Original Article

Encontros Bibli

KNOWLEDGE MANAGEMENT AND INTELLECTUAL CAPITAL ACCORDING TO SOCIODEMOGRAPHIC VARIABLES IN UNIVERSITY PROFESSORS

Gestión del conocimiento y capital intelectual según variables sociodemográficas en docentes universitarios

Gestão do conhecimento e capital intelectual de acordo com variáveis sociodemográficas entre professores universitários

Rafael Romero-Carazas
Dirección de investigación del colegio de Contadores Públicos de Arequipa, Arequipa, Perú
rafaelromerocarazas@gmail.com
https://orcid.org/0000-0001-8909-7782

Oscar David La Cruz-Arango
Universidad Científica del Sur, Lima, Perú
olacruz@cientifica.edu.pe
https://orcid.org/0000-0001-9242-936X

Julio Alberto Torres-Sánchez
Universidad Católica de Santa María, Arequipa, Perú
jtorres@ucsm.edu.pe
https://orcid.org/0000-0001-7753-990X

Victoria Torres Cheje de Manchego
Universidad Católica de Santa María, Arequipa, Perú
vtorresc@ucsm.edu.pe
https://orcid.org/0000-0003-4880-8848

Jorge Luis Suclla-Revilla
Universidad Católica de Santa María, Arequipa, Perú
jsuclla@ucsm.edu.pe
https://orcid.org/0000-0002-3578-1615

Sonia Gladys Gutiérrez-Monzón
Universidad Católica de Santa María, Arequipa, Perú
sgutierrez@ucsm.edu.pe
https://orcid.org/0000-0001-6474-762X

Mario Bryan Araujo-Montaño
Universidad Continental, Arequipa, Perú
maraujom@continental.edu.pe
https://orcid.org/0000-0002-6748-4682

Melina Elizabeth Chávez-Choque
Universidad Nacional de Moquegua, Moquegua, Perú
mchavezc@unam.edu.pe
https://orcid.org/0000-0002-3799-3494

Fabrizio del Carpio-Delgado
Universidad Nacional de Moquegua, Moquegua, Perú
delcarpiod@unam.edu.pe
https://orcid.org/0000-0002-6334-7867

David Hugo Bernedo-Moreira
Universidad César Vallejo, Lima, Perú
dbernedo@ucvvirtual.edu.pe
https://orcid.org/0000-0002-4883-8529

A lista completa com informações dos autores está no final do artigo

ABSTRACT
Objective: The objective was to determine the differences in knowledge management and intellectual capital according to age, sex, and length of service in the Universidad Peruana Unión 2022 teachers.
Method: The research methodology had a quantitative approach, correlational explanatory type, non-experimental design, and cross-sectional design. The sample consisted of 192 teachers from the faculty of business sciences, to whom a survey was applied.
Results: The results show significant differences in knowledge management and intellectual capital according to age, sex, and time.
Conclusions: No significant differences imply a change in knowledge management concerning sociodemographic data (sex, age, and years of work). No statistically significant differences in intellectual capital were found in the sociodemographic factors (sex, age). There are substantial differences concerning the sociodemographic factor years in the organization.

KEYWORDS: Knowledge management, intellectual capital, sociodemographic variables, university teachers.

RESUMEN
Objetivo: determinar Se determinaron las diferencias en cuanto a gestión del conocimiento y capital intelectual según edad, sexo y tiempo de servicio en docentes de la Universidad Peruana Unión 2022.
Método: La metodología tuvo enfoque cuantitativo, de tipo explicativo correlacional, diseño no experimental y corte transversal. La muestra estuvo conformada por 192 docentes de la facultad de ciencias empresariales, a los cuales se les aplicó una encuesta.
Resultados: Los resultados develaron la no existencia de diferencias significativas que impliquen un cambio en la gestión del conocimiento respecto a los datos sociodemográficos (sexo, edad y años de trabajo).
Conclusiones: Respecto al capital intelectual, no se encontraron diferencias estadísticamente significativas en relación con los factores sociodemográficos (sexo, edad). Existieron diferencias significativas con respecto al factor sociodemográfico años en la organización.

PALABRAS CLAVE: Gestión del conocimiento, capital intelectual, variables sociodemográficas, docentes universitarios

RESUMO
Objetivo: O objetivo foi determinar as diferenças na gestão do conhecimento e no capital intelectual de acordo com a idade, o gênero e o tempo de serviço dos professores da Universidade Peruana Unión 2022.
Método: a metodologia de pesquisa foi quantitativa, correlacional explicativa, não experimental e de corte transversal. A amostra foi composta por 192 professores da Faculdade de Ciências Empresariais, aos quais foi aplicada uma pesquisa.
Resultados: os resultados mostram diferenças significativas na gestão do conhecimento e no capital intelectual de acordo com a idade, o gênero e o tempo.
Conclusões: não há diferenças significativas que impliquem uma mudança na gestão do conhecimento com relação aos dados sociodemográficos (gênero, idade e anos de trabalho).
Com relação ao capital intelectual, não foram encontradas diferenças estatisticamente significativas em relação aos fatores sociodemográficos (sexo, idade).
Há diferenças significativas com relação ao fator sociodemográfico anos na organização.

PALAVRAS-CHAVE: Gestão do conhecimento, capital intelectual, variáveis sociodemográficas, professores universitários.

1 INTRODUCTION

Knowledge management (KM) boosts the competitiveness of a company. This includes both productive and competitive elements, which are collectively known as intellectual capital (IC) or IC management (GONZÁLEZ et al., 2019). When evaluating a company's success, it is not enough to look at the numbers. We must also consider the value of the company's intellectual capital since it differentiates it from its competitors. However, this value can only be maintained if intellectual capital encourages constant growth and development through a system that rewards creativity and innovation. To be successful like a company, the university must multiply its IC since its reason for existence is to develop information and train experts (IBARRA et al., 2020).

IC is the basis of knowledge management. This includes intangible assets such as human capital, human talent, skills, structural capital, physical infrastructure, policies, procedures, routines, and technologies that support the organization, as well as software and hardware computing resources (BUENO et al, 2011).

Rodríguez et al. (2001) report that KM is gaining important attention from theorists and managers of companies and organizations in general. They see knowledge as the company's distinctive factor to achieve competitive advantages. At the same time,

governments see knowledge as a factor of vital importance for the economic growth and well-being of a country. The status of the university as a private organization or as a public institution of higher education must also be added to the list. A similar position is held by Escala (2020), who states that the application of KM has a revealing impact on the capacity for innovation, both in the academic and business worlds. The conversion of knowledge into an actual, tangible product depends on other components of KM and the capacity for knowledge creation, storage, transfer, application, and use.

KM in university teachers is crucial to optimize the intellectual capital of an educational institution. Through it, teachers' knowledge and experience can be identified, shared, and used effectively. This encourages collaboration, innovation, and continuous improvement in teaching and research. In addition, it facilitates talent retention and teachers' professional development. It also promotes an organizational culture that values and enhances collective knowledge (BENITO, 2022; BONILLA et al., 2023; CABALLERO et al., 2023; CANO Y CASTILLO, 2022). This translates into better academic performance, adaptation to contemporary changes and challenges, and the ability to generate a positive impact in the training of future professionals and society in general (CANO et al., 2023; CARMO and LEMOS, 2022; CASTRO et al., 2023; CATRAMBONE and LEDWITH, 2023; COPA, 2021).

The current theory on IC management models demonstrates that these models are focused on providing competitiveness to companies in the productive sector, with a mainly financial focus and an essential objective of guiding companies to become learning organizations. Its use in post-secondary education institutions, particularly in research projects, extends to reporting findings to various stakeholders. However, it does not evaluate how its application affects the social and economic spheres of the institutions (ORTIZ, 2017).

Mendoza (2019) states that it is important that universities assume the responsibility of leading knowledge management and producing solutions to the various problems that human society faces at all levels: personal, professional, commercial, and organizational. We agree with FERRO (2021; GUTIERREZ (2023), LEPEZ (2021), and LEPEZ & EIGUCHI (2022a,b) in the sense that although many institutions have measured their intellectual capital, few have examined the criteria used to hire teachers and the staff in charge of achieving academic objectives.

Ibarra et al. (2020) reiterate theoretical frameworks identifying knowledge management and intellectual capital as critical components to improve higher education

institutions. To guarantee that the actors and processes that manage knowledge and intellectual capital are developed, used, and consolidated, institutions must create transversal and long-term policies extended beyond the periods of government. This suggests a shift in the paradigm of institutions that now prioritize accreditation and indicators as means of obtaining resources in favor of one that focuses on producing frontier research, the proactive teaching of knowledge, and customer satisfaction (students, productive sector, and community). Therefore, these two variables examined are essential for the strategic planning of any institution.

It is important to note that teachers play an essential role in the lack of interest among students in research projects by offering them unstimulating classes (LIMA, 2021; LÓPEZ et al., 2023; MARTÍNEZ et al., 2023; MONTANO, 2023; OLIVERA et al., 2023). Consequently, they are stuck teaching in classrooms where there is no opportunity for students to interact with each other. Instead, students sit through long lectures designed only to satisfy course requirements (GÓMEZ et al., 2019; ALEMÁN et al., 2018).

According to White (2014), educational institutions belonging to the Adventist congregation are charged with a mission far beyond traditional classroom teaching. According to this school of thought, students are trained holistically by integrating axiological principles and working in synergy with the subject matter taught in each discipline. As a consequence, Adventist educational institutions are recognized for managing knowledge. In this way, they promote each student's individual talents and abilities.

Given that KM in higher education institutions is of substantive importance, the present study seeks to demonstrate the characteristics of KM and IC, taking into account the following sociodemographic variables: age, sex (gender), and length of service of the teachers at the Universidad Peruana Unión (UPeU). The following general objective was set: (1) determine the differences between KM and IC according to age, sex, and length of service. From this, the following hypothesis is decanted: there are differences in KM and IC according to age, sex, and length of service among the teachers of the Universidad Peruana Unión, 2022.

1.1 Knowledge management

KM in university educational institutions optimizes the use of available intellectual resources. This facilitates the acquisition of new knowledge, its practical application, and

dissemination both inside and outside the university. This contributes to academic excellence, continuous improvement, and fulfilling the institution's educational mission. KM is a set of activities within institutions to facilitate knowledge transfer from one place or individual to another. , as well as cultivating relevant skills and their subsequent application in achieving organizational objectives (VILLASANA et al., 2021).

For Alcívar et al. (2020), KM is a technique used in organizations to increase productivity, ensuring that all employees know what the rest of the company already knows. As a result, KM benefits the organization since financial information is not enough to measure a company's success. Still, IC must be considered to create value against the competition (ROMERO, 2019).

1.1.1 Knowledge Management Dimensions

- Creation (organizational learning)

Some theoretical positions see organizational learning as a result, not a process; but it is assumed that learning is permanent and discriminates against obsolete knowledge. Therefore, organizational learning is defined as the process of apprehension and continuous knowledge development, described as the process of knowledge creation (ACEVEDO et al., 2020).

- Transfer and storage (organizational learning).

Organizational knowledge transfer refers to sharing, disseminating, and communicating accumulated knowledge within the academic institution. It involves transmitting action, experiences, good practices, research, and knowledge among academic community members This transfer can occur through various avenues, such as (1) academic meetings, seminars, publications, collaboration on research projects, and (2) training activities. Knowledge transfer ensures that the university's existing knowledge and experience are available and accessible to all members, thus promoting innovation, collaboration, and continuous improvement (ACEVEDO et al., 2020).

Organizational knowledge storage refers to creating systems and structures to capture, organize, and preserve accumulated knowledge. This involves using information technologies, databases, digital repositories, and other tools that save and keep the academic, research, and administrative content generated in the institution. The goal of knowledge storage is to maintain institutional memory, facilitate the search and retrieval of relevant information, and ensure that knowledge is not lost when members of the

academic community change or leave. This contributes to the continuity and quality of educational and research work at the university (ACEVEDO et al., 2020).

- application and use (organizational learning)

The application and use of knowledge are linked to contextually appropriate social, community, economic, and intellectual environments. Knowledge is a continuous flow of efficient activity that produces increasingly more significant results (GONZÁLEZ and RODRÍGUEZ, 2017). To achieve this objective, it is essential to train individuals to make decisions about collective perception and thus encourage the growth of networks to attract and disseminate new information (CHIAVENATO, 2008). Therefore, procedures and indicators of the value of the information produced, how well it solves problems, its acceptance in the organization's community, what it costs to exploit it, and what it could be worth for use are needed (ROQUE et al., 2020).

1.2 Intellectual capital

For Wong and Córdova (2020), intellectual capital comprises both explicit and implicit knowledge that an institution and its collaborators possess. Intellectual capital is a source of competitive advantages since it determines the capabilities of the organization its valuable experiences for decision-making, adaptation, improvement, and creation of new technologies (FERNÁNDEZ et al., 2022; JIMÉNEZ et al. ., 2019).

In the academic world, intellectual capital refers to intangible assets that help convert material and financial resources into a service of great value for your clients. Among the intangible resources a company has are its processes, capacity for innovation, patents or intellectual property rights it has obtained, the tacit knowledge of its members, capabilities and abilities, reputation in the community, and networks of collaborators, allies, and contacts (IBARRA et al., 2020; ARANIBAR and TRAVIESO, 2023). According to Londono et al. (2018), the most valuable assets of universities are their professors and researchers because they develop functions that generate intangible assets. Thus, they lay the foundations for the successful application of intellectual capital.

1.2.1 Intellectual Capital Dimensions

- Human capital

It is the set of information that a specific educational center's teachers, staff and students have (IBARRA et al., 2020). This knowledge is obtained in various ways, such as

formal and informal education, updating procedures, and emerging learning from experience in their roles. Human capital is the resources available to a company when faced with an opportunity (BARRERA, 2023; GONZÁLEZ, 2021; VELOZ et al., 2023; VELOZ and KEELING, 2023). This relates to the long-held belief that, regardless of how it is structured, human capital is the most crucial aspect of any economy's ability to produce goods or services (RINCÓN et al., 2021).

- Structural capital

Structural capital (SC) integrates each institution's incorporated, internalized, and systematically processed knowledge through a historical process that operates through a succession of organizational routines (LAVÍN, 2020). Consequently, culture, strategy, organization, intellectual property, technology, support, knowledge capture, and innovation must be considered (IBARRA et al., 2020).

- Relational capital

The positioning of an institution is constituted by the set of economic, political and institutional relationships that it cultivates and maintains with its academic and non-academic allies (IBARRA et al., 2020). It is accepted that a company's relational capital includes the strength of its relationships with its suppliers and customers. These relationships can last for years with each party involved and are characterized by open communication and mutual trust (GONZÁLEZ and RODRÍGUEZ, 2010).

- Technological capital

Investments made to improve a company's technological infrastructure and innovation procedures are examples of technological capital. Innovation is the primary driver of company transformation (IBARRA and HERNÁNDEZ, 2019). Business technology refers to any technologies that improve a company's ability to compete and operate more efficiently.

2 METHODOLOGY

The present study is of a basic or pure type, with a quantitative approach, non-experimental design, cross-sectional and descriptive and correlational level. Molero (2016) maintains that basic research is dogmatic, theoretical, or pure. This research is unique because it begins and remains within a theoretical framework. The goal is to increase scientific knowledge, but it will not be compared to real-world applications. Hernández and

Mendoza (2018) state that quantitative studies provide a numerical value in response to a query.

Toro and Parra (2006) state that non-experimental design studies are carried out without intentionally altering the variables. These studies are based on observing phenomena emerging in their natural context and then being analyzed. Díaz and Calzadilla (2018) state that exploring the nature and manifestation of a phenomenon and its constituent parts is the purpose of descriptive studies. At the same time, correlational research aims to determine if different ideas, variables, or characteristics are connected.

The population comprised 613 undergraduate teachers from the Universidad Peruana Unión, whose demographic information is shown in Table 1. This information was extracted from the files of the human talent area. Hernández and Mendoza (2018) state that the population represents the entire universe or study group with shared characteristics.

Table 1 - Distribution of population.

Faculty	Total	Master	PhD
Business Studies	192	174	18
Education	62	42	20
Theology	42	31	11
Health	135	120	15
Enginering and Architecture	182	125	57

Source: Own elaboration (2022).

The sample comprised 192 teachers from the Faculty of Business Sciences. The sampling was non-probabilistic and non-random due to the ease of access and the availability of teachers to be part of the sample. For Castro et al. (2019), the sample is a subset or portion of the universe or population in which the research is carried out. There are methods to determine the sample quantity, including formulas and logic. The sample is a representative portion of the population. For Gómez (2006), the sample is defined as a representative sample selected at random from a population.

The technique applied was the survey, and the instrument was two questionnaires. This instrument was extracted and adapted from Cuadrado (2020). The same one for the knowledge management variable had three dimensions: knowledge creation, transfer and storage, and application and use. The instrument comprised 41 items based on a five-level semantic differential scale (from 1 to 5). For the intellectual capital variable, the questionnaire had 41 items divided into four dimensions: human capital, structural capital, relational capital, and technological capital. This was taken and adapted from Mercado et

al. (2016). All measurements were made through a five-level Likert scale: 1=Very bad, 2=Bad, 3=Indifferent, 4=Good, and 3=Very good. The reliability of the questionnaires was determined through Cronbach's alpha, a measure of internal consistency that showed an index of 0.852. This index indicates that the instrument is highly reliable.

The SPSS v.26.0 statistical package was used to analyze the information. Office tools were used to present the information to have a clearer view of the study through its graphic and tabulated functions. This facilitated the interpretation of the descriptive statistics and the inferential analysis using the Wilcoxon, Mann-Whitney u, and Kruskal Wallis tests.

3 RESULTS

The results are based on a descriptive and correlational analysis model, which responds to the objectives set in the research. The data from the exploratory and descriptive-analytical development, the values on levels or behaviors of the variable, and the inferential data from the application of normality and correlation are shown.

3.1 Descriptive analysis

Table 2 shows the sociodemographic information of the 192 participants, showing that 54% are male. Furthermore, the predominant age in 33% was 30 to 39 years. Regarding the length of time they have worked in the institution, 34% indicated that they have worked there for 5 to 10 years.

Table 2 - Sociodemographic information.

(n=192)		**Frequency**	**%**
Sex	Male	103	54%
	Female	89	46%
Age	Under 30 years	49	25%
	From 30 to 39 years	63	33%
	From 40 to 49 years	34	18%
	From 50 years on	46	24%
Years of work in the	Under 5 years	62	32%
	From 5 to 10 years	66	34%

organization	From 11 to 15 years	49	26%
	From 16 to 20 years	9	5%
	From 20 years on	6	3%

Source: Own elaboration (2022).

The indicators of the KM variable are described in Table 3. Regarding the mean, all responses are 3. The asymmetry is negative in all cases, indicating that the answers tend to be grouped in the right column. This is the case where the process is integrated into the academic institution, can be monitored, and has been refined according to best practice standards. The kurtosis (K) does not present values greater than ±1.5, which indicates that the responses are uniformly distributed. Finally, Cronbach's Alpha is greater than 0.9, demonstrating that the individual dimensions and the global instrument are reliable and have internal consistency.

Table 3 - KM's statistical results.

Item	Processes are organized	Processes follow a regular pattern	Processes are standardized	The process is integrated and monitored by the university	The process has been refined to a best-practice level	M	SD	As	K	α
C1	6.0%	20.9%	20.9%	44.8%	7.5%	3.27	1.07	0.49	-0.64	0.948
C2	7.5%	17.9%	5.4%	35.8%	3.4%	3.30	1.14	0.37	-0.65	
C3	1.5%	28.4%	7.9%	40.3%	1.9%	3.33	1.06	0.16	-1.12	
C4	0.0%	14.9%	34.3%	35.8%	14.9%	3.51	0.93	0.02	-0.80	
C5	0.0%	22.4%	29.9%	40.3%	7.5%	3.33	0.91	0.09	-0.94	
C6	13.4%	17.9%	26.9%	34.3%	7.5%	3.04	1.17	0.32	-0.83	
C7	7.5%	11.9%	40.3%	35.8%	4.5%	3.18	0.97	0.58	0.11	
C8	6.0%	26.9%	13.4%	40.3%	13.4%	3.28	1.18	0.29	-1.05	
C9	11.9%	28.4%	17.9%	32.8%	9.0%	2.99	2.21	0.08	-1.11	
C10	1.5%	25.4%	2.4%	37.3%	13.4%	3.36	1.05	0.13	-1.01	
C11	9.0%	28.4%	13.4%	31.3%	17.9%	3.21	1.29	-0.14	-1.23	
C12	4.5%	19.4%	17.9%	43.3%	14.%	3.45	1.10	0.49	-0.62	
C13	4.5%	23.9%	25.4%	31.3%	9%	3.28	1.13	0.13	-0.89	
C14	0.0%	29.9%	9.4%	35.8%	14.9%	3.36	1.07	0.00	-1.30	
TA1	4.5%	26.9%	23.9%	34.3%	10.4%	3.19	1.09	0.11	-0.91	0.974
TA2	3.0%	31.3%	20.9%	38.8%	6.0%	3.13	1.03	-0.10	-1.07	
TA3	7.5%	19.4%	20.9%	32.8%	19.4%	3.37	1.22	-0.35	-0.87	
TA4	10.4%	19.4%	16.4%	40.3%	13.4%	3.27	1.23	-0.43	-0.88	
TA5	4.5%	20.9%	14.9%	43.3%	16.4%	3.46	1.13	-0.49	-0.73	
TA6	9.0%	16.4%	17.9%	46.3%	10.4%	3.33	1.15	-0.62	-0.53	
TA7	4.5%	16.4%	25.4%	32.8%	20.9%	3.49	1.13	-0.37	-0.67	
TA8	4.5%	16.4%	23.9%	34.3%	20.9%	3.51	1.13	-0.41	-0.65	
TA9	6.0%	11.9%	29.9%	29.9%	22.4%	3.51	1.15	-0.42	-0.49	
TA10	6.0%	19.4%	20.9%	35.8%	17.9%	3.40	1.17	-0.38	-0.78	

TA11	4.5%	20.9%	16.4%	35.8%	22.4%	3.51	1.19	-0.41	-0.89	
AU1	0.0%	22.4%	9.4%	44%	3.4%	3.49	0.99	-0.27	-1.01	0.980
AU2	0.0%	20.9%	20.9%	40.3%	17.9%	3.55	1.02	-0.23	-1.04	
AU3	7.5%	19.4%	16.4%	35.8%	20.9%	3.43	1.23	-0.44	-0.87	
AU4	0.0%	20.9%	23.9%	31.3%	23.9%	3.58	1.08	-0.14	-1.22	
AU5	1.5%	19.4%	25.4%	34.3%	19.4%	3.51	1.06	-0.21	-0.89	
AU6	6.0%	17.9%	19.4%	38.8%	17.9%	3.45	1.16	-0.47	-0.66	
AU7	0.0%	16.4%	23.9%	46.3%	13.4%	3.57	0.92	-0.32	-0.71	
AU8	11.9%	10.4%	13.4%	53.7%	10.4%	3.40	1.18	-0.90	-0.21	
AU9	7.5%	25.4%	11.9%	44.8%	10.4%	3.25	1.17	-0.40	-0.98	
AU10	1.5%	28.4%	10.4%	47.8%	11.9%	3.40	1.07	-0.35	-1.10	
AU11	7.5%	16.4%	22.4%	43.3%	10.4%	3.33	1.11	-0.55	-0.46	
AU12	6.0%	31.3%	20.9%	35.8%	6.0%	3.04	1.08	-0.09	-1.02	
AU13	7.5%	25.4%	10.4%	34.3%	22.4%	3.39	1.29	-0.33	-1.16	
AU14	7.5%	19.4%	10.4%	38.8%	3.9%	3.52	1.26	-0.57	-0.83	
AU15	6.0%	22.4%	9.0%	32.8%	29.9%	3.58	1.29	-0.51	-1.04	
AU16	7.5%	19.4%	16.4%	31.3%	25.4%	3.48	1.27	-0.43	-0.96	

α=0.987 M: Media, SD: Standard deviation, As: Asymmetry, C: Kurtosis.

Source: Own elaboration (2022).

Table 4 shows the summary of the IC indicators). Regarding the mean, all the responses are close to 4. The asymmetry is negative in all cases, indicating that the responses tend to be grouped in the right column. This is where the process is integrated into the academic institution, can be monitored, and has been refined to best practice standards. On the other hand, kurtosis does not present values greater than ±1.5, which indicates that the responses are uniformly distributed. Finally, Cronbach's Alpha is greater than 0.9, which demonstrates that both the individual dimensions and the global instrument are reliable and internally consistent.

Table 4 - IC's statistical results.

Item	Very bad	Bad	Indifferent	Good	Very good	M	SD	s	K	α
CH1	0.0%	1.5%	1.5%	80.6%	16.4%	4.12	0.48	-0.50	5.92	0.951
CH2	0.0%	1.5%	16.4%	55.2%	26.9%	4.07	0.70	-0.37	0.01	
CH3	0.0%	1.5%	13.4%	67.2%	17.9%	4.01	0.62	-0.41	1.18	
CH4	0.0%	1.5%	10.4%	65.7%	22.4%	4.09	0.62	-0.45	1.23	
CH5	0.0%	1.5%	22.4%	59.7%	16.4%	3.91	0.67	-0.21	0.12	
CH6	0.0%	1.5%	19.4%	68.7%	10.4%	3.88	0.59	-0.43	1.12	
CH7	0.0%	1.5%	13.4%	64.2%	20.9%	4.04	0.64	-0.40	0.85	
CE1	0.0%	1.5%	10.4%	65.7%	22.4%	4.09	0.62	-0.45	1.23	0.974
CE2	0.0%	6.0%	7.5%	62.7%	23.9%	4.04	0.75	-0.97	1.40	
CE3	0.0%	1.5%	13.4%	53.7%	31.3%	4.15	0.70	-0.49	0.15	
CE4	0.0%	3.0%	9.0%	62.7%	25.4%	4.10	0.68	-0.73	1.52	
CE5	0.0%	6.0%	16.4%	58.2%	19.4%	3.91	0.77	-0.65	0.53	
CE6	0.0%	7.5%	13.4%	61.2%	17.9%	3.90	0.78	-0.80	0.79	
CE7	0.0%	4.5%	11.9%	65.7%	17.9%	3.97	0.70	-0.80	1.52	
CE8	0.0%	6.0%	9.0%	67.2%	17.9%	3.97	0.72	-0.97	1.82	
CE9	0.0%	7.5%	9.0%	64.2%	19.4%	3.96	0.77	-0.96	1.34	
CE10	0.0%	3.0%	6.0%	67.2%	23.9%	4.12	0.64	-0.82	1.42	

CE11	0.0%	9.0%	7.5%	64.2%	19.4%	3.94	0.80	-1.01	1.22	
CE12	0.0%	7.5%	13.4%	62.7%	16.4%	3.88	0.77	-0.82	0.90	
CE13	1.5%	.5%	14.9%	55.2%	23.9%	3.96	0.84	-1.01	1.71	
CE14	1.5%	4.5%	14.9%	59.7%	19.4%	3.91	0.81	-1.06	1.10	
CE15	0.0%	1.5%	10.4%	64.2%	23.9%	4.10	0.63	-0.45	1.08	
CE16	0.0%	3.0%	17.9%	64.2%	14.9%	3.91	0.67	-0.53	0.94	
CR1	1.5%	6.0%	22.4%	53.7%	16.4%	3.78	0.85	-0.77	0.98	0.966
CR2	0.0%	1.5%	16.4%	67.2%	14.9%	3.96	0.61	-0.38	1.03	
CR3	0.0%	1.5%	25.4%	52.2%	20.9%	3.93	0.72	-0.13	-0.44	
CR4	0.0%	6.0%	22.4%	52.2%	19.4%	3.85	0.80	-0.45	-0.04	
CR5	0.0%	4.5%	11.9%	61.2%	22.4%	4.01	0.73	-0.75	1.11	
CR6	0.0%	1.5%	16.4%	62.7%	19.4%	4.00	0.65	-0.34	0.55	
CR7	0.0%	6.0%	25.4%	50.7%	17.9%	3.81	0.80	-0.36	-0.17	
CR8	0.0%	3.0%	11.9%	65.7%	19.4%	4.01	0.66	-0.66	1.48	
CR9	0.0%	1.5%	11.9%	64.2%	22.4%	4.07	0.64	-0.43	0.96	
CR10	0.0%	1.5%	13.4%	59.7%	25.4%	4.09	0.67	-0.42	0.48	
CR11	0.0%	6.0%	10.4%	58.2%	25.4%	4.03	0.78	-0.85	0.97	
CR12	0.0%	6.0%	19.4%	47.8%	26.9%	3.96	0.84	-0.54	-0.16	
CR13	0.0%	3.0%	11.9%	68.7%	16.4%	3.99	0.64	-0.70	1.85	
CT1	0.0%	6.0%	20.9%	44.8%	28.4%	3.96	0.86	-0.50	-0.33	0.942
CT2	0.0%	6.0%	17.9%	55.2%	20.9%	3.91	0.79	-0.59	0.28	
CT3	0.0%	6.0%	19.4%	50.7%	23.9%	3.93	0.82	-0.53	-0.03	
CT4	0.0%	0.0%	14.9%	58.2%	26.9%	4.12	0.64	-0.11	-0.52	
CT5	4.5%	1.5%	13.4%	67.2%	13.4%	3.84	0.85	1.69	1.20	

α=0.986M: Media, SD: Standard deviation, As: Asymmetry, C: Kurtosis

Source: Own elaboration (2022).

Table 5 shows the results of the KM variable and its dimensions. The average of the KM was 138.04, with a deviation of 37.513. The knowledge creation dimension had a mean of 45.88, with a standard deviation of 11.858. Transfer and storage had a mean of 37.18, with a standard deviation of 11.232. Finally, application and use had a mean of 54.99, with a standard deviation 16.058. Outliers are not likely to exist in the results, as both skewness and kurtosis have results between -1.5 and 1.5.

Table 5 - Descriptive summary of the KM variable and its dimensions.

	Media	**SD**	**Asymmetry**	**Kurtosis**
Knowledge management	138.04	37.513	-0.513	-0.838
Knowledge creation	45.88	11.858	-0.471	-0.607
Transfer and storage	37.18	11.232	-0.432	-0.711
Application and use	54.99	16.058	-0.434	-1.148

Source: Own elaboration (2022).

Table 6 shows the descriptive summary of the IC variable and its dimensions, where the average IC was 163.27, with a deviation of 23.586. Regarding the human capital dimension, it had a mean of 28.13 and a standard deviation of 3.813. Structural capital had

a mean of 63.91, with a standard deviation 9.913. Regarding relational capital, it obtained an average of 51.48, with a standard deviation of 7.953. Finally, the technological capital dimension had a mean of 19.75 with a standard deviation 3.586. Outliers are not likely to exist in the results, as both skewness and kurtosis have results between -1.5 and 1.5.

Table 6 - Descriptive summary of the IC variable and its dimensions.

	Media	**SD**	**Asymmetry**	**Kurtosis**
Intellectual capital	163.27	23.586	-0.589	0.525
Human capital	28.13	3.813	-0.522	2.153
Structural capital	63.91	9.913	-0.770	0.771
Relational capital	51.48	7.953	-0.587	0.712
Technological capital	19.75	3.586	-0.632	0.079

Source: Own elaboration (2022).

3.1.1 Normality test

Table 7 shows the results of the Kolmogorov-Smirnov normality test. The result of the p-value for both the variables and their respective dimensions is less than 0.05 ($p<0.05$), which indicates that the data distribution is not normal. Therefore, non-parametric tests, such as the Wilcoxon, Mann-Whitney u, and Kruskal Wallis tests, were used to determine significant differences.

Table 7 - Normality test.

Variables/Dimensions	**Kolmogorov-Smirnov**		
	Statistic	**gl**	**p value**
Knowledge management	**0.136**	**192**	**0.004**
Knowledge creation	0.115	192	0.029
Transfer and storing	0.146	192	0.001
Application and use	0.205	192	0.000
Intelectual capital	**0.195**	**192**	**0.000**
Human capital	0.232	192	0.000
Structural capital	0.182	192	0.000
Relational capital	0.168	192	0.000
Technological capital	0.245	192	0.000

Source: Own elaboration (2022).

3.2 Hypothesis test

3.2.1 General hypothesis

There are differences in KM and IC according to age, sex, and length of service in the Universidad Peruana Unión, 2022 teachers. Table 8 presents the results of the significant differences in KM and IC according to age, sex, and time. Regarding the first variable, KM, there is no significant difference (p>0.05) concerning age, sex, and years working in the organization. For the IC variable, no significant difference was found with sex (p>0.05); However, with age and years of work in the organization, a significant difference was found (p<0.05).

Table 8 - General hypothesis knowledge management and intellectual capital according to age, sex, and time.

(n=192)		**KM**	**IC**
Sex	Male	-1.221	-0.41
	Female	p=0.222	p=0.682
Age	Under 30 years		
	From 30 to 39 years		
	From 40 to 49 years	4.270	7.541
		p=0.234	p=0.048
	From 50 years on		
Working years in the organization	Under 5 years		
	From 5 to 10 years	6.512	15.098
	From 11 to 15 years	p=0.164	p=0.005
	From 16 to 20 years		
	From 20 years on		

Source: Own elaboration (2022).

Specific hypotheses of the dimensions of the KM variable according to age, sex, and time

There are differences in the dimensions of the KM variable according to age, sex and length of service in teachers at the Universidad Peruana Unión 2022. Table 9 shows the significant differences in terms of the creation dimension (organizational learning), where The difference in sex, age, and years of work in the organization was not significant, with a result of -0.945, 4.572, and 5.858, respectively, and a higher p-value (p>0.05). About the transfer and storage dimension (organizational knowledge), there are no significant differences concerning sex, age, and years of work in the organization, with results of -1.770, 3.885, and 7.042, respectively, and a higher p-value (p>0.05). For the dimension application and use of knowledge (learning organization), the difference in sex, age, and years of work in the organization was not significant, with results of -0.833, 1.512, and 6.858, respectively, and a higher p-value (p> 0.05).

Table 9 - Specific hypotheses of the dimensions of the KM variable according to age, sex, and time.

Specific hypotheses of the dimensions of the KM variable		**Specific hypothesis 1**	**Specific hypothesis 2**	**Specific hypothesis 3**
(n=192)		**Creation (organizational learning)**	**Transfer and storing**	**Knowledge application and use**
Sex	Male Female	-0.945 p=0.345	-1.770 p=0.077	-0.833 p=0.405
Age	Under 30 years From 30 to 39 years From 40 to 49 years From 50 years on	4.572 p=0.206	3.885 p=0.274	1.512 p=0.680
Working years in the organization	Under 5 years From 5 to 10 years From 11 to 15 years From 16 to 20 years From 20 years on	5.858 p=0.211	7.042 p=0.134	6.858 p=0.144

Source: Own elaboration (2022).

Specific hypotheses of the dimensions of the IC variable according to age, sex, and time

There are differences in the dimensions of the IC variable according to age, sex, and length of service in teachers at the Universidad Peruana Unión 2022. Table 10 shows the significant differences in terms of the human capital dimension, where the differences

in sex and age were insignificant. While the variable years of work in the organization were significant, with a result of 14.656, with a p-value of 0.005 ($p<0.05$). About the structural capital dimension, the difference in sex and age were not significant, with a result of -0.906 and 5.498. While the variable years of work in the organization were significant, with a result of 14,200 with a p-value of 0.007 ($p<0.05$). In the relational capital dimension, the sex difference is not significant. However, age and years of work in the organization were significant, with a result of 10.669 and 8.794, respectively, with a lower p-value ($p<0.05$). Finally, in the technological capital dimension, the sex difference is insignificant, resulting in -0.947. The variable age and years of work in the organization are significant, with a result of 7.427 and 10.176, respectively, with a lower p-value ($p<0.05$).

Table 10 - Specific hypotheses of the dimensions of the IC variable according to age, sex, and time.

Specific hypotheses of the dimensions of the IC variable		**Specific hypothesis 4**	**Specific hypothesis 5**	**Specific hypothesis 6**	**Specific hypothesis 7**
(n=192)		**Human capital**	**Structural capital**	**Relational capital**	**Technological capital**
Sex	Male	-0.800	-0.906	-1.017	-0.947
	Female	p=0.424	p=0.365	p=0.309	p=0.344
Age	Under 30 years			1	
	From 30 to 39 years	0.516	5.498	0.669	7.427
	From 40 to 49 years	p=0.915	p=0.139	p=0.014	p=0.048
	From 50 years on				
Working years in the organization	Under 5 years				
	From 5 to 10 years			8.794	10.176
	From 11 to 15 years	14.656	14.200	p=0.046	p=0.038
	From 16 to 20 years	p=0.005	p=0.007		
	From 20 years on				

Source: Own elaboration (2022).

4 DISCUSION

It is indicated that the sociodemographic data (age, sex, and time) in the study sample based on the KM do not have significant differences (p values >0.05). In the IC variable, no significant differences were found with sex ($p>0.05$), but yes with age and years of work in the organization ($p<0.05$). Here, those between 5 and 10 years old have a lower average score. The results suggest that as long as the institution adequately

controls knowledge management, the sociodemographic data does not change its status. However, in intellectual capital, the age and experience of the workers do matter. Pérez (2016) states that the teaching staff is important within the educational services provided by institutions, but the knowledge management provided is even more critical. However, many of them do not understand what they have learned, much less apply it, so monitoring activities that seek to strengthen teachers' knowledge is essential. For his part, Requena (2017) mentions that good KM can be measured by applying knowledge. Therefore, it is not enough to provide the tools but also a company to evaluate that they are using them and that it is an investment and not an expense, considering that to have an efficient KM and a human IC, the sociodemographic characteristics of the worker must be considered. .

There were significant differences in terms of creation (organizational learning), where sex, age, and years of work in the organization were not significant, with a result of -0.945, 4.572, and 5.858, respectively and a higher p-value (p>0, 05). There are no significant differences when observing organizational learning, which involves the worker's own activities and strategies. The results suggest that age, sex, and years of work do not hinder organizational learning. This result is supported by De La Torre and Suárez (2016), who point out that teamwork and communication must be maintained in institutions to improve intellectual capital and allow workers to train each other. In that sense, 90% of workers are willing to receive training to improve and share what they learn with their group, where age and sex do not hinder their learning. Similarly, Levina et al. (2019) stated that IC is considered from the perspective of organizational resources that determine the cost of the final product, the quality of education, and the University's competitive position. Therefore, at least 50% of an institution's teachers must effectively manage this variable.

It was shown that the difference in sex, age, and years of work in the organization did not significantly affect the transfer and storage (organizational knowledge), with results of -1.770, 3.885, and 7.042, respectively, and a p-value greater than (p> 0.05). Therefore, university teachers are not limited by their sociodemographic characteristics. They only carry out their work and correctly manage their organizational knowledge. The study by Pérez (2016) reflects that organizational knowledge and sociodemographic data have a significant relationship (Spearman's Rho of 0.582). However, not all populations have the same result. In the work of Mendoza (2019), it was noted that KM had a significant influence with a p-value < 0.05. Consequently, they affirm that KM is specific to the company, but it has a lot to do with the effort that the worker gives to take advantage of

these tools and that good KM leads to good intellectual capital (SCHUNCK, 2023; SIERRA, 2023; SILVA, 2022).

In this regard, the application and use of knowledge (learning organization), the differences in sex, age, and years of work in the organization were not significant, with results of -0.833, 1.512 and 6.858 and p values greater than (p>0 .05). Sanz (2017) points out that the company lacks a KM strategy, so it would be appropriate to create an order related to the work areas and associated with the results used in the learning processes to enhance the KM processes since KM must be emphasized in the company's human capital. Similarly, Salgado et al. (2017) found a correlation between the application and use of knowledge and human capital with the characteristics of the workers.

Likewise, the study also examined whether the human capital of UPeU 2022 teachers differed depending on age, sex, and length of service, where the differences by sex and age were insignificant (-0.800 and 0.516). While the years of work in the organization are significant, with 14,656 and a p-value of (p<0.05). They consider that human capital is not affected by sex and age. However, an indicator that does make a difference is the years of work within the organization since teachers with more time have high levels of intellectual capital provided by the same institution (TAKAKI and DUTRA, 2022; TELMO et al., 2021; UCHÔA and SALES, 2023). The studies that have similar results and are related are those by Passailaigue et al. (2017) and Toala et al. (2017), who found a relationship with a p-value <0.05. It should be noted that each result is different since they are carried out in other realities and that many times, an experienced worker is the one who efficiently develops their IC.

As a result of the objective related to the existence of differences in structural capital according to age, sex, and length of service in UPeU teachers for the year 2022, it was found that structural capital does not exist between sexes or ages, with -0.906 and 5.498, respectively. The variable years of work in the organization are significant, with a result of 14,200 and a value p<0.05, being the only indicator that affects. To support this result, there are studies by Levina et al. (2019), González et al. (2018), Pérez (2016), who have highlighted the existence of a significant relationship (Rho Spearman close to 1), and the Peruvian university union should focus on strengthening its KM and better evaluate its IC and how it is reflected in its teachers.

Significant differences are presented regarding relational capital, where the sex difference is not significant, with a result of -1.017. The variable age and years of work in the organization are significant, with a result of 10.669 and 8.794, respectively, with a p-value

less than ($p<0.05$). This indicates that teachers have relational capital depending on their age and years of work since a worker with more years tends to have a better relationship with their colleagues. For their part, Valente and Soto (2007) state that specialized services and training programs can help connect with society. Fernandez et al. (2022) state that, to try to standardize the evaluation areas, it is essential to compare the results of the indicators with the measures of other organizations in the same sector. Castro et al. (2019) state that institutions with an ecological relationship with society have a social obligation to connect with it, understand its needs, and address them in the short, medium, and long term.

Finally, we sought to know if there are differences in technological capital according to age, sex, and length of service. It was found that there are no statistically significant differences between sexes (-0.947). Age and years of work in the organization are significant, with 7.427 and 10.176, respectively, with p-values less than 0.05. Thus, age and years of service determine teachers' technological knowledge, not sex (YNOUB, 2023; ZAMPRONHA, 2023). In that sense, Castro et al. (2019) point out that as time passes, a more sophisticated generation in technology is shown. The work period reveals the close and constant interactions that professional services organizations must have with their staff to enhance their adaptation and development. According to Medina et al. (2007), for managers of professional services companies seeking to strengthen their innovative activity, it is important to remember that not all elements of relational capital have the same impact on results. But, the longer the service time, the more appropriate the technology is for developing the activity.

5 CONCLUSIONS

Regarding the general objective, no statistically significant differences suggested a change in KM concerning sociodemographic factors (sex, age, and years in the organization). Similarly, no statistically significant differences were found between IC for sociodemographic factors (sex, age), but there were differences with the sociodemographic factor years in the organization.

About the first specific objective, it was shown that the creation indices (organizational learning) of university teachers do not vary significantly with age, sex or years of service in the organization. This suggests that creation actions in organizational learning are not influenced by their sociodemographic characteristics.

For the second specific objective, it was shown that transfer and storage (organizational knowledge) is a dimension that is not affected by sociodemographic data and that can be developed generally in the organization, with a p-value greater than 0.05 for the indicators of sex, age, and years of work.

In the case of the third specific objective, it was found that there are no statistically significant differences between sex, age, or years of work in the organization in terms of the application and use of knowledge (learning organization). Since the organization of learning can be influenced by factors outside these sociodemographic characteristics, the results are likely to be approximate.

According to the fourth specific objective, there were no significant differences between sex and age regarding human capital. When examining the human capital that the university has, the number of years of work teachers have been at the institution is a significant variable since it greatly implies the

In the case of the fifth specific objective, age and sex did not play a significant role in structural capital. It is important to note that, like IC, structural capital is only modified by the teacher's experience level or years of work, so the length of time they have been working in the company is a determining factor.

On the other hand, the sixth specific objective, relational capital, only varies significantly with age and years of work. Consequently, it is clear that relational capital naturally improves over time as the teacher gains experience in the classroom.

Finally, for the seventh specific objective, it is shown that there are no significant differences between sex and technological capital. The variable age and years of work in the organization are significant, respectively, with a p-value less than 0.05.

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CONTRIBUIÇÃO DE AUTORIA
Concepto y diseño del estudio: Rafael Romero-Carazas
Conceptualización: Julio Alberto Torres-Sánchez
Metodología: Oscar David La Cruz-Arango
Recogida de datos/investigación: Victoria Torres Cheje de Manchego
Conversión de datos: Melina Elizabeth Chávez-Choque
Análisis e interpretación de datos: Jorge Luis Suclla-Revilla
Discusión de resultados: David Hugo Bernedo-Moreira
Visualización (gráficos, tablas y otros): Sonia Gladys Gutiérrez-Monzón
Referencias bibliográficas – revisión: Mario Bryan Araujo-Montaño
Proyecto original: Fabrizio del Carpio-Delgado
Corrección y edición final: Rafael Romero-Carazas

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