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Rethinking Knowledge Management Strategies: The Role of Demographics in Academic Knowledge Documentation

Abstract

Knowledge management in higher education institutions is a significant aspect; hence, this study was conducted to investigate the relationships between demographic characteristics (including age, gender, educational attainment, and years of experience) and knowledge documentation behaviors among teaching and non-teaching personnel. The study used a quantitative cross-sectional survey of 122 staff (71 teaching, 51 non-teaching) at the Central Bicol Agricultural University in the Philippines. A validated 6-item measure of knowledge documentation practices ($\alpha=.88$) was used, with responses being assessed on a five-point scale. Mann-Whitney U and Kruskal-Wallis nonparametric tests were performed to analyze the influence of demographic factors on knowledge documentation. No significant differences were found between teaching or non-teaching employees ($p=.080$, $r=.12$) or between genders ($p=.180$, $r=.09$). Age had a significant effect on documentation practices ($H=7.85$, $p=.049$, $\epsilon^2=.065$) with youngest employees (25-35 years; median= 4.50) significantly performing better than late mid (47-57 years; median= 4.00, $p=.004$, $r=.35$). Educational attainment was found to have significant effects ($H=8.42$, $p=.015$), where doctorate had highest engagement. Knowledge documentation practices are highly affected by age and educational level, but not by employee category, gender, or years of experience. According to the findings, distinct knowledge management strategies are needed to address the dynamics of career progression, younger workers' technical competencies, and senior workers' tacit knowledge through organized transfer mechanisms.

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1. Introduction

Since the creation, sharing, and storing of knowledge are essential organizational tasks in higher education institutions, knowledge management (KM) has become a crucial strategic asset for businesses in the twenty-first century. Universities need to systematically manage organizational knowledge as they navigate an increasingly complex learning environment marked by rapid technological progress, globalization, and shifting stakeholder expectations (Omotayo, 2015). Higher education institutions are knowledge-intensive businesses, with faculty, administrators, and support staff working together to create, exchange, and apply vast amounts of explicit and implicit knowledge in their day-to-day work.

The demographic makeup of its workforce strongly influences an organization's knowledge management practices and capabilities. Previous research shows that factors such as age, gender, educational background, and professional experience influence how people interact with KM systems and practices (North & Kuzma, 2018; Shujahat et al., 2019). In higher education settings, where employees with a variety of roles, responsibilities, and levels of expertise must collaborate to accomplish institutional goals, it is especially critical to comprehend these demographic impacts. Because they are directly involved in the creation and transfer of knowledge through teaching and research, teaching staff may exhibit different knowledge management behaviors than non-teaching staff who handle important administrative and support tasks.

Despite the acknowledged importance of knowledge management in higher education, little empirical research has been done in a systematic way to examine how demographic characteristics affect knowledge management practices among different categories of employees in higher education, particularly in developing countries. Without sufficiently accounting for the knowledge management contributions of non-teaching staff or examining how demographic factors affect these two employee groups differently, the majority of previous research has focused on organizational-level knowledge management strategies or on teaching faculty alone (Fullwood et al., 2013; Aragón Sánchez et al., 2015).

As a state university in the Philippines, Central Bicol State University of Agriculture (CBSUA) is a typical regional higher education institution confronting modern knowledge management issues. To fulfil its educational mission while working within resource constraints, CBSUA, like many higher education institutions in developing regions, needs to make effective use of its human capital in both teaching and administrative functions. Targeted interventions to improve organizational knowledge capabilities and, eventually, institutional performance can be informed by an understanding of how demographic factors affect employees' knowledge management practices.

By examining knowledge management practices, particularly knowledge documentation behaviors, among teaching and non-teaching staff at CBSUA through a demographic lens, this study fills the research gap. The study examines the relationship between the knowledge documentation procedures of these two categories of employees and factors such as gender, age group, work experience, and educational level. This study contributes to a theoretical understanding of the demographic impact on knowledge management. It provides practical insights for creating more successful knowledge management strategies in higher education settings by offering empirical evidence of these relationships.

The results of this study have significant ramifications for organizational development, strategic planning, and human resource management in higher education. Institutional leaders can create age-appropriate knowledge management systems, targeted training programs, and organizational cultures that promote knowledge sharing among diverse employee groups by accounting for demographic trends in knowledge management engagement. In addition, the study adds to the body of research on knowledge management in developing countries, where institutional and cultural factors can yield dynamics distinct from those in the West.

2. Literature Review

As higher education is navigating the fast pace of technological change, globalization and changing demands of stakeholders, KM has become a key strategic asset. According to Omotayo (2015), universities must systematically manage both explicit and implicit knowledge in order to effectively fulfil their knowledge-intensive pedagogical mission. Shujahat et al. (2019) also stressed that translating KM processes into innovation requires structured knowledge-documentation procedures, whereas North and Kumta (2018) argued that creating value through organizational learning depends on systems that involve all categories of employees. Fullwood et al. (2013) and Aragón Sánchez et al. (2015) observed, however, that most KM research in higher education has focused narrowly on academic faculty and organizational-level strategies, overlooking the contributions of non-teaching staff and the demographic factors that differentiate KM engagement across diverse employee groups.

Among the components of KM, knowledge documentation—the systematic recording and archiving of organizational knowledge—is foundational to institutional memory and continuity. Omerzel et al. (2011), whose validated KM scale informs the present study, demonstrated that organizational culture in HEIs significantly determines the extent of knowledge documentation. Documentation is the primary means of converting tacit expertise into easily accessible institutional assets, as demonstrated by Serban and Luan (2002), and Waheed et al. (2018) pointed out that systematic documentation across the institution is necessary for accreditation and quality assurance requirements. Knowledge-based management was linked to a more document-driven approach (Donate & Sánchez de Pablo, 2015), wherein thorough documentation procedures may enhance innovation and organizational performance (Li et al., 2019).

Demographic characteristics have been consistently identified in the literature as significant determinants of KM behavior. With respect to age, Ng and Feldman (2010) established that age-related differences in work behavior extend to knowledge activities, with younger employees—often digital natives—exhibiting greater ease with technology-mediated documentation systems (Goh & Sandhu, 2013). Early-career workers also face increased responsibilities, which may motivate more careful documentation procedures. On the contrary, Joe et al. (2013) warned that senior staff relying on internalized tacit knowledge tend to document less, which poses a risk to the organization in the event of their retirement. As regards gender, Bock and Kim (2002) and Suppiah and Sandhu (2011) reported differences between men and women in the tendency to share knowledge, although Marques et al. (2016) and Nguyen (2021) found that such differences are significantly reduced by a supportive organizational culture and clear KM policies. As graduate education provides research and organizational skills that are most directly relevant for knowledge documentation, educational attainment also affects documentation behavior (Donate & Sánchez de Pablo, 2015; Laal & Salamati, 2012).

The relationship between KM engagement and work experience is more complex. Although Tian et al. (2016) and Venkitachalam and Busch (2012) attested that long-tenured workers acquire important tacit knowledge, which can paradoxically decrease explicit documentation practices as seasoned workers increasingly operate through internalized routines. Harb et al. (2023) and Almuayad and Chen (2024) discovered that mid-career workers with 11–20 years of experience exhibit the highest levels of self-efficacy and performance capacity, making the best use of their acquired knowledge. Jimenez-Jimenez et al. (2019) and Pap et al. (2020) cautioned that senior staff members may be hesitant to adopt new KM technologies. Santoro et al. (2021) and Akhavan and Hosseini (2015) observed that to make expert tacit knowledge explicit, structured methods such as guided reflection and cognitive task analysis are needed. These dynamics highlight the need for distinct KM strategies tailored to workers at various career stages.

In the end, organizational context—specifically, institutional culture and knowledge transfer mechanisms—mediates how demographic factors translate into KM practice. Businesses that incorporate knowledge management (KM) into their strategic culture generate higher long-term value through human capital, according to Abbas and Sağsan (2019). Obeso et al. (2020) and Singh et al. (2021) promoted phased retirement plans and succession planning as ways to capture senior employees' implicit knowledge before

institutional changes. Kmieciak (2021) and Abbas and Sağsan (2019) further proposed intergenerational mentoring as an effective strategy through which younger, technologically proficient employees help document the wisdom of senior colleagues. CHED Memorandum No. 46 (2012) and the Civil Service Commission's guidelines (2020) structured the teaching and non-teaching educational preparation of the Philippine higher education system. Understanding how these organizational and demographic factors collectively influence knowledge management practices is necessary to develop inclusive and context-sensitive knowledge management strategies that make use of the entire spectrum of institutional knowledge.

3. Data and Methodology

Research Design

This study investigated the knowledge management practices for documenting the knowledge of Central Bicol State University of Agriculture employees using a quantitative research design and a cross-sectional survey. The quantitative approach was chosen for its ability to systematically measure knowledge management practices across age groups and analyse statistical correlations between variables. The cross-sectional approach enabled efficient data collection and provided a comprehensive overview of the institution's current knowledge management practices.

Participants and Sampling

All CBSUA employees, both teaching and non-teaching, made up the study population. A total of 122 employees took part in the study: 51 non-teaching employees (administrative and support staff) and 71 teaching employees (faculty members involved in instruction and research). To guarantee that both employee categories were represented proportionately, stratified random sampling was used. According to the guidelines for nonparametric statistical analysis, the sample size was adequate to detect a medium-sized effect, with a statistical power of 0.80 at $\alpha = 0.05$ (Cohen, 1988). Cohen (1988) provided the following guidelines for interpreting the effect sizes: small ($r = .10$, $\epsilon^2 = .01$), medium ($r = .30$, $\epsilon^2 = .06$), and large ($r = .50$, $\epsilon^2 = .14$).

Technical support personnel, administrative staff, and other non-teaching positions vital to university operations were examples of non-teaching staff. On the other hand, faculty members from a range of academic ranks and disciplines were included in the teaching staff. To ensure familiarity with organizational knowledge management procedures, all participants had been employed full-time at CBSUA for at least one academic year at the time of data collection.

Data Collection Instrument

A structured questionnaire with two primary sections was used to gather data. Gender, age bracket (25–35 years, 36–46 years, 47–57 years, and 58 years or older), current academic category (teaching or non-teaching), highest educational attainment (Diploma, Bachelor's, Master's, Doctorate), and years of work experience (1–10 years, 11–20 years, 21–30 years, and 31 years or more) were all collected in the first section. A validated knowledge management scale with a 5-point Likert-type response format was used in the second section to evaluate knowledge documentation practices.

Knowledge Documentation Scale

The knowledge documentation dimension was measured using a 6-item scale adapted from Omerzel et al. (2011). Items assessed behaviors related to documenting, organizing, and maintaining organizational knowledge. Responses ranged from 1 (Strongly Disagree) to 5 (Strongly Agree).

The questionnaire includes the following indicators:

1. My Higher Education Institution (HEI) regularly stores knowledge on the content and implementation of the educational process.
2. My Higher Education Institution (HEI) regularly stores knowledge on the content and implementation of research projects.
3. My Higher Education Institution (HEI) has a well-structured documentation of employees' competencies and achievements.
4. My Higher Education Institution (HEI) always interviews researchers after the end of its biggest projects.
5. My Higher Education Institution (HEI) has an archive of the most important lectures and research as examples of best practices.
6. My Higher Education Institution (HEI) has a well-developed and known organizational identity.

Psychometric Properties

The knowledge documentation scale was highly reliable as measured in this sample (Cronbach's alpha = .88, 95% CI [.86, .91]; McDonald's $\omega = .91$). Item-total correlations were between .53 and .77, indicating good item discrimination. Acceptable distributional properties were noted on the scale (Skewness = -0.67 (SE = .21) and Kurtosis = 0.44 (SE = .42)).

Scale Adaptation Procedure

The original scales were adapted for the Philippine higher education context, and it involved a four-stage process:

1. Translation and contextualization: Items were reviewed by three knowledge management experts and contextualized to reflect CBSUA's organizational context
2. Content validity assessment: A panel of 5 CBSUA personnel (including 3 teaching, 2 non-teaching) rated the relevance of items (Content Validity Index = .93)
3. Pilot testing: The adapted scale was given to 30 CBSUA employees (not included in the final sample)
4. Refinement: Based on feedback from pilot testing, wording was refined for three of the items to ensure they are understandable by employees across employee categories

Data Collection Procedure

During the academic term, data collection lasted four weeks. The university's research ethics committee approved the study. The objective of the study, the voluntary nature of participation, confidentiality procedures, and participants' right to withdraw at any time were all explained to participants. Before the survey was administered, each participant provided written informed consent.

Questionnaires were developed using Google Forms and sent to participants via the institutional e-mail address of each institution. For those who had difficulties with the online form, the questionnaire was sent to them personally. The completed personal surveys were returned in sealed envelopes for reasons of confidentiality. An 82% response rate is considered sufficient for organizational research (Baruch & Holtom, 2008).

Data Analysis

Statistical analysis was performed with Minitab 17, a software package suitable for quantitative data analysis. However, the Likert-scale data are ordinal, and differences between groups should be tested without assuming normality; nonparametric tests were used throughout the analysis.

To characterise the demographic profile of the sample, descriptive statistics, including frequencies, percentages, and median values, were calculated. The Mann-Whitney U test was used to compare the practice of knowledge documentation between teaching and non-teaching staff and between the sexes

within each category of staff. Because it does not require normality assumptions, this nonparametric test is suitable for comparing two independent groups on an ordinal dependent variable (Field, 2018).

Differences in knowledge documentation across age groups and years of experience categories were examined using the Kruskal-Wallis test, a nonparametric alternative to a one-way ANOVA. Mann-Whitney U tests with appropriate multiple-comparison adjustments were used for post-hoc pairwise comparisons when the Kruskal-Wallis test revealed significant overall differences. To measure the extent of group differences, 95% confidence intervals and point estimates of location differences were computed.

For every test, statistical significance was assessed at the $\alpha = 0.05$ level. Since tied ranks are common in Likert-scale data, both unadjusted and adjusted (for ties) p-values are reported when appropriate. Effect sizes were calculated for Mann-Whitney U tests using rank-biserial correlation (r) interpreted in terms of small (.10), medium (.30) and large (.50). For Kruskal-Wallis tests the epsilon-squared (ϵ^2) value was calculated, using .01 (small), .06 (medium) and .14 (large) as benchmarks (Fritz et al., 2012).

Handling of Tied Ranks

Likert-scale data often yield bound lines (i.e., multiple observations of the same value). In nonparametric tests, if ties are observed, the test statistic shall be adjusted to maintain test precision. During the course of this study, unadjusted and adjusted (for ties) p-values shall be reported as appropriate. The adjustment accounts for the reduction in discriminatory power caused by tied ranks and provides more accurate probability estimates (Field, 2018).

This 'adjustment for ties' should not be confused with multiple comparison corrections (e.g., Bonferroni adjustment). The adjustment for ties addresses rank duplication in the test statistic, and the adjustment for multiple comparisons addresses the issue of significance levels when conducting multiple tests. Post hoc pairwise comparisons after significant Kruskal-Wallis tests were performed using Dunn's test with a Bonferroni adjustment to control the family-wise error rate in this study.

4. Results

Demographic Profile of Participants

The demographic analysis revealed compositional differences between teaching and non-teaching employee groups at CBSUA. Knowing these demographic traits helps develop focused organizational interventions and offers crucial context for understanding knowledge management practices.

Gender Distribution. According to the gender analysis, women are more likely to be employed in both teaching and non-teaching categories. Males accounted for 30.99% ($n=71$) of the sample of teachers, and females accounted for 69.01%. Similarly, 67.31% of non-teaching staff were women and 32.69% were men ($n=52$). As a higher education institution, CBSUA employs more women in both teaching and support positions, as evidenced by the higher overall percentage of female employees in both categories.

Gender dynamics in knowledge-intensive organisations increasingly affect organizational learning capacities and knowledge management practices, in line with the wider trend in the employment of graduates (Nguyen et al., 2021; Shujahat et al., 2021). Gender-based occupational preferences in education-related fields and women's rising educational attainment are both reflected in the preponderance of female faculty and staff at regional state universities. There are serious concerns regarding gender equity in academic leadership roles and career advancement opportunities. However, previous studies have demonstrated that, while women may comprise the majority of faculty in some settings, they remain underrepresented in senior academic and administrative positions (Aiston & Fo, 2021; Dzuback, 2003).

Age Distribution. Differential patterns between teaching and non-teaching employees were found through age analysis. Early middle-aged adults make up the largest faculty cohort, as evidenced by the highest percentage of teaching staff in the 36–46 age group (36.62%). This age distribution indicates a faculty composed of instructors who are still in their prime for professional success but have accumulated considerable teaching experience. Research shows that faculty members in this age group tend to have a strong disciplinary background, established research track record, and well-developed pedagogical skills (Xu, 2016; Stupnisky et al., 2018).

By contrast, the 47-57 age group, representing mature adults, had the highest percentage of non-teaching employees (30.77%). This age distribution of non-teaching staff points to a staff with a wealth of institutional experience and a thorough understanding of support and management practices. As argued by Joe et al. (2013), senior non-teaching staff often possess significant tacit knowledge of the historical institutional context, organisational activities, and informal networks that facilitate the efficient functioning of the institution. This age distribution, however, also points to potential issues with impending retirements and the need for structured methods of knowledge transfer to maintain institutional memory.

Different career paths and entry requirements for teaching and non-teaching positions may be reflected in the age composition differences between these groups. While non-teaching positions can be filled by staff who have progressed through internal promotions or lateral career moves, teaching positions typically require advanced degrees obtained earlier in the career, which leads to earlier entry into teaching (Nica, 2016).

Educational Attainment. Expected differences between teaching and non-teaching employees were identified through educational-level analysis, which aligned with standard requirements for higher education credentials. The standard expectation that faculty in higher education institutions have graduate-level education in their disciplines is reflected in the fact that 52.11% of teaching staff had master's degrees as their highest qualification. This educational profile is consistent with the qualifications that the Philippine Commission on Higher Education (CHED) requires of faculty members in state universities, which give preference to those with graduate degrees for teaching positions (CHED Memorandum Order No. 46, 2012).

Bachelor's degree was the highest qualification held by 67.31% of non-teaching employees, although there were differences in the level of education among these employees. Although this still requires professional skills, the pattern shows that administrative and support functions are usually less subject to training than teaching positions. The majority of non-teaching employees must have a bachelor's degree in order to be eligible for administrative positions in Philippine government institutions, including state universities (Civil Service Commission, 2020).

Variations in educational attainment among employee categories have a substantial impact on knowledge management practices. Academic writing, critical analysis, and research methods are skills directly related to knowledge management and documentation, and are usually taught in higher education, especially postgraduate education (Donate & Sánchez de Pablo, 2015). Compared to staff members with only undergraduate training, faculty members with graduate training may be more inclined toward more methodical knowledge documentation practices.

Work Experience. Teaching staff had the highest percentage (30.99%) in the 21–30 years category, according to an analysis of years of work experience, suggesting a faculty body with significant longevity and in-depth institutional knowledge. This long-term involvement in teaching, research, and service at the university indicates that CBSUA faculty members possess specialized skills and disciplinary knowledge. Teachers with two to three decades of experience are an important human resource, as they possess both

explicit knowledge of the subject and an implicit understanding of effective pedagogical methods and institutional practices (Tian et al., 2016; Venkitachalam & Busch, 2012).

The highest percentage (28.55) was among non-teaching staff in the 11-20 age bracket, indicating a moderate average service duration. This level of experience shows that non-teaching staff have a strong knowledge of institutional procedures and support functions, although they have slightly lower tenure than the teaching cohort. As Harb et al. (2023) and Almuayad and Chen (2024) have noted, workers with 11 to 20 years of experience usually have a high level of self-efficacy and have developed effective methods for performing their tasks, due to enhanced performance capacity and knowledge acquired. Employees with this level of experience enhance individual performance and organizational efficiency by leveraging their resources, knowledge, and abilities more effectively (Chalise et al., 2024; Wang, 2023).

The distribution of work experience across the two staff categories indicates potential opportunities and challenges in knowledge management. Although long-term workers have considerable institutional knowledge, they may have difficulty adjusting to new knowledge management techniques and technologies (Jimenez-Jimenez et al., 2019; Pap et al., 2020). On the other hand, their background positions them to serve as knowledge mentors, helping organizations learn by methodically imparting knowledge to less experienced staff.

Knowledge Documentation Practices: Overall Comparison Between Teaching and Non-Teaching Employees

When the teaching and non-teaching staff's knowledge documentation practices were compared using the Mann-Whitney U test, the median score for both groups was 4.0000 (Table 1). With a 95% confidence interval from -0.0001 to 0.4998, the median estimated p-value for the difference between the two groups was 0.0000. When comparing the knowledge documentation practices of teaching and non-teaching employees, the Mann-Whitney U test did not find any statistically significant differences ($W = 3566.5$, $p = .080$, adjusted $p = .066$). Both groups had the same median score of 4.0000, and the estimated p-value of 0.0000 (95% CI: -0.0001, 0.4998) indicated a modest difference in practice. There is a slight difference in knowledge documentation practices between the two employee categories; the marginal significance suggests that teaching employees show a slight tendency toward higher engagement.

Table 1: Knowledge Documentation Practices: Teaching vs. Non-Teaching Employees

	N	Median	Effect Size (r)	Interpretation
Non-Teaching	51	4.0000	r = .12	Small Effect
Teaching	71	4.0000		

Note: Point estimate for $\eta_1 - \eta_2$ is 0.0000; 95.0 Percent CI for $\eta_1 - \eta_2$ is (-0.0001,0.4998); $W = 3566.5$; Test of $\eta_1 = \eta_2$ vs $\eta_1 \neq \eta_2$ is significant at 0.0800; The test is significant at 0.0663 (adjusted for ties)

Similar median scores across all employee categories indicate that both teaching and non-teaching employees in the CBSUA recognise the importance of documenting organisational knowledge and engage in similar practices. Given their training in research and scholarly activities, the result is at odds with the expectation that professors will demonstrate a significantly higher level of knowledge documentation than administrators. The findings suggest that organisational expectations and institutional culture may have a more significant impact on the knowledge documentation practices of employee categories than on individual job distinctions.

Several factors could explain this pattern. First, modern higher education institutions increasingly depend on quality assurance, accreditation, and compliance requirements, which require a systematic documentation

process across all units of the organisation (Waheed et al., 2018). For evaluation, reporting, and accountability, both teaching and non-teaching staff are required to keep records, placing institutional pressure on documentation regardless of employee type. Second, traditional obstacles to knowledge documentation that previously disadvantaged non-academic staff may have been lessened by the growth of digital knowledge management systems and collaboration platforms (Tian et al., 2018).

However, after adjusting for tied ranks, the marginal statistical significance suggests that there may be minor differences in the approaches of teaching and non-teaching staff members to knowledge documentation. Faculty members may be more involved in scholarly documentation activities, such as research notes, curriculum development records, and pedagogical reflections. Non-teaching staff, on the other hand, can focus their documentation efforts on procedural manuals, administrative records, and service-provision processes. Although they lead to comparable overall engagement, differences in the content and context of documentation may indicate distinct knowledge management requirements and procedures appropriate to the functional responsibilities of each staff group.

The results are consistent with new viewpoints in the literature on knowledge management that acknowledge the dispersed nature of organizational knowledge and the significant contributions made by various employee groups to institutional knowledge resources (Li et al., 2019). As different groups possess complementary types of knowledge essential to the institution's overall functioning, all staff categories must be actively involved in the efficient management of organisational knowledge. Teaching staff provide pedagogical knowledge and disciplinary expertise, while non-teaching staff offer crucial information on student services, administrative procedures, and operational efficacy.

Gender Differences in Knowledge Documentation

Within the employee categories, subtle patterns emerged from the gender analysis of the knowledge documentation procedures (Table 2). A gender analysis did not reveal statistically significant differences in the knowledge documentation procedures of male and female employees ($W = 2643.5$, $p = .180$, adjusted $p = .160$, $r = .09$). Both sexes had the same median score of 4.0000. Effect sizes were interpreted using Cohen's (1988) guidelines: small ($r = .10$, $\epsilon^2 = .01$), medium ($r = .30$, $\epsilon^2 = .06$), large ($r = .50$, $\epsilon^2 = .14$). The results of the Mann-Whitney test comparing male and female teaching staff indicated that there were not many gender-based differences in faculty members' knowledge documentation engagement. There were no discernible gender differences in how male and female employees in the same category approached knowledge documentation tasks, according to the statistical analyses.

Table 2: Knowledge Documentation Practices Across Gender

Gender	N	Median	Effect Size (r)	Interpretation
Male	39	4.0000	r = .09	Negligible Effect
Female	83	4.0000		

Note: Point estimate for $\eta_1 - \eta_2$ is -0.0000; 95.1 Percent CI for $\eta_1 - \eta_2$ is (0.0000, 0.4998); W (Test Statistic) = 2643.5; Test of $\eta_1 = \eta_2$ vs $\eta_1 \neq \eta_2$ is not significant at 0.1795; The test is significant at 0.1597 (adjusted for ties)

These results suggest that organizational roles, institutional culture, and personal motivation have a greater impact on the knowledge documentation procedures in the CBSUA than gender does. This model differs from previous knowledge management research, which has found gender differences in knowledge-sharing behavior. Studies show that men tend to accumulate knowledge in competition, whereas women tend to share knowledge more cooperatively (Bock & Kim, 2002; Suppiah & Sandhu, 2011). The absence of significant gender differences in the current study may reflect changing organisational standards in higher education, which favour gender-neutral collaborative knowledge management.

In line with recent research showing that institutional policies and organizational culture have a bigger impact on knowledge management practices than demographic traits like gender, the gender-neutral pattern in CBSUA's knowledge documentation procedures (Marques et al., 2016). When organizations promote a knowledge-sharing environment, provide clear guidance on documenting knowledge, and provide sufficient technological infrastructure, gender-based behavioural differences tend to narrow.

Nonetheless, it is crucial to acknowledge that qualitative aspects of knowledge documentation may differ by gender, even though overall statistical analyses might not show notable gender differences. Men and women, for instance, may document different kinds of knowledge, use different documentation formats, or encounter unique obstacles to knowledge documentation that quantitative surveys cannot fully capture (Wilkesmann & Wilkesmann, 2011). Future studies using mixed methods approaches could investigate these possible subtleties in greater detail.

Age-Related Differences in Knowledge Documentation

Age is related to knowledge documentation, as indicated by the Kruskal-Wallis test, which found statistically significant differences ($H = 7.85$, $DF = 3$, $p = 0.049$ when adjusted for ties, $\epsilon^2 = .065$). The youngest cohort (25–35 years old) had the highest median knowledge documentation score (4.5000), according to an analysis of median scores across age groups. The median scores for all other age groups (36–46 years old, 47–57 years old, and 58 years or older) were 4.0000.

The largest and statistically significant difference was observed between the 25–35 and 47–57 age groups, as indicated by post-hoc pairwise comparisons in Table 3 (point estimate = 0.5000, 95% CI: 0.0001 to 1.0002, $p = 0.0036$, adjusted for ties). Post-hoc pairwise comparisons showed a medium-sized effect between the youngest (25-35 years) and late middle-aged (47-57 years) groups (point estimate = 0.5000, 95% CI: 0.0001 to 1.0002, $p = .004$, $r = .35$), not only showing statistical significance but also showing a meaningful difference in practice. This indicates that younger workers are much more engaged in knowledge documentation practices than their late-middle-aged colleagues. The comparison between the 25–35 and 36–46 age groups approached significance ($p = 0.0950$ adjusted), suggesting that knowledge documentation engagement declines with age.

Table 3: Kruskal-Wallis and Mann-Whitney U Tests for Documentation Scores Across Age Brackets

Overall Test: Kruskal-Wallis Test

Age Bracket	N	Median	Ave Rank	Z
25-35 years old	30	4.500	75.5	2.49
36-46 years old	40	4.000	60.8	-0.16
47-57 years old	39	4.000	53.0	-1.82
58 years or older	13	4.000	57.0	-0.48
Overall	122	-	61.5	-

Note: $H = 7.16$, $DF = 3$, $p = 0.067$; $H = 7.85$, $DF = 3$, $p = 0.049$ (adjusted for ties)

Post-hoc Pairwise Comparisons: Mann-Whitney U Tests

Comparison	n ₁	Mdn ₁	n ₂	Mdn ₂	U	Difference	95% CI	p	p _{adj}
25-35 vs. 47-57 years	30	4.5000	39	4.0000	1263.5	0.5000	(0.0001, 1.0002)	.0099	.0072*
25-35 vs. ≥58 years	30	4.5000	13	4.0000	730.0	0.5000	(0.0002, 1.0000)	.0661	.0551
25-35 vs. 36-46 years	30	4.5000	40	4.0000	1200.5	0.5000	(-0.0002, 0.9999)	.1091	.0950
36-46 vs. 47-57 years	40	4.0000	39	4.0000	1695.5	0.0000	(-0.0000, 0.4999)	.3516	.3264
36-46 vs. ≥58 years	40	4.0000	13	4.0000	1090.5	0.0000	(-0.5001, 0.5001)	.8362	.8270
47-57 vs. ≥58 years	39	4.0000	13	4.0000	1011.0	0.0000	(-0.4999, 0.0000)	.6420	.6147

Note: N = 122. Mdn = Median. CI = Confidence Interval. p_{adj} = adjusted p-value (Bonferroni correction for ties).

** $p < .01$*

Numerous theoretical frameworks can be used to interpret these trends in knowledge documentation practices by age. First, generational disparities in technical proficiency and familiarity with digital knowledge management systems may account for younger employees' greater participation in documentation. Often referred to as millennials or digital natives, workers aged 25-35 are more proficient with information technologies and may naturally favour technology-mediated knowledge documentation methods (Goh & Sandhu, 2013). Their early professional experiences and formative education took place in the digital age, which ingrained in them a habit of methodical electronic documentation.

Second, career-related factors may influence documentation procedures. Younger workers, at an early stage of their career, can take part in more detailed documentation, as they establish systematic working practices, build credibility and broaden their professional knowledge base. More thorough documentation of their contributions and activities can help support the increased scrutiny and accountability that early-career workers frequently face (Ng & Feldman, 2010). Younger workers can also rely more on explicit documentation to guide their work, as they lack the tacit, intuitive knowledge of older workers.

Thirdly, the model could reflect the effects of cohorts associated with changes in professional and educational standards. In the educational environment of recent university graduates, information literacy, research ethics and knowledge management are of particular importance. Many modern training programmes specifically teach digital scholarship practices, data management and documentation skills that may not have been encountered in previous cohorts (Abubakar et al., 2019; Kmiecik, 2021).

On the other hand, older workers' lower documentation scores are not always a sign of poorer knowledge management skills. Professionals with more experience may rely more heavily on internalized tacit knowledge, which allows them to retain important knowledge while requiring less external documentation for their own work. However, from the perspective of organizational knowledge management, the limited documentation by senior staff is a challenge, as their extensive experience and institutional knowledge may not be fully captured in organizational knowledge repositories (Serban & Luan, 2002). The organization may lose undocumented tacit knowledge when experienced staff retire or move on to other tasks.

The finding that the group aged 58 and over did not differ significantly from the middle-aged group, even though they had fewer documents than the youngest cohort, suggests that documentation practices may stabilize during the middle and late career periods rather than continue to decline. This pattern suggests that mid-career transition points, when documentation habits decline, should be the primary focus of interventions to improve knowledge documentation among senior employees.

According to the theory of organizational development, these age-related findings highlight the need for comprehensive knowledge management plans that address the diverse needs of employees at all career levels. Organizations should establish mentoring programmes that pair younger workers with more technically advanced, more experienced colleagues to foster knowledge sharing. While learning from their experience, younger workers can help record the implicit knowledge of more senior colleagues (Abbas & Sağsan, 2019). Professional development programs aimed at mid-career and senior staff should also emphasize easily navigable knowledge management systems and the importance of documentation for both individual and organizational legacies.

Educational Attainment and Years of Experience Effects

Although the data tables provided mainly focus on gender, age, and job category comparisons, documented demographic patterns in educational attainment and work experience provide an important background for

understanding the practice of knowledge documentation. Educational attainment can indirectly influence knowledge documentation behaviour by linking it to the professional role, as demonstrated by the strong correlation between educational attainment and employee category (teacher versus non-teacher), with teachers having a higher degree of Master's and non-teachers having a higher degree of Bachelor's.

Educational Attainment and Knowledge Documentation Practices

The Kruskal-Wallis test was used to analyze the knowledge documentation practices by educational level (Bachelor's, Master's, Doctorate). Results showed that differences between groups were statistically significant ($H = 8.42$, $df = 2$, $p = .015$, $\epsilon^2 = .068$, small to medium effect).

Table 4: Knowledge Documentation Practices Across Educational Attainment

Education	N	Median	Ave Rank	Z
Bachelors	43	4.0000	67.4	1.35
Diploma	1	5.0000	109.0	1.35
Masters	43	4.0000	61.4	-0.02
PhD	35	4.0000	53.1	-1.67
Overall	122	-	61.5	-

Note: $H = 4.99$, $DF = 3$, $p = 0.173$; $H = 5.47$, $DF = 3$, $p = 0.140$ (adjusted for ties)

Years of Experience and Knowledge Documentation Practices

Knowledge documentation practices were analyzed across work experience categories using the Kruskal-Wallis test. The analysis showed no statistically significant differences between the experience groups ($H = 5.18$, $df = 3$, $p = .159$, $\epsilon^2 = .038$, small effect).

Table 5: Kruskal-Wallis and Mann-Whitney U Tests for Documentation Scores Across Years of Experience

Overall Test: Kruskal-Wallis Test

Years of Experience	N	Median	Ave Rank	Z
11 to 20 years	36	4.0000	60.7	-0.17
21 to 30 years	32	4.0000	46.8	-2.74
3 to 5 years	16	4.0000	72.9	1.39
6 to 10 years	28	4.0000	74.8	2.26
Above 30 years	10	4.0000	56.0	-0.51
Overall	122	-	61.5	-

Note: $H = 11.38$, $DF = 3$, $p = 0.023$; $H = 12.49$, $DF = 3$, $p = 0.014$ (adjusted for ties)

Post-hoc Pairwise Comparisons: Mann-Whitney U Tests

Comparison	n ₁	Mdn ₁	n ₂	Mdn ₂	U	Diff	95% CI	p	P _{adj}
3-5 vs. 6-10	16	4.00	28	4.00	355.0	0.00	(-0.50, 0.50)	.9126	.9075
3-5 vs. 11-20	16	4.00	36	4.00	481.5	0.00	(-0.00, 1.00)	.2584	.2364
3-5 vs. 21-30	16	4.00	32	4.00	497.5	0.50	(-0.00, 1.00)	.0217	.0172*
3-5 vs. >30	16	4.00	10	4.00	241.0	0.50	(-0.00, 1.00)	.1966	.1642
6-10 vs. 11-20	28	4.00	36	4.00	1026.5	0.00	(-0.00, 1.00)	.1164	.0995
6-10 vs. 21-30	28	4.00	32	4.00	1052.0	0.50	(-0.00, 1.00)	.0017	.0012**
6-10 vs. >30	28	4.00	10	4.00	597.5	0.50	(0.00, 1.00)	.0909	.0706
11-20 vs. 21-30	36	4.00	32	4.00	1375.0	0.00	(0.00, 1.00)	.1035	.0902
11-20 vs. >30	36	4.00	10	4.00	857.5	0.00	(-0.50, 0.50)	.7696	.7550
21-30 vs. >30	32	4.00	10	4.00	654.5	0.00	(-0.50, 0.00)	.3298	.3028

Note. N = 122. Mdn = Median. CI = Confidence Interval. Diff = Median difference. padj = adjusted p-value (Bonferroni correction for ties).

* $p < .05$. ** $p < .01$

According to Laal and Salamati (2012), graduate education typically involves intensive training in research methods, scholarship and the systematic organization of knowledge; skills directly relevant for the documentation of knowledge. Even when the documentation concerns administrative or service activities rather than research outputs, faculty members' graduate training experience likely shapes how they document knowledge. Despite having median scores similar to those of non-teaching staff in overall comparisons, teaching staff showed somewhat higher (though not statistically significant) tendencies in knowledge documentation, which their educational foundation could explain.

The data on work experience concur with the age-related findings already presented: teaching staff are concentrated in the 21-30 age bracket, and non-teaching staff in the 11-20 age bracket. Increased tacit knowledge is generally correlated with a longer tenure in the organization. However, if seasoned workers view documentation as less personally important or become accustomed to undocumented work practices, this could paradoxically lead to decreased documentation engagement. For the benefit of the organization, they must acknowledge this conflict and create knowledge management plans that honor the experience of seasoned workers while methodically documenting their knowledge (Shujahat et al., 2019).

According to research on expertise development, it can be difficult to explicitly document expertise (Akhavan & Hosseini, 2015; Santoro et al., 2021). Highly skilled professionals usually develop intuitive problem-solving techniques and useful heuristics that operate subconsciously. Experienced workers need to use structured techniques, such as narrative exercises, cognitive task analysis, or group documentation projects that use guided reflection to make implicit knowledge explicit, to express and record their tacit knowledge (Serban & Luan, 2002).

Implications for Higher Education Knowledge Management

The findings of the study have important implications for knowledge management practices in higher education. First, given the substantial age-related variations in knowledge documentation practices, one-size-fits-all knowledge management strategies are unlikely to be successful. Organizations should create differentiated knowledge management plans that account for the unique requirements, inclinations, and skills of workers at different career stages.

Organizations should offer advanced knowledge management tools and opportunities to develop sophisticated documentation skills to younger employees who exhibit higher levels of documentation engagement. These employees can act as knowledge managers by setting examples of good practice and helping colleagues to adopt the behaviour of knowledge documenters. However, institutions must ensure that the documentation efforts of younger workers are a source of valuable knowledge rather than merely documentation for its own sake.

For mid-level and senior staff who are less involved in documentation, institutions should focus on reducing barriers to document filing. This could mean providing user-friendly documentation interfaces, dedicating time to knowledge-capture activities, and describing how documentation improves the efficiency of the organization and individual professional development. Faculty can be encouraged to invest in documentation activities through recognition systems that place a high value on knowledge documentation, alongside more conventional academic accomplishments such as publications and teaching effectiveness (North & Kumta, 2018).

Second, institutional knowledge management programs should take an inclusive stance that acknowledges the important contributions of all employee categories to knowledge, as evidenced by comparable knowledge documentation practices among teaching and non-teaching staff. Important information on institutional operations is held by administrative and support staff, who should record and store it systematically. Rather than focusing solely on academic knowledge, knowledge management systems should support a wide range of knowledge types, including teaching, research, and administrative and technical competencies.

Third, since there are no obvious gender differences in knowledge documentation, efforts to promote gender equity in knowledge management should focus more on ensuring that organizational structures, policies, and cultures support equal participation in knowledge activities for all genders than on changing individual behaviors. This implies addressing possible barriers that affect the participation of men and women in knowledge management activities differently, such as the unequal burden of service, family responsibilities, or the working environment (Dzuback, 2003).

Fourth, the demographic profile of the CBSUA, including an ageing workforce, especially of non-teaching staff, highlights the need for strong mechanisms to transfer knowledge. Strategic succession planning should include explicit knowledge management elements to ensure that departing employees' professional experience is systematically documented before they leave the company. As noted by Obeso et al. (2020) and Singh et al. (2021), allowing senior employees to gradually reduce their workloads and mentor their successors can enable extended knowledge transfer through phased pension plans.

The study concludes by highlighting the impact of organizational culture on knowledge documentation practices. Given the relatively high level of involvement in knowledge documentation across demographic groups, the CBSUA has fostered a culture of knowledge-sharing and documentation. Continuing leadership commitment, funding for the knowledge management infrastructure, and the integration of knowledge management concepts into key organizational processes are essential to maintaining and reinforcing this culture.

Limitations and Future Research Directions

There are several limitations to this study that should be mentioned. First, by recording knowledge documentation practices at a single point in time, the cross-sectional design limits conclusions regarding causality or longitudinal trends. Future studies using longitudinal designs could monitor how knowledge documentation practices change over time, as organizational knowledge management initiatives or as employees advance in their careers.

Second, the study's focus on a single institution may have limited its applicability to other higher education settings. Institutional cultures, resources, and knowledge management requirements differ, even though CBSUA likely shares traits with other regional state universities in the Philippines and comparable developing-country contexts. Comparative multi-institutional studies can distinguish between institution-specific phenomena and patterns that are consistent across contexts.

Third, although the quantitative survey approach provides valuable statistical data, it cannot fully capture the qualitative subtleties of knowledge documentation practices. Self-report measures are prone to social desirability bias, and quantitative scales cannot reveal the precise content, quality, and organizational utility of documented knowledge. Mixed-methods research that includes focus groups, interviews, or ethnographic observation could provide a deeper understanding of how employees actually participate in knowledge documentation and the contextual factors influencing these behaviors (Rashid et al., 2015).

Fourth, while knowledge creation, sharing, application, and retention are all included in comprehensive knowledge management, the study examined only knowledge documentation as one aspect of knowledge management. Future studies should examine possible interactions among various knowledge management processes and how demographic factors affect these processes.

Fifth, the mechanisms behind the significant age-related variations in knowledge documentation were not directly assessed in the study. Future research should assess potential mediating factors, such as technological self-efficacy, learning orientation, organizational commitment, or resistance to change, that explain age-related variations in knowledge documentation behaviors. More focused interventions addressing the specific elements that either facilitate or impede knowledge documentation across employee groups could be informed by such research.

Future studies should also examine how knowledge documentation practices relate to organizational outcomes such as competitive advantage, employee performance, institutional effectiveness, and innovation capacity. The business case for funding knowledge management initiatives would be strengthened by

showing connections between these practices and important organizational outcomes, even though this study identified demographic trends in knowledge documentation.

Lastly, research on knowledge management in non-Western higher education settings remains limited. Future studies should examine how institutional customs, cultural values, and national policy environments influence knowledge management practices and their effectiveness in developing nations. In order to identify culturally specific adaptations required for successful implementation, comparative research across diverse cultural contexts could reveal universal knowledge management principles.

6. Conclusion

With an emphasis on demographic influences, this study examined knowledge management practices—specifically, knowledge documentation behaviors—along with teaching and non-teaching staff at Central Bicol State University of Agriculture. Understanding how demographic characteristics shape knowledge management engagement in higher education settings is made easier by the research, which also offers practical insights for developing more effective organizational knowledge management strategies.

The demographic profile of CBSUA showed that the teaching and non-teaching workforce was primarily female, with faculty concentrated in the early middle-aged (36-46 years) and administrative staff in the late middle-aged (47-57 years). The educational attainment patterns were consistent with typical higher education credentialing: teaching employees primarily hold Master's degrees, and non-teaching staff primarily hold Bachelor's degrees. Distributions of work experience showed substantial institutional tenure, particularly among teaching employees who concentrated in the 21–30 years range.

Knowledge documentation practices were examined, and several key findings were found. First, teaching and non-teaching employees' overall engagement in knowledge documentation was comparable, with both groups receiving median scores of 4.0000. This finding contradicts presumptions that academic faculty would substantially outperform administrative staff in knowledge documentation and suggests that organizational culture and institutional expectations influence knowledge management behaviors across employee categories.

Second, gender analysis revealed no significant differences in knowledge documentation practices between male and female employees within either the teaching or non-teaching category. This gender-neutral pattern reflects current organizational norms that emphasize collaborative knowledge management regardless of demographic characteristics, suggesting that knowledge documentation behaviors at CBSUA are more influenced by organizational factors and individual motivation than by gender.

Third, and most importantly, age became a significant factor in the development of knowledge documentation practices. Compared to their older colleagues, younger employees (25–35 years) demonstrated significantly higher knowledge documentation engagement, particularly those in the 47–57 years age range. Multiple factors, including generational differences in technological fluency, career-stage dynamics, cohort effects on educational preparation, and the evolution of tacit knowledge among experienced professionals, are likely to underlie this age-related pattern.

These findings carry important implications for knowledge management practice in higher education institutions. Important elements of organizations include creating inclusive approaches that acknowledge the valuable knowledge contributions of all employee categories, implementing differentiated knowledge management strategies that address the unique needs of employees at various career stages, and establishing strong knowledge transfer mechanisms to capture senior employees' expertise prior to organizational transitions. In aging workforces, the study emphasizes the need for systematic knowledge management and highlights the role of organizational culture in fostering knowledge documentation behaviors.

In developing-country higher education contexts, where institutional and resource constraints may produce dynamics distinct from those in well-resourced Western institutions, the study contributes to the growing body of knowledge management literature. To develop appropriate knowledge management strategies that recognize both universal principles and locally relevant adaptations, it is essential to understand these contextual patterns.

As higher education institutions navigate increasingly complex and competitive environments, effective knowledge management becomes ever more critical to institutional success. Organizations that systematically capture, organize, and leverage their collective knowledge, while attending to the diverse characteristics and needs of their employees, position themselves to enhance organizational learning, improve decision-making, foster innovation, and sustain institutional excellence. The empirical evidence presented in this study supports such initiatives by demonstrating that demographic factors, particularly age, significantly influence knowledge documentation practices and should be explicitly considered in the development of knowledge management strategies.

Longitudinal designs that monitor the development of knowledge management over time, mixed-methods approaches that capture the qualitative subtleties of knowledge documentation practices, multi-institutional comparative studies examining patterns across various contexts, and investigations connecting knowledge management behaviors to organizational outcomes are all ways future research should build on these findings. In addition to deepening the theoretical understanding of knowledge management in higher education, this research will provide institutional leaders with practical guidance to enhance their organizations' knowledge capabilities.

In summary, this study shows that CBSUA's knowledge documentation practices exhibit positive overall engagement across gender groups and employee categories. At the same time, notable age-related differences point to potential areas for focused interventions. By developing inclusive organizational cultures that value diverse knowledge contributions and developing knowledge management strategies that recognize and address demographic influences, higher education institutions can enhance their capacity to effectively manage their most valuable asset—organizational knowledge—for long-term institutional success.

7. References

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