

Communities of practice in the National ICT Policy for Education: A case study of the Faculty of Education at the University of Namibia

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Abstract: The purpose of this evaluation study was to determine the extent to which the teacher educators in the Faculty of Education at the University of Namibia implemented the communities of practice as stipulated in the Namibian national ICT Policy for Education objectives. This study employed the quantitative cross-sectional method in the form of questionnaires. Based on a sample of 100 participants surveyed 73 respondent, which was a 73% response rate to the questionnaire. A number of methods were applied to capture aspects of community of practice. Amongst others were the Likert Scale, Pearson-Product Moment Correlation Coefficient, Eigenvalue: Factor Analysis, Eigenvalue: Cluster, and Kruskal-Wallis Test. The findings indicated that the respondents scored low, below 30% on the different components of communities of practice at the different campuses of the University of Namibia. The findings indicate that the participants have limited knowledge on how to share knowledge about the effective use of ICTs at the different University of Namibia campuses. The teacher educators at the University of Namibia need to learn better ways of content sharing areas, explore supportive tools, and create community repository areas where the participant's activities and learning materials can be shared and stored.

Keywords: National ICT Policy, communities of practice, teacher educators, skill development.

I. INTRODUCTION

The ICT Policy for Education in Namibia stipulates that networking should be established with the aim of increasing communication and collaboration with the local and international community as essential (Ministry of Education, 2005). Communities practice will lead to skill development which will ultimately speed up the implementation of the ICT Policy for education at the tertiary level. As a result, that will increase communication, improve efficiency and widen knowledge of teacher educators in the use of ICTs. The policy recognizes the need for, and desire to develop such practices (Ministry of Education, 2005).

At an international level, Vandeyar (2013) argues that a community of practice should have an identity which is defined by a shared domain of interest. Members within a community of practice value their collective competence and learn from each other (Tsiokatis & Jimoyiannis, 2016; McGrath & Guglielmo, 2015; Al-ghamdi & Al-ghamdi, 2015). A community of practice must exist that pursues their interest in their domain. Members are bound as a social entity by mutual engagement and purpose. Members in a community must engage in joint activities and discussions with the intention to help each other and share information (Nistor, Trausan-Matu, Dascalu, Duttweiler, Chiru, Baltas & Smeaton, 2015; Liana & Ngeze, 2015). The community that emerges builds relationships and an enabling and supportive environment. Members share a repertoire of resources: experiences, stories, tools and ways of addressing recurring problems. Members access content resources, discuss with others, and acquire relevant information, skills and knowledge (Garavaglia & Petti, 2015; Theodorakopoulos, Preciado & Bennett, 2012; Vandeyar, 2013). To respond to the increased demands and the complexity of current instructional work, peer support and collaboration among teacher educator has become very important.

The traditional and popular approaches to teacher educator professional development appear to have low impact on teacher educator's ability to put innovative teaching approaches into practice, in the absence of communities of practice (McGrath & Guglielmo, 2015; Vandeyar, 2013). Among these obstacles are the difficulty of managing implied knowledge, the lack of novelty of information and knowledge, the absence of cooperation and collaboration in communities of practice (Nistor, Trausan-Matu, Dascalu, Duttweiler, Chiru, Baltas & Smeaton, 2015; Liana & Ngeze, 2015).

Communities of practice should include official and informal contacts, cooperation, and social networks. They should include processes of creating, sharing, and application of knowledge. The value of these communities grows, when knowledge is applied for achieving specific purposes such as improvement of specific skills, and delivery of content. There is strong emphasis on (1) knowledge creation, (2) knowledge organization, (3) knowledge storage, (4) knowledge dissemination, and (5) knowledge application (Al-ghamdi & Al-ghamdi, 2015). For the above stated tasks to be disseminated there should be a strong ICT skills and technical support in place.

II. RESULTS AND FINDINGS

On the next page are the results and findings of communities of practice in the Faculty of Education. The ICT Policy for Education specifies that linkages and partnerships should be established, in order to expedite the implementation of the ICT Policy for education at the tertiary level.

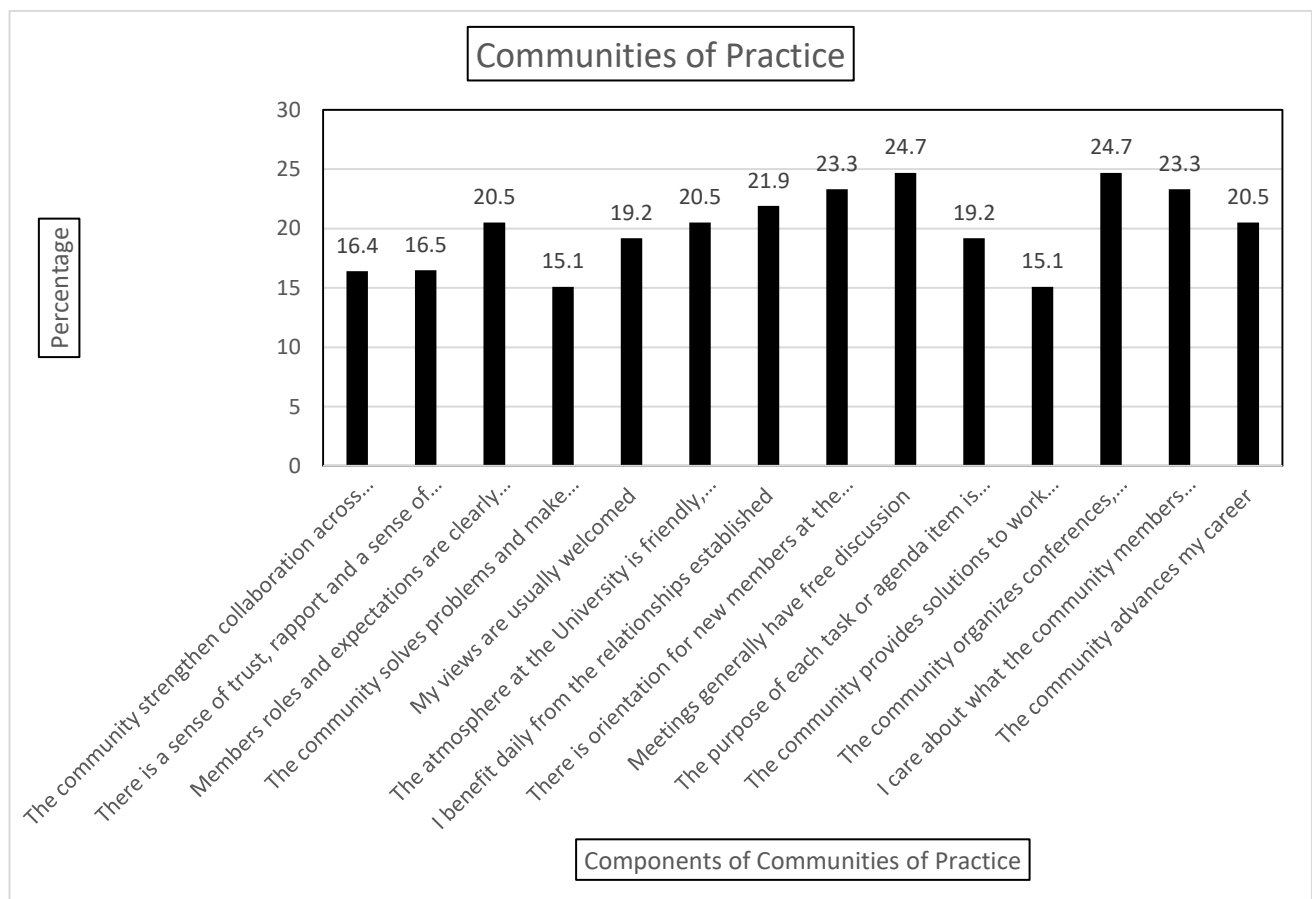


Figure 1: Communities of practice in the Faculty of Education.

Analysis of data was performed using SPSS (v.24)

The respondents who indicated that they had meetings that have free discussion on issues to better teach their courses was 24.7%; while 24.7% specified that they used the community to organize conferences, meetings, and workshops; 23.3% affirmed that they felt that they cared about what the community members thought about their actions; 21.9% stated that they benefitted daily from the relationships established; 20.5% showed that they felt that the members roles and expectations were clearly articulated; 20.5% revealed that the atmosphere at the University is friendly, cooperative and pleasant within ICT; 20.5% pointed out that the community advances their careers.

The least communities of practice factors identified was that the community provides solutions to work challenges, which was 15.1%; 15.1% showed that the community solved problems and made decisions using job-relevant knowledge; 16.4% specified that the community strengthened collaboration across departments and offices; 16.5% asserted that there was a sense of trust, rapport and a sense of community, among others.

The Cronbach Alpha for this category was determined to be at ($\alpha = 0.98$). The questions for this category showed a strong internal consistency and reliability.

An analysis of variance using the Eigenvalue factor analysis yielded one factor greater than 1, which was 12.77, and the percentage of variance was 91.19. Below is table 1 which describes the analysis of variance using the Eigenvalue factor analysis.

Table 1: Factor analysis on the communities of practice

Component	Total Variance Explained			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	12.767	91.193	91.193	12.767	91.193	91.193
2	.516	3.688	94.880			
3	.251	1.796	96.677			
4	.185	1.321	97.998			
5	.100	.718	98.715			
6	.087	.625	99.340			
7	.050	.357	99.697			
8	.033	.234	99.931			
9	.009	.068	99.999			
10	5.628E-5	.000	99.999			
11	4.377E-5	.000	100.000			
12	2.655E-5	.000	100.000			
13	1.345E-5	9.604E-5	100.000			
14	1.104E-5	7.884E-5	100.000			

Extraction Method: Principal Component Analysis.

Analysis of data was performed using SPSS (v.24)

Below is the scree plot representing table 1 above.

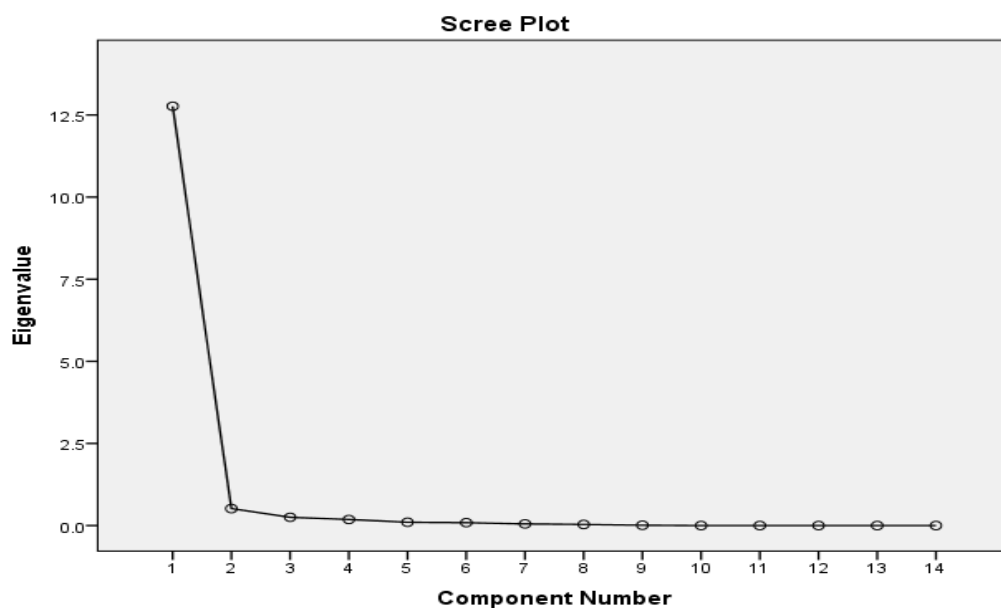


Figure 2: Scree Plot representing table 1

Analysis of data was performed using SPSS (v.24)

The Kruskal-Wallis Test was conducted about the communities of practice at the different campuses of the University of Namibia in the Faculty of Education, in order to establish a better understanding about communities of practice implementation. Below is the table describing differences in the Mean Rank scores between the campuses.

Table 2: Communities of practice and the different campuses

Ranks			
	Campus	N	Mean Rank
Community of Practice - a (The community strengthen collaboration across departments, offices, and units)	Khomasdal	12	16.58
	Main	15	39.63
	Hifikepunye Pohamba	20	37.98
	Rundu	15	42.30
	Katima Mulilo	11	46.68
	Total	73	
Community of Practice - b (There is a sense of trust, rapport and a sense of community)	Khomasdal	12	12.83
	Main	15	40.93
	Hifikepunye Pohamba	20	38.93
	Rundu	15	42.93
	Katima Mulilo	11	46.41
	Total	73	
Community of Practice - c (Members roles and expectations are clearly articulated)	Khomasdal	12	17.21
	Main	15	40.00
	Hifikepunye Pohamba	20	37.60
	Rundu	15	42.03
	Katima Mulilo	11	46.55
	Total	73	
Community of Practice - d (The community solves problems and make decisions using job-relevant knowledge)	Khomasdal	12	15.33
	Main	15	41.03
	Hifikepunye Pohamba	20	38.98
	Rundu	15	41.30
	Katima Mulilo	11	45.68
	Total	73	
Community of Practice - e (My views are usually welcomed)	Khomasdal	12	17.75
	Main	15	41.27
	Hifikepunye Pohamba	20	37.45
	Rundu	15	41.27
	Katima Mulilo	11	45.55
	Total	73	
Community of Practice - f (The atmosphere at the University is friendly, cooperative and pleasant within ICT)	Khomasdal	12	13.63
	Main	15	40.20
	Hifikepunye Pohamba	20	38.13
	Rundu	15	43.60
	Katima Mulilo	11	47.09
	Total	73	
Community of Practice - g (I benefit daily from the relationships established)	Khomasdal	12	17.00
	Main	15	40.73
	Hifikepunye Pohamba	20	37.20
	Rundu	15	42.53
	Katima Mulilo	11	45.82
	Total	73	
Community of Practice - h (There is orientation for new members at	Khomasdal	12	15.00
	Main	15	41.17

the University)	Hifikepunye Pohamba	20	37.50
	Rundu	15	42.97
	Katima Mulilo	11	46.27
	Total	73	
Community of Practice - i (Meetings generally have free discussion)	Khomasdal	12	11.08
	Main	15	42.50
	Hifikepunye Pohamba	20	40.03
	Rundu	15	41.77
	Katima Mulilo	11	45.77
Total	73		
Community of Practice - j (The purpose of each task or agenda item is defined, kept and adhered to)	Khomasdal	12	12.67
	Main	15	43.20
	Hifikepunye Pohamba	20	37.70
	Rundu	15	42.27
	Katima Mulilo	11	46.64
Total	73		
Community of Practice - k (The community provides solutions to work challenges)	Khomasdal	12	13.58
	Main	15	41.93
	Hifikepunye Pohamba	20	39.48
	Rundu	15	41.20
	Katima Mulilo	11	45.59
Total	73		
Community of Practice - l (The community organizes conferences, meetings, and workshops)	Khomasdal	12	14.42
	Main	15	40.73
	Hifikepunye Pohamba	20	41.18
	Rundu	15	40.13
	Katima Mulilo	11	44.68
Total	73		
Community of Practice - m (I care about what the community members think about my actions)	Khomasdal	12	12.96
	Main	15	41.47
	Hifikepunye Pohamba	20	40.88
	Rundu	15	40.90
	Katima Mulilo	11	44.77
Total	73		
Community of Practice - n (The community advances my career)	Khomasdal	12	14.71
	Main	15	40.90
	Hifikepunye Pohamba	20	40.55
	Rundu	15	40.40
	Katima Mulilo	11	44.91
Total	73		

Analysis of data was performed using SPSS (v.24)

The Katima Mulilo campus scored higher on all categories about the community of practice between campuses. The Rundu Campus scored second highest, followed by the Main Campus, then Hifikepunye Campus, and last Khomasdal Campus. The Katima Mulilo campus appeared to have practiced communities of practice better than the other campuses on this category, based on the questionnaire results. The ICT Policy for Education specifies that linkages and partnerships should be established, in order to speed up the implementation of the ICT Policy for education.

An analysis was conducted on SPSS on the correlation between the gender of the participants and their reported understanding of community of practice, using the Pearson Product-Moment Correlation Coefficient (PPMCC). The table below shows the statistics on the reported use of community of practice and gender.

Table 3: Knowledge about the communities of practice and the different sexes

Crosstab					
			Community of Practice		Total
			Disagree	Agree	
Gender of respondent	male	Count	5	27	32
		% within Sex of respondent	15.6%	84.4%	100.0%
	female	Count	10	16	26
		% within Sex of respondent	38.5%	61.5%	100.0%
Total		Count	15	43	58
		% within Sex of respondent	25.9%	74.1%	100.0%

Analysis of data was performed using SPSS (v.24)

Below is the chi square results, where the chi-square value of ($X^2 = 3.90$), the degrees of freedom (df) = 1 at significant level ($p = .05$). It was determined that there was a significant difference between gender and community of practice, because ($p = .05$). The results confirm a correlation between gender and community of practice.

Table 4: Chi-square test results: Knowledge about the communities of practice and the different sexes.

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.902 ^a	1	.048		
Continuity Correction ^b	2.802	1	.094		
Likelihood Ratio	3.923	1	.048		
Fisher's Exact Test				.071	.047
Linear-by-Linear Association	3.834	1	.050		
N of Valid Cases	58				
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.72.					
b. Computed only for a 2x2 table					

Analysis of data was performed using SPSS (v.24)

An analysis was then conducted on SPSS on the correlation between the age of the participants and their implementation of communities of practice. The table below shows the statistics on the implementation of communities of practice and age, using PPMCC.

Table 5: Knowledge about the communities of practice and the different age groups

Crosstab					
			Community of Practice		Total
			Disagree	Agree	
Age of the respondent	<30 yrs	Count	0	1	1
		% within Age of the respondent	0.0%	100.0%	100.0%
	30-39 yrs	Count	3	6	9
		% within Age of the respondent	33.3%	66.7%	100.0%
	40-49 yrs	Count	6	14	20
		% within Age of the respondent	30.0%	70.0%	100.0%
	50+ yrs	Count	6	25	31
		% within Age of the respondent	19.4%	80.6%	100.0%
Total		Count	15	46	61
		% within Age of the respondent	24.6%	75.4%	100.0%

Analysis of data was performed using SPSS (v.24)

Below is the chi square results, where the chi-square value of ($X^2 = 1.47$), the degrees of freedom (df) = 3 at significant level ($p = .69$) was found. It was determined that there was no significant difference between age and communities of practice, because ($p = .69$).

Table 6: Chi-square test results: Knowledge about the communities of practice and the different age groups.

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.471 ^a	3	.689
Likelihood Ratio	1.696	3	.638
Linear-by-Linear Association	.521	1	.470
N of Valid Cases	61		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is .25.

Analysis of data was performed using SPSS (v.24)

An analysis was then conducted on SPSS on the correlation between the highest qualification of the participants and their reported implementation of communities of practice. The table on the next page shows the statistics on the reported implementation of community of practice and highest qualification, using the PPMCC.

Table 7: Knowledge about the communities of practice and the different qualifications

Crosstab					
			Community of Practice		Total
			Disagree	Agree	
Highest Qualification	Bachelors degree	Count	3	8	11
		% within Highest Qualification	27.3%	72.7%	100.0%
	Masters	Count	7	29	36
		% within Highest Qualification	19.4%	80.6%	100.0%
	PhD	Count	5	8	13
		% within Highest Qualification	38.5%	61.5%	100.0%
Total		Count	15	45	60
		% within Highest Qualification	25.0%	75.0%	100.0%

Analysis of data was performed using SPSS (v.24)

Below is the chi square results, where the chi-square value of ($X^2 = 1.88$), the degrees of freedom ($df = 2$), at significant level ($p = .39$). It was determined that there was no significant difference between highest qualification and communities of practice, because ($p = .39$).

Table 8: Chi-square test results: Knowledge about the communities of practice and qualifications

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.879 ^a	2	.391
Likelihood Ratio	1.799	2	.407
Linear-by-Linear Association	.493	1	.483
N of Valid Cases	60		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 2.75.

Analysis of data was performed using SPSS (v.24)

An analysis was conducted on SPSS on the correlation between the rank of the participants and their reported implementation of community of practice, using the PPMCC. The table below shows the statistics on the reported implementation of community of practice and rank.

Table 9: Knowledge about the communities of practice and the different ranks

Crosstab					
			Community of Practice		Total
			Disagree	Agree	
Rank	Lecturer	Count	12	42	54
		% within Rank	22.2%	77.8%	100.0%
	Senior Lecturer	Count	3	2	5
		% within Rank	60.0%	40.0%	100.0%

	Associate Professor	Count	0	1	1
		% within Rank	0.0%	100.0%	100.0%
	Missing	Count	0	1	1
		% within Rank	0.0%	100.0%	100.0%
Total		Count	15	46	61
		% within Rank	24.6%	75.4%	100.0%

Analysis of data was performed using SPSS (v.24)

Below is the chi square results, where the chi-square value of ($X^2 = 4.20$), the degrees of freedom ($df = 3$), at significant level ($p = .24$). It was determined that there was no significant difference between rank and communities of practice, because ($p = .24$).

Table 10: Chi-square test results: Knowledge about the communities of practice and rank.

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.196 ^a	3	.241
Likelihood Ratio	4.112	3	.250
Linear-by-Linear Association	.293	1	.589
N of Valid Cases	61		

a. 6 cells (75.0%) have expected count less than 5. The minimum expected count is .25.

Analysis of data was performed using SPSS (v.24)

An analysis was then conducted on SPSS on the correlation between the campus of the participants and their reported implementation of communities of practice, using the PPMCC. The table below shows the statistics on the reported implementation of communities of practice and campus.

Table 11: Knowledge about the communities of practice and the different campuses

Crosstab					
			Community of Practice		Total
			Disagree	Agree	
Campus	Main	Count	5	10	15
		% within Campus	33.3%	66.7%	100.0%
	Hifikepunye Pohamba	Count	6	14	20
		% within Campus	30.0%	70.0%	100.0%
	Rundu	Count	3	12	15
		% within Campus	20.0%	80.0%	100.0%
	Katima Mulilo	Count	1	10	11
		% within Campus	9.1%	90.9%	100.0%
Total		Count	15	46	61
		% within Campus	24.6%	75.4%	100.0%

Analysis of data was performed using SPSS (v.24)

On the next page is the chi square results, where the chi-square value of ($X^2 = 2.53$), the degrees of freedom ($df = 3$), at significant level ($p = .47$). It was determined that there was no significant difference between campus and communities of practice, because ($p = .47$).

Table 12: Chi-square test results: Knowledge about the communities of practice and different campuses.

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.529 ^a	3	.470
Likelihood Ratio	2.806	3	.423
Linear-by-Linear Association	2.350	1	.125
N of Valid Cases	61		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is 2.70.

Analysis of data was performed using SPSS (v.24)

An analysis was conducted on SPSS on the correlation between the departments of the participants and their reported implementation of communities of practice, using the PPMCC. The table below shows the statistics on the reported implementation of communities of practice and department.

Table 13: Knowledge about the communities of practice and the different departments

Crosstab					
			Community of Practice		Total
			Disagree	Agree	
Department	Missing	Count	3	4	7
		% within Department	42.9%	57.1%	100.0%
	Agriculture	Count	0	1	1
		% within Department	0.0%	100.0%	100.0%
	Animal Science	Count	1	0	1
		% within Department	100.0%	0.0%	100.0%
	Curriculum, Instruction and Assessment Studies	Count	1	14	15
		% within Department	6.7%	93.3%	100.0%
	Early Childhood & Lower Primary Education	Count	4	5	9
		% within Department	44.4%	55.5%	100.0%
	Educational Psychology and Inclusive Education	Count	5	9	14
		% within Department	35.7%	64.3%	100.0%
	Educational Foundations and Management	Count	1	0	1
		% within Department	100.0%	0.0%	100.0%
	Lifelong Learning and Community Education	Count	2	0	2
		% within Department	100.0%	0.0%	100.0%
	Mathematics, Science and Sport Education	Count	0	11	11
		% within Department	0.0%	100.0%	100.0%
Total		Count	17	44	61
		% within Department	27.9%	72.1%	100.0%

Analysis of data was performed using SPSS (v.24)

On the next page is the chi square results, where the chi-square value of ($X^2 = 29.31$), the degrees of freedom (df) = 18, at significant level ($p = .05$) was found. It was determined that there was a significant difference between department and community of practice, because ($p = .05$). The results confirm a correlation between department and communities of practice.

Table 14: Chi-square test results: Knowledge about the communities of practice and the different departments.

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	29.307 ^a	18	.045
Likelihood Ratio	32.830	18	.017
N of Valid Cases	61		

a. 36 cells (94.7%) have expected count less than 5. The minimum expected count is .25.

Analysis of data was performed using SPSS (v.24)

III. CONCLUSION

The respondents scored low on the communities of practice related to ICT uses at the different campuses of the University of Namibia. On most components of the communities of practice, the participants scored below 30%. Communities of practice is intended to create communities within the departments, faculties, campuses and the University at large on how to share knowledge on the best ways to teach with ICTs. The findings by several researchers (Al-ghamdi & Al-ghamdi, 2015; Garavaglia & Petti, 2015; Tsiotakis & Jimoyiannis, 2016) confirm communities of practices expectations, where they focused on content sharing areas and creating community repository areas where the participants activities and learning materials can be shared and stored.

The ICT Policy for Education demands that networking should be established with the aim of increasing communication and collaboration with the local and international community as essential. The findings indicate that the participants have limited knowledge on how to share knowledge about the effective use of ICTs at the different University of Namibia campuses. The Katima Mulilo campus scored slightly higher on all the components of communities of practice, meaning the Katima Mulilo campus used this aspect better than the other campuses.

IV. RECOMMENDATIONS

More research should be carried on how to collaborate more with fellow teacher educators within and outside the University of Namibia campuses. The teacher educators at the University of Namibia will learn better ways of content sharing areas, explore supportive tools, and create community repository areas where the participants activities and learning materials can be shared and stored.

Further research should focus on how gender affects communities of practice in ICTs use in the Faculty of Education. Other research should focus on how the different departments in the Faculty of Education use communities of practice in ICTs use. Additional research should focus on how to effectively use on-line communities, such as the effective use of Learning Management Systems, as well as effective use of the Social Media in teaching. Lastly, other research should be carried out to identify better methods to present more interesting lectures and presentations to students in using ICTs in teaching, by sharing knowledge and experiences with other teacher educators within the University of Namibia and other universities.

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