



## Potentials of Social Media for Capacity Development of Agriculture Lecturers in Rivers State, Nigeria

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### ABSTRACT

The study examined potentials of social media on capacity development of agricultural faculty lecturers in Rivers State. Data were collected with the aid of a structured questionnaire administered to 104 randomly selected respondents in the study area. Data analysis was through the use of descriptive statistical tools such as frequency, percentage mean, correlation and Z test at  $p=0.05$ . Findings reveal that the respondents from both UNIPORT and RSU used the following social media: YouTube, Facebook, Google<sup>+</sup>, LinkedIn, Reddit, Media sharing, Social news, Blog comment and forum, WhatsApp, Skype. However, they were generally used to a less extent, apart from Facebook and Google<sup>+</sup> which were used to a high extent among RSU respondents. In terms of area of capacity building, respondents indicated that social media had brought about new ways of researching and teaching, enhanced easy access to lecture materials, helped get more tips for organizing thoughts as a researcher and teacher. Respondents' experience ( $r=0.250$ ) and gender ( $X=0.185$ ) correlated positively with social media usage. There was significant difference in social media usage between UNIPORT and RSU ( $Z=1.96$ ). Adequate structure should be put in place to train agriculture lecturers on the use of social media for professional activities.

**Keywords:** Social Media, Agricultural lecturers, Capacity Development

### INTRODUCTION

Social media is the future of communication; a countless array of internet based tools and platforms that increase and enhance the sharing of information. This new form of media makes the transfer of text, photos, audio, video, and information in general increasingly fluid among internet users; social media has relevance not only for regular internet users, but in teaching and business as well (What is social media, 2014)

Social media is the collective of online communication channels dedicated to community based input and interaction. Content sharing and collaboration Websites applications dedicated to Forums, micro blogging, social networking, social bookmarking, social carnation, and wikis are among the different types of social media (Waters, 2010). According to United States Agency for International Development (USAID) (2014), social media is a dynamic online medium that has changed the way we work. Similar to traditional media, social media offers an opportunity to collect and share news, communicate with audiences and advocate for change. Unlike the traditional media, social media allows for this to happen on the web in real-time through highly interactive global or regional social networks. The most popular social media platforms include; Facebook, YouTube, Twitter, Google, LinkedIn, Instagram and Pinterest (USAID, 2014). Social media created an environment for individuals to interact with each other in a two-way communication pattern, allowing the creation and maintenance of relationships (White, 2013). This form of communication can benefit the information sender because of how it affects, and how individuals react to the messages (Rajagopalan *et al*, 2003). Social media has cut across the length and breadth of the society in no small way. This is because there is virtually no sector of the economy that does not have some component of social

media embedded in one way or the other. Since information and communication technology came into Nigeria in the early 2000s there seems to have been an information explosion in the society.

Social media is now being used by almost everybody in the society. Its influence on the way of life of most people calls for need for social media strategy. Arrillaga Alumni Centre (2014) noted that social media has the power to make a huge difference for the organization. Accordingly, it was stated that a good social media programme will significantly increase the number of people learning about a cause, spreading the word, and supporting the organization. This is a clear indication that social media enhances visibility of an organization and by implication the individual employee. According to USAID (2014), social media is a dynamic online medium that has changed the way we work. It offers opportunities to collect and share news, communicate with audiences and advocate for change. However, it allows this to happen on the web in real time through highly interactive global or regional social networks. Social media according to Lallana (2014) is best understood as a group of new kinds of online media which shares most or all of the features as participation, openness, conversation, community and connectedness. It is therefore obvious that social media is a useful tool for teaching, learning and research activities. Mangold and Faulds (2009) stated that the use of internet-based social media networking systems have enabled companies to communicate more effectively and in real time with hundreds, even thousands of other people around the world about a specific topic, product or issue at any point in time.

The education sector has benefit from social media because the various stakeholders in the sector utilize it for one or more activities ranging from teaching, research, learning and networking. The teachers in tertiary institutions need to build their capacity for movement from one level to another in form of promotion to a higher level. Agriculture lecturers are major stakeholders in the education sector as they import knowledge in the area of agricultural information. Social media is therefore a useful tool in human capacity development. The level of influence social media has on their capacity development is not certain. Capacity building, as defined in the report of United Nations Development Programme (UNDP, 2002) means building abilities, relationships and values that will enable organizations, groups and individuals to improve in their performance and achieve their development objectives. This study therefore investigated the influence of social media on the capacity of agricultural lecturers in tertiary institutions in Rivers State, Nigeria.

#### **Objectives of the study**

The broad objective of the study was to examine the effect of social media on capacity development of agricultural faculty lecturers in Rivers State. The specific objectives included to:

- describe socio-economic characteristics of the agricultural science lecturers in Rivers State;
- identify the types of social media used by the lecturers;
- identify extend of usage of social media.
- identify areas of capacity development that social media could develop Agriculture lecturers.

#### **Hypotheses**

- There is no significant relationship between socio-economic characteristics of Agriculture lecturers and social media utilized.
- There is no significant relationship between type of social media accessed and capacity development level of agriculture lecturers.
- There is no significant difference in use of social media between Agriculture Lecturers in University of Port Harcourt and Rivers State University.

#### **RESEARCH METHODOLOGY**

The research adopted a descriptive and comparative survey design to determine the potentials of social media on capacity development of agricultural lecturers. The research work was conducted in Rivers State. Rivers State is one of the 36 states of Nigeria. Its capital is Port Harcourt. Rivers state has four tertiary institutions that offer Agriculture namely University of Port Harcourt; Rivers State University; Ignatius Ajuru University of Education and Federal College of Education (Technical) Omoku.

The population of the study comprised 168 respondents (98 from University of Port Harcourt and 70 from the Rivers State University). Among the 4 tertiary institutions in the state that offer Agriculture, two were randomly selected to include University of Port Harcourt, Choba and Rivers State

University, Nkpolu-Oroworukwo. From the total of 98 Agriculture lecturers in UNIPORT only 70 participated in the study, while of the 70 from RSU, only 34 participated making a total of 104 sample involved in the study. The number of the sample size was based on the number of questionnaire received from the respondents.

The Instrument for data collection was a structured questionnaire. Information were collected on socio-economic characteristics of the respondents (Agriculture lecturers); types of social media used and extend of usage of social media. In the area of types of social media used, respondents were expected to check the ones that were applicable. However, in the section on extent of usage, respondents were required to respond based on four point rating scale of very high = 4, high = 3, moderate = 2, low = 1. For mean decision rule to be made, a mid-point of 2.50 was established. Information were collected on the areas of capacity development of social media. In this section, respondents were required to respond based on four point rating scale of strongly agree = 4, agree = 3, disagree = 2, strongly disagree = 1. For mean decision rule to be made, a mid-point of 2.50 was established. The study used descriptive statistical tools such as frequency, mean and percentage for the analysis of data. Also correlation and Z test were used for analysis.

## **RESULTS AND DISCUSSION**

### **Socio-economic characteristics of respondents**

Table 1 shows that 71.4% of the respondents in UNIPORT had 2 to 10 years working experience, 85.7% had between 11to 19 years experience, 100% had between 20 and 28 year experience. This suggests that majority of the respondents had between 2 and 10 years experience. While respondents in RSU had 70.6% between 2 and 10 years working experience, 91.2% had between 11 and 19 years experience, 100% had between 20 and 28 years experience. This suggests that majority of the respondents had between 2and 10 years of working experience.

Entries on marital status show that 77.1% of the respondents in UNIPORT were married, 22.9% were single. This suggests that majority of the respondents were married. Also the respondents in RSU, 79.4% of the respondents were married, 20.6% were single which shows that the majority of the respondents were married.

The study reveals that 67.1% of the respondents were male, while 32.9% were female in UNIPORT. This suggest that majority of the respondents were male in UNIPORT. While 64.7% of respondents in RSU were male 35.3% were female. This suggest that majority of the respondents in RSU were male. Findings show that 24.3% of the respondents were less than 40 years old, 57.1% were between 40 and 45 years old, 5.7% were between 46 and 50 years old, while 12.9% were between 51 and 55 years old. The respondents in RSU, stated that 20.6% of the respondents were less than 40 years old, 47.1% were between 40 and 45 years old, 14.7% were between 46 and 50 years old, 5.9% were 51 and 55 years old, 11.8% were between 56 and 60 years old.

**Table 1: Socio-economic characteristics of respondents**

Socio economic characteristics	UNIPORT Frequency (Percentage)	RSU Frequency (Percentage)
<b>Experience(years)</b>		
2-10	50(71.4)	24(70.6)
11-19	10(85.7)	7(91.2)
20-28	10(100.0)	3(100.0)
<b>Marital status</b>		
Married	54(77.1)	27(79.4)
Single	16(22.9)	7(20.6)
<b>Gender</b>		
Male	47(67.1)	22(64.7)
Female	23(32.9)	12(35.3)
<b>Age(years)</b>		
Below 40	17(24.3)	7(20.6)
40-45	40(57.1)	16(47.1)
46-50	4(5.7)	5(14.7)
51-55	9(12.9)	2(5.9)
56-60	0(0)	4(11.8)
<b>Areas of specialization</b>		
Agric extension	20(28.6)	3 (8.8)
Agric economics	13(18.6)	4 (11.8)
Agric engineering	4(5.7)	4 (11.8)
Plant protection/crop science	2(2.9)	3 (8.8)
Forestry	3(4.3)	4 (11.8)
Animal science	6(8.6)	3 (8.8)
Food science	15(21.4)	1 (2.9)
<b>Job Title</b>		
Graduate Assistant	12(17.1)	2(5.9)
Assistant Lecturer	1(1.4)	1(2.9)
Lecturer II	16(22.9)	10(29.4)
Lecturer I	14(20)	9(26.5)
Senior lecturer	17(24.3)	6(17.6)
Associate Professor/Reader	10(14.3)	5(14.7)
Professor	5 (14.7)	1(2.9)

\*Figures in parentheses are percentages

### Types of Social Media Used

Table .2 shows that 37.1% of the respondents in UNIPORT consult YouTube for teaching, 45.7% consult Facebook for teaching, 42.9% consult Google plus (Google +), 37.1% consult LinkedIn, 22.9% consult Twitter, 24.3% consult Digg, 27.1% consult Twitter, 15.7% consult Flickr, 14.3% consult Stumbeupon, 14.3% consult Delicious, 14.3% consult Bookmarking site, 38.6% consult Reddit, 20% consult Media Sharing, 37.1% consult Social News, 44.3% consult Bog Comments and Forum, 54.3% consult Whatsapp, 38.6% consult Skype, 14.3% consult OperaMini, 30% consult Pinterest, 27.1% consult ChatOn, 14.3% consult Wikis, 14.3% consult Mendeley, 14.3% consult Picasa. This shows that majority of the respondents consult Whatsapp in teaching.

Among RSU respondents, 39.4% consult YouTube, 43.3% consult Facebook, 51.9% consult Google+, 37.5% consult LinkedIn, 26.9% consult Twitter, 26% consult Digg, 20.2% consult Flickr, 19.2% consult Stumbeupon, 19.2% consult Delicious, 21.2% consult Bookmarking site, 36.5% consult Reddit, 24% consult Media Sharing, 40.4% consult Blog comment and Forum, 47.1% consult Whatsapp, 37.5% consult Skype, 22.1% consult OperaMini, 30.8% consult Pinterest, 28.8% consult ChatOn, 19.2% consult Wikis, 23.1% consult Mendeley, 19.2% consult Picasa. This shows that majority of the respondents in RSU consult Google+ in teaching.

**Table 2: Types of social media used**

<b>Types of social media used</b>	<b>UNIPORT Frequency (Percentage)</b>	<b>RSU Frequency (Percentage)</b>
YouTube	26(37.1)	41(39.4)
Facebook	32(45.7)	45(43.3)
Google+	30(42.9)	54(51.9)
LinkedIn	26(37.1)	39(37.5)
Twitter	16(22.9)	28(26.9)
Digg	17(24.3)	27(26)
Flickr	11(15.7)	21(20.2)
Stumbeupon	10(14.3)	20(19.2)
Delicious	10(14.3)	20(19.2)
Bookmarking site	10(14.3)	22(21.2)
Reddit	27(38.6)	38(36.5)
Media sharing	14(20)	25(24)
Social news	26(37.1)	36(34.6)
Blog comment and forum	31(44.3)	42(40.4)
Whatsapp	38(54.3)	49(47.1)
Skype	27(38.6)	39(37.5)
OperaMini	10(14.3)	23(22.1)
Pinterest	21(30)	32(30.8)
ChatOn	19(27.1)	30(28.8)
Wikis	10(14.3)	20(19.2)
Mendeley	10(14.3)	24(23.1)
Picasa	10(14.3)	20(19.2)

**\*Figures in parentheses are percentages**

### Extent of Social Media Usage

Result in Table 3 indicated less usage of social media in UNIPORT and RSU, however, the usage of Facebook ( $\bar{x} = 2.97$ ) and Google+ ( $\bar{x} = 2.08$ ) recorded high usage in RSU. This could be as a result of high exposure to the importance of the usage of these social media networks and ease of access to them by researchers in RSU. This is in consonance with the findings of Selwyn (2009) and Marisol, Sergio and Pedro (2012) who separately reported high usage of Facebook social media network among students and researchers. This is as a result of its easy way of sharing information with friends, acquaintances and even strangers (Boyd & Ellison, 2007), making them more desirable by researchers across different professions. The usage of Facebook ( $\bar{x} = 2.20$ ), YouTube ( $\bar{x} = 2.44$ ) and blog comments and forum ( $\bar{x} = 2.00$ ) social media recorded moderate usage in UNIPORT, having a mean score  $\geq 2.00$ . Picasa ( $\bar{x} = 2.17$ ), YouTube ( $\bar{x} = 2.15$ ), Mendeley ( $\bar{x} = 2.11$ ), LinkedIn ( $\bar{x} = 2.08$ ), Bookmarking sites ( $\bar{x} = 2.05$ ) and WhatsApp ( $\bar{x} = 2.00$ ) also recorded moderate usage in RSU having a mean score  $\geq 2.00$ .

The usage of Digg ( $\bar{x} = 1.31$ ), Flickr ( $\bar{x} = 1.33$ ), Stumbupon ( $\bar{x} = 1.33$ ), ChatOn ( $\bar{x} = 1.36$ ), OperaMini ( $\bar{x} = 1.37$ ), Twitter ( $\bar{x} = 1.40$ ), Bookmarking site ( $\bar{x} = 1.40$ ) was recorded as the least used social media network in UNIPORT. Flickr ( $\bar{x} = 1.71$ ), Pinterest ( $\bar{x} = 1.79$ ), Bookmarking site ( $\bar{x} = 1.88$ ) and Digg ( $\bar{x} = 1.88$ ) recorded as the least used social media network in RSU. This implies that there is poor usage of these social media for research activities by the respondents and corroborates the findings of Sokoya, Onifade and Alabi (2012), who also reported poor usage of social media by agricultural researchers in Nigeria. This could be likened to the non-popularity of these social media sites among researchers in Nigeria.

**Table 3: Extent of social media usage**

Social media	UNIPORT Mean score	Remarks	RSU Mean score	Remarks
YouTube	2.20	Less	2.15	Less
Facebook	2.44	Less	2.97	High
Google+	1.98	Less	2.56	High
LinkedIn	1.93	Less	2.08	Less
Twitter	1.40	Less	1.91	Less
Digg	1.31	Less	1.88	Less
Flickr	1.33	Less	1.71	Less
Stumbupon	1.33	Less	1.79	Less
Delicious	1.57	Less	1.88	Less
Bookmarking site	1.40	Less	2.05	Less
Reddit	1.96	Less	1.91	Less
Media sharing	1.46	Less	1.67	Less
Social news	1.81	Less	1.91	Less
Blog comments and forum	2.00	Less	1.83	Less
WhatsApp	1.60	Less	2.00	Less
Skype	1.41	Less	1.94	Less
OperaMini	1.37	Less	1.97	Less
Pinterest	1.93	Less	1.79	Less
ChatOn	1.36	Less	2.00	Less
Wikis	1.74	Less	1.91	Less
Mendeley	1.70	Less	2.11	Less
Picasa	1.88	Less	2.17	Less

**Areas of Capacity Building of Social Media**

Result in Table 4 showed that the respondents involved in the study perceived that all the statements except enhanced online presence (UNIPORT,  $\bar{x}$  = 1.43; RSU,  $\bar{x}$  = 1.38) are capable of enhancing on their capacity on social media usage. Respondents perceived that the usage of social media can bring about new ways of researching and teaching ranking first for both researchers in UNIPORT ( $\bar{x}$  = 3.87) and RSU ( $\bar{x}$  = 3.38).

**Table 4: Areas of capacity building of social media**

Areas of capacity building of social media	UNIPORT Mean	Remarks	RSU Mean	Remarks
Social media applications offer assortment of tools that teaching can mix and match to best suit of individual teaching styles and increase their academic success.	3.48	High	3.21	High
Social media has brought about new ways of researching and teaching	3.87	High	3.38	High
Social media help to connect with agricultural researchers with similar research interest in and outside of the country	3.42	High	3.35	High
Social media helps in sharing and exchanging ideas/views	3.24	High	3.38	High
Social media help in establishing professional relationship with other colleagues	3.37	High	3.26	High
Easy access to lecture materials	3.57	High	3.35	High
Access to information on research grants	3.40	High	3.18	High
More information on conferences/workshops/ seminars	3.46	High	3.18	High
Learn practical methods that have aided me in teaching	3.24	High	3.12	High
Enhance my ability to write research papers because I learn from other cited works online.	3.34	High	3.17	High
Get more tips for organizing my thoughts as a researcher and teacher	3.67	High	3.29	High
Ease of submitting journal papers for publishing	3.67	High	3.21	High
Chat with colleagues to get research information	3.28	High	3.18	High
Enhanced my electronic learning ability	3.42	High	3.18	High
Improved my teaching ability	3.18	High	2.88	High
Enhanced my research focus	3.38	High	2.97	High
Leadership skills enhanced	3.23	High	3.11	High
Problem solving skills enhanced	3.27	High	3.00	High
Training opportunities enhanced	3.47	High	2.94	High
Improved my research skills and output	3.05	High	2.94	High
Research grants opportunities	3.44	High	2.91	High
Research proposal development enhanced	3.36	High	3.12	High
Better exposure to the research world	3.74	High	2.82	High
Leadership skills enhanced	3.51	High	2.91	High
Enhanced knowledge and skills that have improved my personality as a teacher and researcher	3.32	High	3.14	High
My response to research information is enhanced	3.10	High	3.33	High
Enhanced online presence	1.43	Less	1.38	Less

Researchers in RSU also perceived that social media helps in sharing and exchanging ideas/views ( $\bar{x}$  = 3.38); help them connect with agricultural researchers with similar research interest in and outside of the country ( $\bar{x}$  = 3.35); improve easy access to lecture materials ( $\bar{x}$  = 3.35) and enhancing response to research information ( $\bar{x}$  = 3.33). This confirms the findings of Arthur, Adu-Manu and Yeboah (2013); Wiid, Cant and Nell (2013) that the use of social networks will enhance effectiveness in teaching, thus, makes teaching more interesting, fun and participatory.

Results also showed that researchers in UNIPORT perceive that social media helps in: better exposure to the research world ( $\bar{x}$  = 3.74) ranking second; ease of submitting journal papers for publishing ( $\bar{x}$  = 3.67) ranking third; getting more tips for organizing their thoughts as a researcher and teacher ( $\bar{x}$  = 3.67) ranking third also; improve easy access to lecture materials ( $\bar{x}$  = 3.57) ranking fourth and enhance leadership skills ( $\bar{x}$  = 3.51), ranking fifth. This implies that respondents are positive that social media will have a great impact on life as individuals and as professionals. Thus, enhancing the capacity of researchers through training, seminars, workshops, may be important tool to solve some of these gaps.

**Correlation Analysis of Socioeconomic Characteristics and Social Media Usage**

Data in Table 5 reveals that experience correlated positively with social media usage. The relationship was significant at 0.05 level suggesting that the higher the work experience the higher the usage of social media (r=0.250).

**Table 5: Correlation analysis of socioeconomic characteristics and social media usage**

Variables	Calc r	Tab r	Remarks
Experience	0.250	0.164	Significant
Marital status	-0.103	0.164	Not significant
Gender	0.185	0.164	Significant
Age	0.104	0.164	Not significant

Also gender correlated positively with social media usage. The relationship was significant at 0.05 level. It is clear that experience and gender significant influence social media usage.

**Correlation of type of Social Media Used and Capacity Building**

Table 6 shows that type of social media correlated negatively with capacity building. The relationship is significant at 0.05 level, suggesting that type of social media used influenced capacity building of respondents.

**Table 6: Correlation of type of social media used and capacity building**

Variables	Calc r	Tab r	Remarks
Type	- 0.271	0.164	Significant

**z-Test Of Differences In Social Media Usage**

Table 7 shows the z-test analysis with respondents from UNIPORT having mean score of 88.47 for social media usage while RSU respondents recorded means score of 80.97. The Z-calculated value of 3.365 which is greater than the z-tabulated value of 1.96 suggest significant difference between the 2 institutions to a greater extent in the use of social media with higher mean usage in UNIPORT than RSU respondents.

**Table 7: Z test analysis**

Variables	N	Mean	Std dev	Df	Z calc	Z tab	Remarks
University of Port Harcourt	70	88.47	10.53	102	-3.365	1.96	Significant (Reject null hypothesis)
Rivers State University	34	80.97	10.72				

## CONCLUSION AND RECOMMENDATIONS

The social media is changing dramatically the way agricultural research and development is organized. Social media allow the creation of communities of practice among researchers and students to exchange ideas, expertise and bibliographies. It also provides faster and effective dissemination of research output and the feedback to the researchers (Jespersen et al., 2013). The study has shown that there was less usage of social media by agricultural researchers in UNIPORT and RSU, however, the usage of Facebook, Google+, YouTube, WhatsApp were moderate for the researchers. Agricultural researchers in UNIPORT and RSU perceive that the usage of social media can bring about new ways of researching and teaching, help them connect with other agricultural researchers, improve easy access to lecture materials amongst others. The study concluded that the common social media types used by respondents are:

- YouTube, Facebook, Google+, LinkedIn, Reddit, Media sharing, Social news, Blog comment and forum, Whatsapp, Skype.
- The social media types identified to be commonly used were however, used to a less extent, apart from facebook and Google plus which is used to a high extent among RSU respondents. This is however, not so with respondents from UNIPORT.
- Through the use of social media, respondents built capacity in terms of: new ways of researching and teaching, enhanced easy access to lecture materials, more tips for organizing thoughts as a researcher and teacher, ease of submitting journal papers for publishing, and better exposure to the research world
- Findings revealed that experience and gender significantly influence social media usage.
- Type of social media correlated negatively with capacity building. The relationship is significant at 0.05 level suggesting that type social media used influenced capacity building of respondents.
- z-Test analysis revealed that significant difference exist between respondents in UNIPORT and those of those in RSU in terms of usage with UNIPORT having a higher mean level of usage than RSU.
- There is need for a reorientation among agriculture lecturers on the use of social media in teaching and learning process
- Adequate structure should be put in place to train agriculture lecturers on the use of social media for professional activities
- Agricultural researchers should be encouraged to make use of different social media platforms as through social networking tools, researchers can share knowledge and exchange ideas with peers to enrich their knowledge and make more interactive learning and research environment.
- Training should be provided for agricultural researchers in UNIPORT and RSU to expose them to different social media platforms.

## REFERENCES

- Arrillaga Alumni Centre (2014). Social media on purpose 2014. Using social media strategically to advance your mission. An intensive one-day conference sponsored by Stanford social innovation review. Frances C. Arrillaga, Alumni Centre, McGraw Hall, Stanford, CA, USA.
- Arthur, J. K., Adu-Manu, K. S. & Yeboah C. (2013). A conceptual framework for the Adoption of Social Network Technologies (SNTs) in Teaching – case of Ghana. *International Journal of Computer Science Issues*, Vol. 10, Issue 5, No 2, 70-78.
- Boyd, D. M. & Ellison, N. B. (2007). Social Network Sites: Definition, History, and Scholarship. *Journal of Comp.-Mediated Comm.* 13
- Lallana, E. C. (2014). Social media for development. Academy of ICT essentials for government leader's version 2.0. Republic of Korea: United Nations Asian and Pacific Training Centre for information and communication for development.
- Jespersen, L. M., Hansen, J. P. Brunori, G. Jensen, A. L., Holst, K., Mathiesen, C., Halberg, N. & Rasmussen, I. A. (2013). ICT and social media as drivers of multi-actor innovation in

- agriculture: Barriers, recommendations and potentials. *International Centre for Research in Organic Food System*, 1-35.
- [http://icrof.eu/pdf/2013%20SCAR\\_CWG\\_AKIS\\_SocialmediaICTandinnovationprocesses%20report%2031%2005%202013.pdf](http://icrof.eu/pdf/2013%20SCAR_CWG_AKIS_SocialmediaICTandinnovationprocesses%20report%2031%2005%202013.pdf)
- Mangold, W. G. & Faulds, D. J. (2009). Social media: The new hybrid element of the promotion mix. *Business Horizons*, 52: 357 – 365.
- Marisol, G. A., Sergio, R. & Pedro, F. B. (2012). The academic use of social networks among University Students. *Scientific Journal of Media Education*, ISSN: 1134-347; pages 131-138, <http://dx.doi.org/10.3916/C38-2012-03-04>
- Rajagopalan, B. & Subramani, M. (2003). Knowledge –Sharing and influence in online social network via viral marketing. *Communications of the ACM*, 46(12), 300-307.
- Selwyn, N. (2009). Faceworking: Exploring students' education-related use of Facebook. *Learning, Media and Technology*, 34(2), 157-174.
- Sokoya, A. A., Onifade, F. N. & Alabi, A. O. (2012). Establishing Connections and Networking: The Role of Social Media in Agricultural Research in Nigeria. Paper presented at 28<sup>th</sup> World Library and Information Congress, IFLA, Helsinki
- United Nations Development Programme UNDP (2002), Capacity Building for Sustainable Development: UNEP. ISBN:92-807-2266-2.; Donald Kaniaru, Xia Kunbao; Strike Mkandla; Levis Kavagi.
- USAID (2014). Social Networking: A guide to strengthening civil society through social media. USA: United States Agency for International Development.
- Waters, R. D. (2010). The use of social media by nonprofit organization: An examination from the diffusion of innovations perspective. Handbook of research on social interaction technologies and collaboration software: concepts and trends. Hershey, P.A: IGI Publishing's.
- What is social media? (2014). [www.socialmediadefined.com](http://www.socialmediadefined.com) retrieved 28 march, 2015. [www.emarketer.com/Article/Social-Networking-Reaches-Nearly-One-Four-Around-World/1009976](http://www.emarketer.com/Article/Social-Networking-Reaches-Nearly-One-Four-Around-World/1009976).
- White, D. (2013). *Exploring Agriculturalists' use of social media for agri-marketing*. An Unpublished Doctoral dissertation, Texas Tech University, USA.
- Wiid, J., Cant, M. C. & Nell, C. (2013). Open distance learning students' perception of the use of social media networking systems as an educational tool. *International Business & Economics Research Journal*, 12(8), 867-882.