Digital Leadership Practices of Select Deans in Philippine State Universities and Colleges: Implications on the 21st Century Education

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Abstract

This descriptive study describes leadership practices of select deans in Philippine State Universities and Colleges, and the implications of its findings on the 21st century education. It has drawn fundamental findings on satisfactory digital leadership practices of the deans where both visionary leadership and professional excellent practices are found to be the areas of strengths while digital citizenship practices suggest the weakest area. Significant difference exists between deans and faculty perceptions; and the null hypothesis of no significant difference between these two groups is rejected. Concerning the significant differences of the digital practices of the deans when their profiles are grouped accordingly, all are found 'not significant' except for the length of service which is found to be 'significant'. The findings arrived on implications that though majority of the deans belongs to Generation X, they can still welcome changes and innovations using technological devices for the transformation needed from traditional to digital leadership; and esteemed to be 21st century way. It gives further recommendation for sustaining digital leadership practices linked with the five areas: visionary leadership, digital age learning culture, professional excellence, systematic improvement, and digital citizenship. Future researchers may consider investigating related studies like comparative study on digital leadership of higher and basic education or e-leadership assessment.

Keywords: digital citizenship; digital leadership practices; professional development; 21st Century education

Introduction

In today's digital world, Ahlquist (2016) noted that resources are delivered and transmitted electronically since technology is currently an imbedded part of the 21st century education. With the shifts in information technology, one great challenge, especially to all Higher Education Institutions (HEIs) is putting pressures on the education system. Digital Higher Education leaders no longer have a choice but to excel in victuals as well as physical spaces,

requiring them to acquire professional and technological competencies. If leaders do not understand the trends in the digital community, then leaders are ill prepared to harness the power of modern digital technologies. Digital leaders are considered 'heartware', the internal operating system as a whole in the digital age with core values, life, mission and passion. The nature of educational leadership stands out as an important consideration in the overall discussion on digital culture and education.

Thus, the Philippine Roadmap for Public Higher Education Reform (2012), articulated different reforms in the Commission on Higher Education strategic plan through Higher Education Reform Agenda which seeks to exact from the entire higher education system higher accountability of outcomes and impacts. HERA, as a specific policy package is a vehicle for technologically-driven national development and global competitiveness, generally recognized that compared to higher education, basic education yields greater social returns and its provision is the more fundamental duty of the state, and is internationally comparable, especially when it gears up after the K-12 curriculum is implemented. Thus, State Universities and Colleges, through this overall framework of higher education reform, focus on priority programs in instruction, research and extension, strengthening the quality assurance to upgrade SUCs to international standards by establishing Research and Development (R&D) Centers and become Center of Development (COD) or Center of Excellence (COE). This agenda of the Commission has been a link to the 21st century education or the learning framework initiated by the basic education.

Meanwhile, Rutledge (2013) holds that a part of 21st century education is to develop pedagogy of shaping digital information landscape which will provide opportunities for the user-generated input to digital repositories, crowd-sourcing and social media, and the web to enable active forms of learning. According to Goon (2012), moreover, strongly believed that while effective leadership is extremely important in any system, it is even more imperative in all universitiess to provide all leaders, faculty members and learners with a world-class education that would fit in today's digital era. Thus, leadership in the 21st century needs digital-age leaders who are individuals purposely in tune with the fervor of globalization because learners in the so-called 'Net Gen' would want to communicate and learn with technology, to describe persuasive phenomenon and who are digitally comfortable, literate and even innovative.

Significantly, McLeod & Lehmann (2012) agreed that leaders are positioned in a situation where they must have the knowledge and ability to lead faculty members in the developing digital classrooms and instructional practices, and even sustain the innovations required by these digital learners of the century. The researcher, considering herself as digital migrant feels the gap currently exists in terms of the digital leadership practices of the deans that would help faculty members who are mostly digital migrants, together with all the stakeholders of the university, to join this world of digital learners in order to be

globally competitive. Hence, this problem of examining the digital leadership practices of select deans in Philippine SUCs in Region III, and its implications on the twenty first century education has given focus to evaluate the digital leadership practices of select deans in Philippine State Universities and Colleges; to describe the demographic profile of the respondents as to sex, civil status, educational attainment, and length of service; to describe the leadership practices of select deans in terms of visionary leadership, digital age learning culture, professional excellence, systematic improvement, and digital citizenship; to find out the significant difference between the perceptions of deans themselves and faculty members on digital leadership practices of deans, to see the significant difference in the digital leadership practices of deans when grouped according to profile; and to present the implications of the findings on the 21st century education.

Methodology and Materials

A. Methods and Techniques of the Study

This quantitative study is a descriptive method research, intended to have the deans and faculty members of different programs or colleges of select eight Philippine SUCs in Region III as respondents. The survey-questionnaire utilized consists of two parts:

Part I has the discussion on the demographic profile of the respondents of two sets: the deans themselves (self-assessment) in universal sampling technique and the faculty members, utilizing stratified sample random technique. This contains the name, age, sex, civil status, highest educational attainment and length of service.

Part II focuses on the digital practices of the deans, defined with the STNA Item Reference Matrices-a brief survey of the concept of the 21st century education, described as to: Visionary Leadership, Digital Age Learning Culture, Professional Excellence, Systematic Improvement, and Digital Citizenship, set by ISTE (International Society for Technology in Education) NETS (National Educational Technology Standards) Standards for Administrators, ISTE.NETS.A (2009), recently utilized in the investigation of Zhong (2016).

Relatively, the digital leadership practices of the deans are described as (1) Never Practiced; (2) Seldom Practiced; (3) Sometimes Practiced; and (4) Always Practiced, a set of four-point assessment frequency scale utilized by Brown (2010), as presented as well by 360 degree and Charlotte Danielson's work, published by the Association for Supervision and Curriculum Development which was developed by Glanz (2006). This framework of model identifies components clustered into four domains which the researcher has also adapted and developed.

Statistical treatment of data such as frequency, mean, and inferential statistics was carried out with the use of statistical software called SPSS version 17.00. To determine if there is any significant difference between the perceptions of deans themselves and the faculty members on the digital leadership practices of the deans, In comparing the digital leadership practices of the deans when grouped according to their profile, various statistical treatments were used depending on the nature of the variables and whether appropriate test assumptions are complied with. Analysis of variance (ANOVA) or F-test, including Kruskal Wallis Test, the non-parametric counterpart of ANOVA and Independent Samples T-test were also utilized.

The study delimits the dean respondents with less than a year of length of service in teaching and faculty members who teach under a college or program in less than a year of service. The length of deanship was also excluded because of the varied and unsteady SUC organizational structure and set-up.

B. Population and Sample of the Study

Dean respondents involved in the study comprised of 100% while faculty respondents, 89% of the target population per school. It can be noted that 89% of the target faculty members are from BPSU-Dinalupihan Campus are included in the study; 78% from Pampanga State Agricultural University. As a whole, 306 out of 672 or 46% of the target faculty respondents were taken as respondents.

With respect to the proportion of the whole respondents, it shows that 65% of the respondents are from Bulacan State University, 53% from Don Honorio Ventura Technological State University- Main Campus, and the least percent (8%) is from Bataan Peninsula State University-Dinalupihan Campus. The set of data signifies that BulSU, one of the biggest SUC in the region, provided most of the respondents, both deans and faculty members.

Table 1
Frequency Distribution of the Respondents

Respondents	Deans			Faculty Members			Total	
	N	n	%	N	n	%	n	%
Bataan Peninsula State University-Dinalupihan Campus	1	1	100.00	28	25	89.29	29	8.38
Bulacan State University	10	10	100.00	216	67	31.02	226	65.32
Don Honorio Ventura Technological State University-Main Campus	9	9	100.00	175	50	28.57	184	53.18
Pampanga State Agricultural University	6	6	100.00	82	64	78.05	88	25.43
Philippine Maritime Marine	2	2	100.00	40	22	55.00	42	12.14

Academy								
Ramon Magsaysay Technological University- San Marcelino Campus	4	4	100.00	31	20	64.52	35	10.12
Tarlac Agricultural University	5	5	100.00	48	21	43.75	53	15.32
Tarlac State University- Main Campus	3	3	100.00	52	37	71.15	55	15.90
Total	**40**	**40**	**100.00**	**672**	**306**	**45.54**	**346**	**100.00**

Table 2
Reliability Statistics

Cronbach's Alpha	N of Items
.991	25

Results, Discussion & Findings

Part I- Demographic Profile of the Respondents

Dean. In terms of age, majority, more than a half of the deans are in their 40s and 50s. Only two(2) out of the 40 deans are as old as 60 and above while only three (3) as young as 20 to 29 years of age while the rest of the deans are 30 to 39 years old; Regarding sex, majority, more than a half of the deans are females, revealing further that female outnumbered male respondents; On respondents' civil status, majority of the deans are married, few are single and there is only I separated and I widowed, revealing that majority of the deans have their own family; In terms of highest educational attainment, half of the respondents have already completed their doctorate degrees while others are still pursuing the degree. Some have master's degree, having only one is still pursuing his MA, and there are very few, only 3 who are bachelor's degree holders. This reveals that majority of the deans are determined towards education advancement; On length of service, the respondents have different duration of work experience but majority of the deans have been working for 16 to 20 years.

Table 3
Demographic Profile of the Dean

Profile	Freq.	%	Profile	Freq.	%
Age (Years)			**Highest Educational Attainment**		
20 – 29	3	7.5	Technological/Vocational	-	-

			Course		
30 – 39	9	22.5	Bachelor's Degree	3	7.5
40 – 49	13	32.5	With units in MA	1	2.5
50 – 59	13	32.5	Master's Degree	8	20.0
60 and above	2	5.0	With units in Doctorate Degree	8	20.0
Sex			Doctorate Degree	20	50.0
Male	19	47.5	**Length of Service**		
Female	21	52.5	1 – 5 years	6	15.0
Civil Status			6 – 10 years	6	15.0
Single	8	20.0	11 – 15 years	4	10.0
Married	30	75.0	16 – 20 years	13	32.5
Separated	1	2.5	21 – 25 years	4	10.0
Widowed	1	2.5	26 years and above	7	17.5
			Total	**40**	**100.0**

Faculty Members. With regard to faculty members' age, most of the teachers are younger ones compared to dean respondents. Most are in their 30s, 40s, and 20s. Few are aging from 50 to 59 while only three percent are 60 years and above; More than half of the respondents are females which means female outnumber the male faculty members; Similar with the deans, majority of the teachers are married, few are single, and only ten of the 306 teachers are separated while four are widowed; In terms of highest educational attainment, majority of the faculty members are Master's Degree holders while the same number are still pursuing their MA and Doctorate Degree. Though fifteen percent have already completed their doctorate degrees, the same percentage have not yet taken advance or graduate studies; As regards to the length of service, most respondents are still new, teaching from one to five years. On the other hand, the least of them have been teaching twenty-six years or more.

Table 4
Demographic Profile of the Faculty Members

Profile	Freq.	%	Profile	Freq.	%
Age (Years)			**Highest Educational Attainment**		
20-29	70	22.9	Technological/Vocational Course	-	-
30 – 39	95	31.0	Bachelor's Degree	47	15.4
40 – 49	82	26.8	With units in MA	56	18.3
50 – 59	49	16.0	Master's Degree	101	33.0
60 and above	10	3.3	With units in Doctorate Degree	56	18.3
Sex			Doctorate Degree	46	15.0
Male	125	40.8	**Length of Service**		
Female	181	59.2	1 – 5 years	92	30.1
Civil Status			6 – 10 years	72	23.5
Single	98	32.0	11 – 15 years	49	16.0

Married	194	63.4	16 – 20 years	39	12.7
Separated	10	3.3	21 – 25 years	30	9.8
Widowed	4	1.3	26 years and above	24	7.8
			Total	**306**	**100.0**

Comparatively, as regards to the findings on both dean and faculty respondents, most faculty members are younger compared to the deans in terms of age; female outnumber the male respondents in both dean and faculty members; likewise in terms of civil status, majority are married; concerning the highest educational attainment, dean respondents got the most highest educational attainment being doctorate degree holders while most faculty members are Master's degree holders; lastly, as regards to the length of service, dean respondents have been teaching longer than the faculty members who are mostly new in their teaching profession.

Part II- Digital Leadership Practices of the Deans

Visionary Leadership Practices

With respect to visionary leadership, the deans themselves perceived that they are sometimes practicing digital leadership, similar with the teachers' perception, hence, both the deans and the faculty members perceived that digital leadership practices on visionary leadership of the deans are sometimes practiced. While the composite mean of the deans is higher than that of the teachers, both mean values, together with the total composite mean indicate 'sometimes practiced' frequency level.

Table 5
Visionary Leadership Practices of Deans

Criteria	Dean		Faculty		Total	
	Mean	**Descriptive Equivalent**	**Mean**	**Descriptive Equivalent**	**Mean**	**Descriptive Equivalent**
1. Facilitates and disseminates a shared vision among all stakeholders the significance of accelerating the pace of innovations and maximizing digital-age resources (webcasts, podcasts, uniform resource locator, etc.)	3.10	Sometimes Practiced	2.76	Sometimes Practiced	2.80	Sometimes Practiced

through the use of websites.						
2. Develops and implements plan of a shared vision through integration of technology (ICT) to promote excellence.	3.18	Sometimes Practiced	2.84	Sometimes Practiced	2.88	Sometimes Practiced
3. Engages in an ongoing process of technology-infused strategic plans aligned with a shared vision	3.20	Sometimes Practiced	2.82	Sometimes Practiced	2.86	Sometimes Practiced
4. Supports and funds the implementation of technology-infused vision and strategic plan	3.18	Sometimes Practiced	2.79	Sometimes Practiced	2.84	Sometimes Practiced
5. Welcomes transformation throughout the organization to meet and exceed learning with innovations with the use of technological devices and software.	3.20	Sometimes Practiced	2.84	Sometimes Practiced	2.88	Sometimes Practiced
Composite	**3.17**	**Sometimes Practiced**	**2.81**	**Sometimes Practiced**	**2.85**	**Sometimes Practiced**

Digital Age Learning Culture Practices

In terms of the practices of deans on digital age learning, the deans consider themselves to be sometimes practicing this kind of leadership which is also agreed upon by the faculty members who have lower mean but also suggests that these specific practices of deans on digital age learning culture are sometimes practiced by the deans.

Table 6
Digital Age Learning Culture Practices of Deans

Criteria	Dean		Faculty		Total	
	Mean	**Descriptive Equivalent**	**Mean**	**Descriptive Equivalent**	**Mean**	**Descriptive Equivalent**
1. Models and promotes frequent and effective use of technology like the social media	3.08	Sometimes Practiced	2.78	Sometimes Practiced	2.82	Sometimes Practiced

communication sites (Twitter, Facebook) for communication, collaboration and learning.						
2. Provides learner-centered environments (e-library, e-book, etc.) equipped with technology and learning resources to meet the individual, diverse needs of all learners.	3.07	Sometimes Practiced	2.76	Sometimes Practiced	2.80	Sometimes Practiced
3. Sends faculty to seminars providing the needed technological knowledge (word processing, spreadsheets, presentation package, internet browsing, etc.) and skills (encoding, programming, networking, etc.) to ensure instructional innovation.	3.18	Sometimes Practiced	2.81	Sometimes Practiced	2.86	Sometimes Practiced
4. Facilitates effective practice in the study and infusion of technology in the curriculum and program endeavors through internet accessibility.	3.23	Sometimes Practiced	2.84	Sometimes Practiced	2.89	Sometimes Practiced
5. Promotes and participates in local, national, global learning communities that stimulate collaboration through online media (i.e. e-mail, social media, online forums, etc.)	3.12	Sometimes Practiced	2.82	Sometimes Practiced	2.86	Sometimes Practiced
Composite	**3.14**	**Sometimes Practiced**	**2.81**	**Sometimes Practiced**	**2.84**	**Sometimes Practiced**

Professional Excellent Practices

With respect to excellence in professional practices of deans, both sets of respondents perceived that the professional excellent practices of the deans are sometimes practiced by the deans. Specifically, the deans themselves provided a

higher composite mean than the faculty members yet both of which suggest the same frequency level in terms of professional excellent practices.

Table 7
Professional Excellent Practices of Deans

Criteria	Dean		Faculty		Total	
	Mean	**Descriptive Equivalent**	**Mean**	**Descriptive Equivalent**	**Mean**	**Descriptive Equivalent**
1. Allocates time, resources, and access to trainings and workshops that aim to develop professional growth of technologically-inclined skills	3.22	Sometimes Practiced	2.83	Sometimes Practiced	2.88	Sometimes Practiced
2. Facilitates and participates in any activity that stimulate, nurture and support colleagues and faculty in the utilization of technology.	3.30	Sometimes Practiced	2.80	Sometimes Practiced	2.86	Sometimes Practiced
3. Encourages stakeholders to engage in communication and collaboration using digital age tools (computers, tablets, laptops, smart phones).	3.20	Sometimes Practiced	2.75	Sometimes Practiced	2.81	Sometimes Practiced
4. Stays abreast with emerging trends and updates of technological tools (e.g. computers, tablets, laptops, smart phones) which are/can be used in the workplace.	3.18	Sometimes Practiced	2.83	Sometimes Practiced	2.87	Sometimes Practiced
5. Seeks and evaluates new programs and applications (e.g. Google, Android applications like dictionary, photo math, calculators, SPSS, etc.) that have potential in developing the utilization of technology in professional practice	3.18	Sometimes Practiced	2.77	Sometimes Practiced	2.82	Sometimes Practiced
Composite	**3.22**	**Sometimes Practiced**	**2.80**	**Sometimes Practiced**	**2.85**	**Sometimes Practiced**

Systematic Improvement Practices

On systematic improvement, both the deans themselves and the faculty members perceived that the systematic improvement practices of the deans are sometimes practiced respectively. However, both the deans and faculty members rated 'collaborating to establishes metrics, collect and analyze data, interpret results, and share findings to improve staff performance and student learning using technology' with the lowest mean respectively. Thus, this strongly suggests that improvement can be enhanced in this area.

Table 8
Systematic Improvement Practices of Deans

Criteria	Dean		Faculty		Total	
	Mean	Descriptive Equivalent	Mean	Descriptive Equivalent	Mean	Descriptive Equivalent
1. Maximizes the achievement of learning goals through the appropriate use of technology and media-rich resources like e-learning tools to provide e-learning environment.	3.10	Sometimes Practiced	2.79	Sometimes Practiced	2.82	Sometimes Practiced
2. Collaborates to establish metrics, collect and analyze data, interpret results, and share findings to improve staff performance and student learning using technology.	2.90	Sometimes Practiced	2.73	Sometimes Practiced	2.75	Sometimes Practiced
3. Recruits and retains highly competent personnel who use technology creatively and proficiently to advance academic and operational goals.	3.02	Sometimes Practiced	2.75	Sometimes Practiced	2.79	Sometimes Practiced
4. Establishes and controls curriculum mapping to support systemic improvement on the use of technology and allowing the faculty map their learning using	3.05	Sometimes Practiced	2.76	Sometimes Practiced	2.80	Sometimes Practiced

technology tools of their own choice.						
5. Models and encourages faculty to use technology-integrated assessment tools (capturing learners' experiences in learning journal, e-portfolios)	3.13	Sometimes Practiced	2.81	Sometimes Practiced	2.84	Sometimes Practiced
Composite	**3.04**	**Sometimes Practiced**	**2.77**	**Sometimes Practiced**	**2.80**	**Sometimes Practiced**

Digital Citizenship Practices

Evidently, the deans consider themselves to have sometimes practiced digital leadership in terms of digital citizenship. Such self-assessment is agreed upon by the faculty members. As a whole, both respondents perceived that the digital citizenship practices are sometimes practiced by the deans. Overall, the respondents consider 'disseminating information, memorandums and other official announcement accessed through computers, mobile phones and web-ready devices' to be strongest criterion as regards digital citizenship practices of deans. Conversely, the dean being actively involved in national and global issues through the use of contemporary communication and collaboration tools (creating blogs, e-mail account, using social networks, participation in on-line journalism, etc.) is the weakest criterion on digital citizenship.

Table 9
Digital Citizenship Practices of Deans

Criteria	Dean		Faculty		Total	
	Mean	Descriptive Equivalent	Mean	Descriptive Equivalent	Mean	Descriptive Equivalent
1. Ensures equitable access to appropriate digital tools and resources like a having Wi-Fi zone area for all learners.	3.00	Sometimes Practiced	2.71	Sometimes Practiced	2.75	Sometimes Practiced
2. Promotes, models and establishes policies for safe, legal, and ethical use	3.05	Sometimes Practiced	2.73	Sometimes Practiced	2.77	Sometimes Practiced

of digital information and technology through on-line announcements and posts.						
3. Disseminates information, memorandums and other official announcement accessed through computers, mobile phones and web-ready devices.	3.18	Sometimes Practiced	2.77	Sometimes Practiced	2.82	Sometimes Practiced
4. Engages in extensive utilization of information technology (creating blogs, e-mail account, using social networks, participation in on-line journalism, etc.)	3.05	Sometimes Practiced	2.77	Sometimes Practiced	2.80	Sometimes Practiced
5. Is actively involved in national and global issues through the use of contemporary communication and collaboration tools (creating blogs, e-mail account, using social networks, participation in on-line journalism, etc.)	2.95	Sometimes Practiced	2.72	Sometimes Practiced	2.74	Sometimes Practiced
Composite	**3.05**	**Sometimes Practiced**	**2.74**	**Sometimes Practiced**	**2.77**	**Sometimes Practiced**

Summary of Digital Citizenship Practices of Deans

Evidently, all the digital leadership practices obtained a rating which suggests that the deans are sometimes practicing these practices. Among the five (5) evaluation areas of digital leadership practices, the respondents provided the highest ratings on both visionary leadership and professional excellence practices. These may well be considered as the areas of strengths of the deans as regards digital leadership practices. In contrast, digital citizenship received the lowest total composite mean, suggesting that this is the weakest area of the deans in terms of digital leadership practices.

As a whole, digital leadership practices of the deans perceived by themselves are sometimes practiced which had also agreed upon by the faculty members.

Table 10
Summary of Digital Leadership Practices of Deans

Digital Leadership Practices	Dean		Faculty		Total	
	Composite Mean	Descriptive Equivalent	Composite Mean	Descriptive Equivalent	Composite Mean	Descriptive Equivalent
1. Visionary Leadership	3.17	Sometimes Practiced	2.81	Sometimes Practiced	2.85	Sometimes Practiced
2. Digital Age Learning Culture	3.14	Sometimes Practiced	2.81	Sometimes Practiced	2.84	Sometimes Practiced
3. Professional Excellence	3.22	Sometimes Practiced	2.80	Sometimes Practiced	2.85	Sometimes Practiced
4. Systematic Improvement	3.04	Sometimes Practiced	2.77	Sometimes Practiced	2.80	Sometimes Practiced
5. Digital Citizenship	3.05	Sometimes Practiced	2.74	Sometimes Practiced	2.77	Sometimes Practiced
Total	**3.12**	**Sometimes Practiced**	**2.78**	**Sometimes Practiced**	**2.82**	**Sometimes Practiced**

Part III. Digital Leadership Practices of the Deans as Perceived by the Deans Themselves and the Faculty Members

As a result, significant difference exists between the digital leadership practices of the deans as perceived by the deans themselves and the faculty members. Thus, the null hypothesis of no significant difference between these two (2) groups is rejected. The mean rank of the deans is higher compared to the faculty members but both fall under the same category of having practiced sometimes as regards to digital leadership practices. Hence, while the deans have significantly higher appreciation for their own digital leadership practices than how the faculty members esteem them, both groups having mean ratings equivalent to "sometimes practiced" is somewhat satisfactory.

Table 11
Digital Leadership Practices of the Deans as Perceived by the Deans themselves and the Faculty Members

Digital Leadership Practices	Group	Descriptives			Independent Samples T-test		
		N	Mean	Std. Deviation	|t|	Sig.	Remarks
Visionary Leadership	Dean	40	3.17	.66	3.08	.003	Significant;
	Faculty	306	2.81	.92			Reject Ho
Digital Age Learning Culture	Dean	40	3.14	.60	3.06	.003	Significant;
	Faculty	306	2.81	.90			Reject Ho
Professional	Dean	40	3.22	.54	4.19	.000	Significant;

Excellence	Faculty	306	2.80	.91			Reject Ho
Systematic Improvement	Dean	40	3.04	.58	2.59	.012	Significant;
	Faculty	306	2.77	.89			Reject Ho
Digital Citizenship	Dean	40	3.04	.64	2.70	.009	Significant;
	Faculty	306	2.74	.90			Reject Ho
Overall	**Dean**	**40**	**3.12**	**.55**	**3.36**	**.001**	**Significant;**
	Faculty	**306**	**2.78**	**.87**			**Reject Ho**

Part IV. Digital Leadership Practices of the Deans According to Profile

Age. There are no significant differences in the overall mean perceptions of the deans on their digital leadership practices when grouped according to their age. Hence, the null hypothesis of no significant difference is not rejected. This indicates that the data does not provide sufficient proofs to show that the mean ratings are of varying levels. This result holds true for the specific areas such as digital age learning culture, excellence in professional practice, systematic improvement, and digital citizenship. However, significant difference is observed with regards to visionary leadership.

Table 12
Digital Leadership Practices of the Deans According to Age Groups

Digital Leadership Practices	Age Group	Descriptives			ANOVA (F-test)		
		N	Mean	Std. Deviation	F-value	Sig.	Remarks
Visionary Leadership	20 – 39	12	2.87	.85	3.873	.030	Significant
	40 – 49	13	3.54	.35			Reject Ho
	50 and Above	15	3.09	.58			
Digital Age Learning Culture	20 – 39	12	3.02	.62	1.989	.151	Not
	40 – 49	13	3.40	.37			significant
	50 and Above	15	3.00	.69			Do not reject Ho
Professional Excellence	20 – 39	12	3.03	.60	1.863	.170	Not
	40 – 49	13	3.43	.39			significant
	50 and Above	15	3.17	.56			Do not reject Ho
Systematic Improvement	20 – 39	12	2.88	.73	1.533	.229	Not
	40 – 49	13	3.26	.36			significant
	50 and Above	15	2.97	.58			Do not reject Ho
Digital Citizenship	20 – 39	12	2.80	.75	2.692	.081	Not
	40 – 49	13	3.35	.47			significant

	50 and Above	15	2.97	.60			Do not reject Ho
Overall	**20 – 39**	**12**	**2.92**	**.66**	**2.810**	**.073**	**Not significant Do not reject Ho**
	40 – 49	**13**	**3.40**	**.32**			
	50 and Above	**15**	**3.04**	**.55**			

Sex. There is no significant difference between male and female deans with respect to their digital leadership practices. This result is the same for each of the specific digital leadership practices which are visionary leadership, digital age learning culture, excellence in professional practice, systematic improvement, and digital citizenship. Hence, the null hypothesis is not rejected.

Table 13
Digital Leadership Practices of the Deans According to Sex

Digital Leadership Practices	Group According to Sex	Descriptives			Independent Samples T-test		
		N	Mean	Std. Deviation	|t|	Sig.	Remarks
Visionary Leadership	Male	19	3.16	.66	-.11	.91	Not significant
	Female	21	3.18	.68			Do not reject Ho
Digital Age Learning Culture	Male	19	3.09	.53	-.40	.69	Not significant
	Female	21	3.17	.66			Do not reject Ho
Professional Excellence	Male	19	3.20	.52	-.17	.87	Not significant
	Female	21	3.23	.56			Do not reject Ho
Systematic Improvement	Male	19	3.09	.41	.56	.58	Not significant
	Female	21	2.99	.70			Do not reject Ho
Digital Citizenship	Male	19	3.05	.54	.07	.94	Not significant
	Female	21	3.04	.73			Do not reject Ho
Overall	**Male**	**19**	**3.12**	**.48**	**-.01**	**.99**	**Not significant**
	Female	**21**	**3.12**	**.62**			**Do not reject Ho**

Civil Status. In general, there is no significant difference between single and married dean respondents in terms of their overall perception on digital leadership practices, hence, the null hypothesis of no significant difference is not rejected. The data does not provide adequate evidence to prove that mean ratings according to civil status affects digital leadership practices as a whole. This result

of no significant difference is true for specific digital leadership practices such as visionary leadership, digital age learning culture, excellence in professional practice, and digital citizenship.

Table 14
Digital Leadership Practices of the Deans According to Civil Status

Digital Leadership Practices	Group According to Civil Status	Descriptives			Independent Samples T-test		
		N	Mean	Std. Deviation	|t|	Sig.	Remarks
Visionary Leadership	Single	8	2.78	.80	1.81	.08	Not significant
	Married	30	3.24	.60			Do not reject Ho
Digital Age Learning Culture	Single	8	2.95	.80	.68	.51	Not significant
	Married	30	3.15	.54			Do not reject Ho
Professional Excellence	Single	8	3.03	.65	1.01	.32	Not significant
	Married	30	3.24	.50			Do not reject Ho
Systematic Improvement	Single	8	2.60	.79	2.50	.02	Significant
	Married	30	3.14	.46			Reject Ho
Digital Citizenship	Single	8	2.63	.96	1.39	.20	Not significant
	Married	30	3.11	.50			Do not reject Ho
Overall	**Single**	**8**	**2.80**	**.73**	**1.40**	**.19**	**Not significant**
	Married	**30**	**3.18**	**.48**			**Do not reject Ho**

Highest Educational Attainment. There is no significant difference between deans with BS Degree to Doctoral Units and those with Doctorate Degree in terms of their digital leadership practices. Hence, the null hypothesis is not rejected. This result is the same for each of the specific digital leadership practices which are visionary leadership, digital age learning culture, excellence in professional practice, systematic improvement, and digital citizenship.

Table 15
Digital Leadership Practices of the Deans According to Highest Educational Attainment

Digital Leadership Practices	Group According to Education	Descriptives			Independent Samples T-test		
		N	Mean	SD	|t|	Sig.	Remarks
Visionary Leadership	BS Degree to Doctoral Units	20	3.05	.79	1.15	.26	Not significant
	Doctorate Degree	20	3.29	.49			Do not reject Ho
Digital Age Learning Culture	BS Degree to Doctoral Units	20	3.11	.62	.26	.80	Not significant
	Doctorate Degree	20	3.16	.59			Do not reject Ho
Professional Excellence	BS Degree to Doctoral Units	20	3.20	.67	.17	.86	Not significant
	Doctorate Degree	20	3.23	.38			Do not reject Ho
Systematic Improvement	BS Degree to Doctoral Units	20	3.01	.67	.32	.75	Not significant
	Doctorate Degree	20	3.07	.49			Do not reject Ho
Digital Citizenship	BS Degree to Doctoral Units	20	3.05	.77	.05	.96	Not significant
	Doctorate Degree	20	3.04	.50			Do not reject Ho
Overall	**BS Degree to Doctoral Units**	**20**	**3.08**	**.66**	**.42**	**.68**	**Not significant**
	Doctorate Degree	**20**	**3.16**	**.43**			**Do not reject Ho**

Length of Service. Significant differences are noted between the length of service of deans. Hence, the null hypothesis of no significant difference is rejected. Similarly, the digital leadership practices of deans differ when they are grouped according to length of service for visionary leadership, digital age learning culture, excellence in professional practice, systematic improvement, and digital citizenship.

Table 16
Digital Leadership Practices of the Deans According to Length of Service

Digital Leadership Practices	Group According to Length of Service	Descriptives			Kruskal Wallis Test		
		N	Mean	Std. Deviation	Test Value	Sig.	Remarks
Visionary Leadership	10 or less	12	2.72	14.21	12.71	.002	Significant
	11 – 20	17	3.59	28.03			Reject Ho
	21 and above	11	3.02	15.73			
Digital Age Learning Culture	10 or less	12	2.72	12.83	13.97	.001	Significant
	11 – 20	17	3.52	28.26			Reject Ho
	21 and above	11	3.00	16.86			
Professional Excellence	10 or less	12	2.90	14.58	9.52	.009	Significant
	11 – 20	17	3.51	26.85			Reject Ho
	21 and above	11	3.11	17.14			
Systematic Improvement	10 or less	12	2.70	14.42	6.74	.034	Significant
	11 – 20	17	3.29	25.38			Reject Ho
	21 and above	11	3.02	19.59			
Digital Citizenship	10 or less	12	2.68	14.88	6.01	.050	Significant
	11 – 20	17	3.31	24.91			Reject Ho
	21 and above	11	3.04	19.82			
Overall	**10 or less**	**12**	**2.74**	**13.63**	**12.61**	**.002**	
	11 – 20	**17**	**3.44**	**28.00**			**Significant**
	21 and above	**11**	**3.04**	**16.41**			**Reject Ho**

Part V- Implications of the Findings of the Study to the 21st Century Education

Though majority of the deans in selected SUCs in Region III belongs to Generation X, they can still welcome changes and innovations using technological devices for the transformation needed from traditional to digital leadership, visionary leaders who may possess an unusually large degree of openness to new information and strong conviction and persistence to meet and exceed learning with innovations with the use of technological devices and software to strengthen one's weakness in terms of digital age learning culture practices,to achieve excellence in performance as they put emphasis on technology literacy to develop professional growth in digital community, to learn to collaborate with faculty members to improve the system through assessment utilizing technology, to develop their being digital immigrants with norms of appropriate, responsible behavior with regard to technology use with full electronic participation in society, not only confine with national but in global community as well.

On digital leadership practices, deans are good in visionary leadership and professional excellence. Embodying these may collaboratively involve the university to digital community in creating and sustaining shared values, vision, mission and goals to take part in attaining the 21st century education. On the other hand, the weakest point which is digital citizenship can be justified through the deans' age being digital immigrants, thus older deans in the university should strive to be tech-savvy leaders.

Obviously, there is consistency between the perceptions of two sets of respondents, revealing significant differences exist on the digital leadership practices of the deans. Distributed leadership is an important determinant of productive collaboration in a virtual environment, a way of supporting professional excellence which has shown the most significant difference.

To lead in the 21st century requires keen attention as a part of visionary leadership to clearly see where the leader chooses to be in the future and formulate necessary steps to get the organization there. Older deans are found to practice these always than younger deans of the university. Becoming a more authentic leader this 21st century requires self-improvement strategies, taking responsibility for his own development to be at ease with the many technological tools in a digital environment to become globally competent and competitive. Systematic improvement practices such as diagnosing flaws, data gathering for adequate interventions should be considered to ensure appropriate systems are in place and holistically shaped.

Lastly, as length of service is found significant in digital leadership practices of deans, the process of digital transformation, school deans and other academic leaders should be guided by notions that such transformation is a marathon- a race that never ends yet a long-term goal which has to be consistently developed, thus as years in service increases, deans' expertise in digital leadership also enhances.

Deans' digital leadership practices as a whole, though considered 'sometimes practiced' are somehow satisfactory and esteemed to be 21st century way. They can be catalysts for change and the pillars to provide support to stakeholders especially the faculty members who are in contact with the learners of today's generation.

Conclusions

In light of the findings, the fundamental issues that emerged from this study are:

1. Majority of the deans age forty to fifty years old, female, married, completed their Doctorate degree and have been in the service for sixteen to twenty years. In like manner, majority of the faculty members are on age 30s, female, married, finished their Master's degree and in the service at least one to five years.

2. Digital leadership practices of the deans in selected SUCs in Region III are somewhat satisfactory based on how the deans themselves and the faculty members rate them. However, among the five areas namely: visionary leadership, digital age learning culture, professional excellence, systematic improvement and digital citizenship, both visionary leadership and professional excellence practices are found to have 'sometimes practiced', which may well be considered as the areas of strengths of the deans, in contrast, digital citizenship are of concerns suggest to be the weakest area.
3. As to the significant differences of the digital practices of the deans when their profiles are grouped accordingly, age, sex, civil status and highest educational attainment are found 'not significant' while the length of service variable is found to be 'significant'.

Recommendations

1. As a whole, Philippine SUCs should develop competencies and training on digital literacy, as well as opportunities to engage with faculty members, students, staffs and deans in the use of digital tools for the purpose of building a cultural understanding and global awareness, which is imperative in the 21st century education.
2. The deans, together with the faculty members should welcome innovation, embrace change and challenge themselves to walk-the-walk as efficient and effective model within the support system to encourage all improve their status of being 'digital immigrants' closer to being 'digital natives'. (*Digital citizenship)*
3. The deans need to be in tuned with faculty members to gauge their opinions and views and engage them for effective technology planning in terms of e-learning activities utilizing digital tools. It is most significant that the dean provides ICT training and seminars for all faculty members for successful e-learning activities like making their own curriculum mapping, preparing presentations through Power Point and Prezi presentations. (*Professional Excellence)*
4. Deans should focus on continuous improvement of existing approaches and processes and adaptation to change and invest in personal learning through education, training and opportunities using e-tools so as to improve e-learning environment and may start allowing faculty members making assessment for learning philosophy and a strong understanding of 21st century pedagogy. (*Systematic Improvement)*

5. The Academic Council where the deans belong, has to ensure that there should be updated revisions of curriculums were ICT integration and the utilization of different digital tools and gadgets within and beyond the classroom setting be considered within the system to expose all learners-officials, faculty, staffs and students in digital communication and collaboration.(*Visionary Leadership)*
6. As one of the university leaders, the deans need to acknowledge that learners are naturally a part of social interactive communication, global citizens who communicate using social interactive sites (e.g. Twitter, Face book), and to be a university that is truly operating in a 21st century way, e-learning needs Internet access and needs to be all the time accessible to all. (*Digital Age Learning Culture)*
7. Future researchers may consider investigating related studies like comparative study on digital leadership of higher and basic education or e-leadership assessment.***

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