis of faculty hiring announcements with a new media emphasis. Paper presented at the 2010 International Communication Association Annual Conference, Singapore.

APPENDICES

Appendix I: Letter of Introduction

Dear respondent,

RE : REQUEST TO COMPLETE QUESTIONNAIRE

I am a PhD student of Mass Communication at the Jomo Kenyatta University of Agriculture and Technology, currently doing research titled 'Digital skills development factors as predictors of the self-efficacy for online journalism among undergraduate mass communication students in Rwanda'.

I am exploring how different factors predict your beliefs in the ability and confidence to perform different online journalism skills after you graduate. The results of this exercise will hopefully contribute to the development of appropriate mechanisms to build digital skills among future media professionals. The study is meant for academic purposes only. Kindly spare a few minutes and complete all sections of this questionnaire.

All responses will be treated with confidentiality and anonymously. As such, please do not indicate your identity anywhere on the questionnaire.

Thank you for your time.

Joseph Njuguna

Appendix II : Questionnaire

Dear respondent,

Please respond to all questions by ticking (√) your appropriate response (s) in the spaces provided. This exercise will take about 30 minutes of your time. Kindly give your candid responses. We are not looking for right or wrong answers – any responses are valid to the study.

Institution status: Public …….Private…….

PART 1: RESPONDENT'S GENERAL INFORMATION

(Tick your responses in the spaces provided)

A. Please indicate your gender:

Code	Gender	
A1	Male	
A2	Female	

B. Please indicate your area of specialization:

Code	I specialize in the following option	
B1	Journalism (print, TV, radio, film)	
B2	Communication (PR, Advertising, Dev com.)	

C. I own the following digital tools (please tick <u>all</u> tools that you own)

Code	Media production tool	
C1	Audio recorder	
C2	Digital Camera	
C3	Laptop	
C4	Smartphone	
C5	Desktop computer	
C6	Tablet or Ipad	

PART 2: CHARACTERISTICS OF ONLINE JOURNALISM CONTENT TAUGHT

(Indicate your level of agreement with the following statements regarding the skills taught under your online journalism module and their relevance to industry)

Code	Statement	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
D1	Most modules integrate online content					
D2	Teaching online journalism focuses more on practice than theory					
D3	Different social media skills are taught					
D4	Different multimedia production skills are taught					
D5	Evaluations focus on what online products (for example blogs) students create					
D6	Industry case studies (for example online news sites) are used to enhance learning					
D7	Skills taught include what the media industry currently requires					

PART 3: TRAINING RESOURCES

(Indicate your level of agreement on the following statements regarding online journalism teaching resources at your school)

Code	Statement	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
E1	Software and hardware resources are adequate for online journalism teaching					
E2	Library has manuals on multimedia production skills					
E3	Internet connectivity is often reliable					
E4	Internet is accessible at many sites on the campus					

E5	Instructors know most online media tools					
E6	Mobile phones are sometimes to teach online news production					
E7	We use online tutorials to improve our journalistic learning					

PART 4: ONLINE MEDIA HABITS

(Indicate your level of agreement with the following statements regarding your online behavior)

Code	Statement	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
F1	I like to create, post and share new stories, ideas, images, etc. on my networks					
F2	I like to read other people's comments/posts without giving my comments					
F3	I have created groups on my social media networks and keep adding new members					
F4	I regularly read news from online news					
F5	I follow some media professionals online					
F6	All my online accounts are always active and updated					
F7	I am always exploring new online tools and skills to learn					

PART 5: INDUSTRY EXPERIENCES

(Indicate your level of agreement with the following statements on your online journalism field-based experiences)

Code	Statement	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
G1	I learnt and used some new media (ICT) skills during my internship					
G2	I have created and maintained a professional					

	blog (personal website)					
G3	I always contribute stories to online news media					
G4	Class practicums involved real industry multimedia productions					
G5	I have participated in online news gathering and production for an organization					
G6	I have participated in live online coverage of an event (e.g. workshop, conference, etc.) using twitter, Facebook, WhatsApp, etc.					
G7	I participated in design and production of our school newspaper, online radio, etc.					
G8	I always take initiative to learn what other professionals are publishing online					

PART 6: ATTITUDES TOWARDS NEW MEDIA TOOLS FOR PROFESSIONAL DEVELOPMENT

(Indicate your level of agreement with the following perception statements regarding online tools and the journalism profession and career)

Code	Statement	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
H1	New media tools can improve chances of being employed					
H2	New media tools can teach me new skills for my future job					
H3	New media tools can negatively affect other skills like writing, self-expression, etc.					
H4	The media industry depends on new media tools					
H5	Our future work depends on knowledge of new media technologies					
H6	New media tools are trusted sources of professional information					
H7	I am ready to learn any new media tools that come up					
H8	Media professionals need to learn about all new media technologies					
H9	Anybody can learn how to use internet					

	technologies					

PART 7: SELF-EFFICACY FOR ONLINE JOURNALISM

(Indicate your level of agreement with ability to perform the following online journalism skills)

Code	Online Journalism Skills	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
	Online journalism research					
J1	I can identify good online sources in producing different news stories					
J2	I can use online tools to know what is trending in my news beat					
J3	I can identify credible and fake online story sources					
J4	I can properly attribute online sources for my news story					
J5	I can analyse audience reactions about a news story					
J6	I can find different online multimedia elements that can accompany a news story					
	Social Media Communication					
J7	I can use different social media tools to engage online audiences					
J8	I can participate in skype discussions with story sources					
J9	I can create a professional image of myself and an organization using social media tools					
J10	I can moderate online discussions to avoid spread of bad messages					
	Multimedia content creation					
J11	I can create and manage content with collaboration tools (for example electronic calendars)					
J12	I can create multimedia presentations (with text, sound, graphic,video) to tell a news story					
J13	I can edit digital photographs or other graphic images using appropriate software for a story					

J14	I can create groups for social media like micro-blogs, video-sharing sites, wikis, etc.					
J 15	I can design and layout a newspaper or magazine using the appropriate software					
J 16	I can create and manage the website of an organization.					
J 17	I can use my phone to capture and transfer photos, audios and videos in online sites					
J 18	I can use appropriate software to create, visualize and analyze news stories from huge data sources					
	Journalism netiquette					
J 19	I can protect my professional image online					
J 20	I can protect the online privacy of news sources					
J 21	I can establish the reliability of online stories or story sources					
J 22	I can apply Rwanda's code of journalism ethics relating to online publishing					
	New media strategic skills					
J 23	I can identify the future digital needs of journalistic work					
J 24	I can combine my traditional journalism skills with multi-media capability					
J 25	I can advise on new media tools to use in an organization					
J 26	I can help to develop a policy for new media use in a media house					
J 27	I am adaptable to any new media technologies					

Appendix III: Focus Group Discussion Guide

Introduction to the FGD session – talking points

- Welcome participants and state the purpose of the FGD
- Set ground rules of participation, for example respect for each other's opinions, no right/wrong responses, orderly Q&A (one speaker at a time) and stick to the FGD objectives.
- Seek consent to record the FG discussions.
- Give assurance of confidentiality and anonymity of responses in the final thesis report.
- Set duration of the FGD – between one to 1 ½ hours.

Ice-breaker question: Since online tools like social media continue to shape how journalism and communication is practiced today, how should future media professionals be best prepared to face this technological revolution?

Main questions on the FGD

1. Content taught

Describe the online skills that have you gained from the online journalism modules taught [*Probe for the variety of digital skills learnt and general knowledge of module content*]

2. Training resources

Describe the environment under which these online journalism skills are taught – for example, facilities, methods of teaching and assessing the skills, etc.

[Probe for dynamism in teaching online journalism]

3. Industry experiences

How have field-based experiences (like internships and industry case studies) influenced your confidence to use different online tools for professional journalism work? [*Probe for theory (school) vs practice (industry) connection*]

4. Online media habits

How has your personal exposure to the new media tools like social media given you confidence to apply these skills in the actual journalism and communication workplace? [*Probe for incidental learning with online audiences*]

5. Attitudes towards online tools

What are your beliefs, feelings and intentions regarding the use of online tools (for example social media, online tutorials, online news sites, etc.) to develop professional journalism and communication skills?

(Probe for the centrality of online tools in future career success]

6. Recommendations

What needs to be done to ensure future media professionals have the right online journalism skills? [*Probe for challenges affecting online journalism skills acquisition*]

Wrap up - Clarifications on any sticking issues and closure.

Appendix IV: Online Journalism Module Content Analysis Guide

School/University name:

…….....

Title of module:

……...

Instructions for analysis: Identify themes or key words (as appropriate) used to describe each of the following issues regarding the online journalism module taught at this school.

Year taught (1st, 2nd or 3rd year) [Also establish if the module is taught across different levels, for example Year 2 & 3]	
No. of credits (or total teaching time) [Each credit = 10 teaching hours]	
Module content or skills taught [List all the functional skills taught under this module]	
Teaching approach (theory vs practice) [Use key words to show how the module is described and methods of teaching it]	
How is module assessed? (theory vs practice) [Describe how the module is assessed]	
Teaching resources [Indicate the nature of resources available to teach this module and how they are described]	
Learning outcomes (module objectives) [Use key words/phrases to describe the learning outcomes expected from learning this module]	

Appendix V: Modified Digital Competence Framework

(adapted from Ferrari, 2013)

Areas of digital competence	Skill description	Skills operationalized in online journalism	Sample literature sources
Information Management	The skills required to enable easy identification, location, access and retrieval of required online information	Online journalism research skills	Kwanya (2014); Jeanti (2015); Sagrista & Matbob (2016); Switzer & Switzer, (2013)
Collaboration	Skills to enable one to connect with others and participate in online networks and communities constructively	Social media communication skills	Iyer (2015); Switzer & Switzer, (2013); Pew Center (2014); Macnamara & Zerfass (2015); Iyer (2015); Sagrista & Matbob (2016)
Communication and Sharing	Skills required to effectively communicate with others with online tools		
Creation of Content and Knowledge	Skills required to create quality online content to be published in different formats	Multimedia content creation skills (includes data journalism)	Theiss (2018); Jeanti (2015); Switzer & Switzer (2013); Sagrista & Matbob (2016)
Ethics and Responsibility	Skills to know how to behave in an ethical, safe, legal and responsible way while publishing online	Ethical and responsible online journalism skills	Pew Center (2014); Macnamara & Zerfass, (2015); Iyer (2015)
Evaluation and Problem-solving	Skills to identify digital needs and innovate ways of addressing problems through digital tools	Online skills for journalistic problem-solving	Finberg & Klinger (2014); Theiss (2018); Sagrista & Matbob (2016)
*Technical Operations	Use technology and media to perform tasks through digital tools	Skills for operating journalism equipment	

*These are cross-cutting skills (source: Ferrari, 2013)

Appendix VI: Average EFA Loadings for Each Study Variable

Variables	No. of Items	Average Loading	Item loadings range	Interpretation*
Characteristics of training content	7	0.650	0.462-0.783	Acceptable
Training resources	7	0.758	0.481-0.822	Acceptable
Online media habits	7	0.721	0.507-0.794	Acceptable
Industry experiences	8	0.715	0.449-0.875	Acceptable
Attitudes to online tools	9	0.699	0.527-0.661	Acceptable
Online journalism self-efficacy	27	0.633	0.497-0.845	Acceptable

*See Izquierdo, Olea & Abad (2014)

Appendix VII: Approval of Research Proposal

JOMO KENYATTA UNIVERSITY
OF
AGRICULTURE AND TECHNOLOGY
DIRECTOR, BOARD OF POSTGRADUATE STUDIES

P.O. BOX 62000
NAIROBI – 00200
KENYA
Email: director@bps.jkuat.ac.ke
TEL: 254-067-52711/52181(6114)
FAX: 254-067-52164/52030

REF JKU/2/11/ HD421-C010-3095/2014 **18TH JUNE, 2019**

Githae Joseph Njuguna
C/o SCDS
JKUAT

Dear Mr. Githae

RE: APPROVAL OF RESEARCH PROPOSAL AND SUPERVISORS

Kindly note that your PhD. research proposal entitled "**INFLUENCE OF DIGITAL SKILLS DEVELOPMENT FACTORS ON THE ONLINE JOURNALISM PREPAREDNESS OF UNDERGRADUATE MASS COMMUNICATION STUDENTS IN RWANDA**" has been approved. The following are your approved supervisors:-

1. Prof. Hellen Mberia
2. Prof. Margaret L. Jjuuko

PROF. MATHEW KINYANJUI
DIRECTOR, BOARD OF POSTGRADUATE STUDIES

Copy to: Dean SCDS

Setting Trends in Higher Education, Research and Innovation

Appendix VIII: Research Affiliation Approval

UNIVERSITY of RWANDA

OFFICE OF THE DEPUTY VICE CHANCELLOR
FOR ACADEMIC AFFAIRS AND RESEARCH

Kigali, 07/ 08 /2019
Ref. No: DVC-AAR/725/2019

Mr. Joseph Njuguna GITHAE
Jomo Kenyatta University, Kenya

Dear Mr. Githae

RE: RESEARCH AFFILIATION

Reference is made to your application letter to the Directorate of Research and Innovation requesting for Affiliation to University of Rwanda.

On behalf of the UR, I am pleased to inform you that you are accepted to UR as a Research Associate to enable you to conduct a study entitled "***Influence of digital skills development factors on the online journalism preparedness of undergraduate mass communication students in Rwanda***". The affiliation will be from 15th September 2019 to 15th September 2020

Your supervisor will be Prof Margaret Jjuuko, Associate Professor, University of Rwanda School of Journalism and Communication (email: margarert.jjuuko@gmail.com; tel: 0785 519 033)

At the end of your study, you will deposit two copies of your research results to the UR Directorate of Research and Innovation.

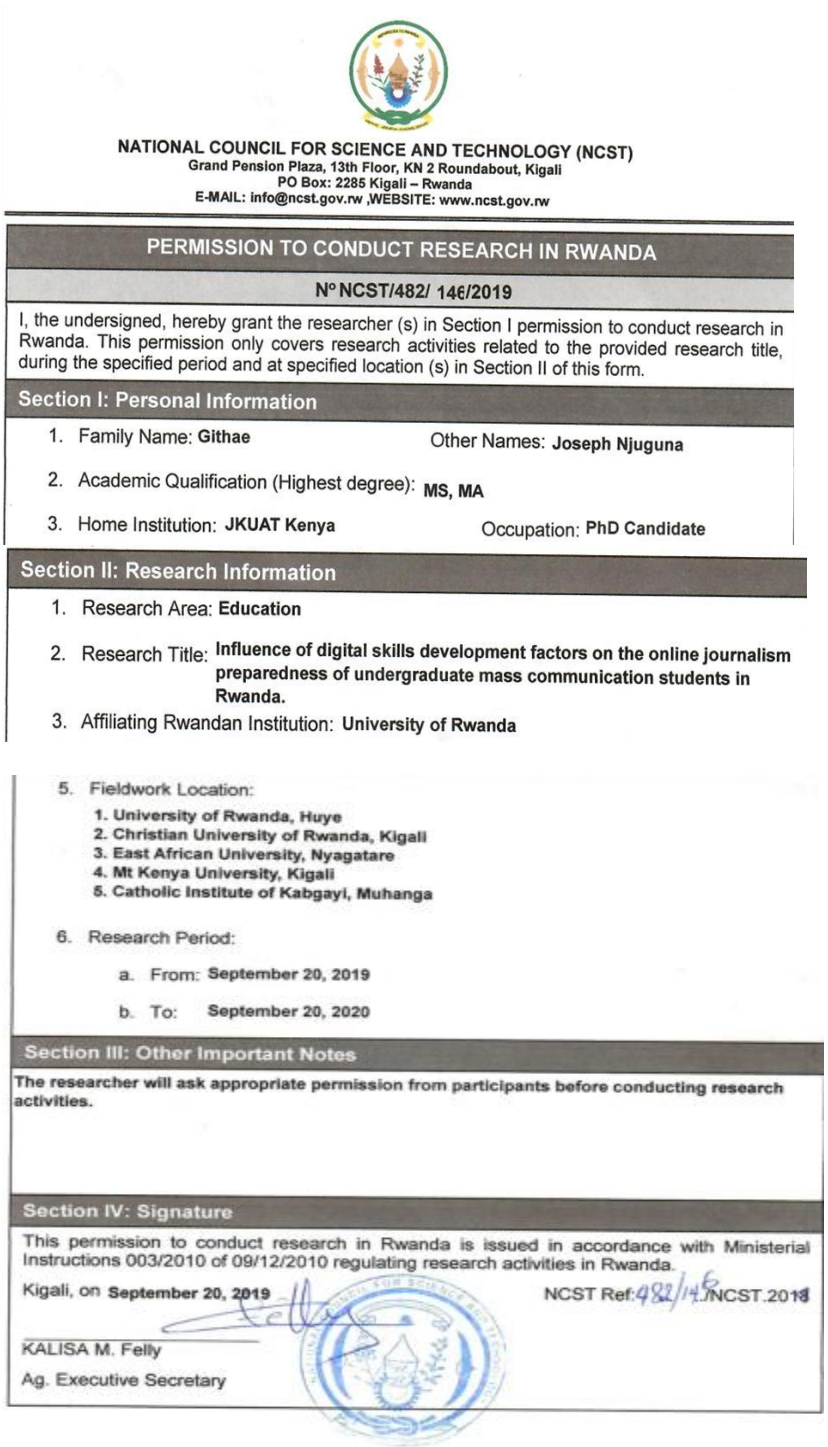
The University of Rwanda wishes you a successful research undertaking in Rwanda

Prof Nelson Ijumba
Deputy Vice Chancellor for Academic Affairs and Research

Cc
- Vice Chancellor, UR
- Principal, College of Arts and Social Sciences
- Director of Research and Innovation, UR

P.O Box 4285 Kigali, Rwanda | dvc.aar@ur.ac.rw | www.ur.ac.rw

Appendix IX: Permission To Conduct Research In Rwanda



NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY (NCST)
Grand Pension Plaza, 13th Floor, KN 2 Roundabout, Kigali
PO Box: 2285 Kigali – Rwanda
E-MAIL: info@ncst.gov.rw ,WEBSITE: www.ncst.gov.rw

PERMISSION TO CONDUCT RESEARCH IN RWANDA

N° NCST/482/ 146/2019

I, the undersigned, hereby grant the researcher (s) in Section I permission to conduct research in Rwanda. This permission only covers research activities related to the provided research title, during the specified period and at specified location (s) in Section II of this form.

Section I: Personal Information

1. Family Name: **Githae** Other Names: **Joseph Njuguna**
2. Academic Qualification (Highest degree): **MS, MA**
3. Home Institution: **JKUAT Kenya** Occupation: **PhD Candidate**

Section II: Research Information

1. Research Area: **Education**
2. Research Title: **Influence of digital skills development factors on the online journalism preparedness of undergraduate mass communication students in Rwanda.**
3. Affiliating Rwandan Institution: **University of Rwanda**

5. Fieldwork Location:
   1. **University of Rwanda, Huye**
   2. **Christian University of Rwanda, Kigali**
   3. **East African University, Nyagatare**
   4. **Mt Kenya University, Kigali**
   5. **Catholic Institute of Kabgayi, Muhanga**
6. Research Period:
   a. From: **September 20, 2019**
   b. To: **September 20, 2020**

Section III: Other Important Notes

The researcher will ask appropriate permission from participants before conducting research activities.

Section IV: Signature

This permission to conduct research in Rwanda is issued in accordance with Ministerial Instructions 003/2010 of 09/12/2010 regulating research activities in Rwanda.

Kigali, on **September 20, 2019** NCST Ref: 482/146/NCST.2019

KALISA M. Felly
Ag. Executive Secretary