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Identification of entrepreneurship and employment opportunities in information science and knowledge studies

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Introduction and Problem Statement

Information science is the science and practice dealing with the effective collection, storage, retrieval, and use of information. It is concerned with recordable information and knowledge, and the technologies and related services that facilitate their management and use. More specifically, information science is a field of professional practice and scientific inquiry addressing the effective communication of information and information objects, particularly knowledge records, among humans in the context of social, organizational, and individual need for and use of information. The domain of information science is the transmission of the universe of human knowledge in recorded form, centering on manipulation (representation, organization, and retrieval) of information, rather than knowing information[1].

Employment and lack thereof are among critical economic concerns for countries. Unemployment, as a significant societal disruptor, poses a serious challenge to social equilibrium. Developing countries such as Iran grapple with the pervasive issue of unemployment, whose consequences affect all facets of society. Entrepreneurship and self-employment are solutions to reduce unemployment, thus enhancing mental well-being in society, fostering economic growth, and nurturing cultural advancement[2].

A pressing challenge in the field of information science and knowledge studies involves graduates possessing the requisite skills and individual capacity to perform

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1 Tefko Saracvic, *Information sience*. In: *Encyclopedia of library and information sciences*, edited by Marcia J. Bates, Mary Niles Maak. New York: Taylor & Francis, 2009, p. 2570-2586.

2 Younes Nademi; Haniyeh Sadayhat Kalmarzi, *Investigating the effect of oil shocks and economic sanctions on unemployment regimes in Iran using the Markov switching approach*, »Iranian Energy Economics«, 26 (2018), n. 7, p. 131-156, DOI: 10.22054/jiee.2018.9102.

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entrepreneurial activities but lacking the necessary conditions to do so. Various factors, including economic crises, social dynamics, cultural contexts, family influences, and higher educational institutions like universities, can contribute to this issue. One of the fields with unemployment in Iran is the society of information science and knowledge studies. Its members lack the necessary creativity and are not taught about the limitations of starting a business, leading them down the path of unemployment[3].

The contemporary era is the century of knowledge and information, and the paramount assets of societies are the knowledge, skills, and attitudes of their human resources. Leveraging this capital for social progress is possible through entrepreneurship. Entrepreneurship serves as a central mechanism for fostering sustainable growth and development while also addressing prevalent issues like poverty, social and cultural disarray, and unemployment. The term 'entrepreneurship' originates from the French word *entreprendre*, signifying commitment, the pursuit of opportunities, and satisfying needs through innovative commercial ventures – a concept that has gained prominence since the 15th century. Unemployment has become a significant contemporary challenge that emerges in different shapes and affects diverse segments of society, including graduates. Academic communities often lack entrepreneurial drive and motivation. Therefore, universities must try to create innovative, energetic, inquisitive, and enterprising individuals. Employment not only stands out as one of the foremost social challenges today but, considering the existing crises, it can also be regarded as the main social concern in the coming decades[4]. This issue has turned more serious considering the large number of unskilled graduates who often look for employment instead of creating job opportunities and contributing to national development. This also applies to graduates specializing in Information Science and Knowledge Studies, who are generally grappling with such circumstances. A solution that has received great attention in many countries is fostering entrepreneurship within academic institutions[5]. And redefining the concept of work, transitioning from job-seeking to an entrepreneurial mindset[6]. Entrepreneurship refers to generating new value, whether material or spiritual, through dedicated efforts while considering associated risks. According to existing literature, entrepreneurship can be summarized as using skills for business innovation or establishing new enterprises. Currently, considerable emphasis is placed on entrepreneurship and entrepreneurs worldwide, and enhancing entrepreneurship and creating its groundwork are recognized as tools for economic advancement, particularly in developing nations[7].

3 Zahra Heydari Panah; Elham Ahmadi, *Investigating the labor market problems and solutions of graduates of librarianship and in formation*, 2012, <https://www.researchgate.net/publication/279866743>.

4 Mohammad Ali Amir Shabiani, *Historical toward scientific association in Iran*, «Rahyaft», 4 (1994), n. 6, p. 82-8. DOI: 20.1001.1.10272690.1373.4.6.7.6.

5 Farhanaz Rostami; Sepehr Geravandi; Zarafshani Keyumars, *Phenomenology of students' experiences in establishing business: a case study of students of agricultural and natural resources campus of Razi university in Kemanshah*, «Journal of entrepreneurship development», 4 (2011), n. 80, p. 87-105.

6 Heider Ahmadi; Hosseini Farajollan; Omidi Seyyedjamal; Maryam Naja Fabudi, *Identification of factors correlated with promoting entrepreneurship among postgraduate students of the Faculty of agricultural and natural resources Islamic Azad university, Science and research branch, Tehran*, «Educational leadership & administration», 3 (2009), n. 3, p. 9-24.

7 Maryam Sharifzade; Gholam Hossein Zamani, *Entrepreneurial spirit in agricultural students: a case study of Shiraz university*, «Agricultural sciences», 2 (2006), n. 1, p. 115-107.

Entrepreneurship serves as the primary catalyst for economic progress within societies. Due to its positive correlation with economic growth, more emphasis has been given to entrepreneurship in recent years, stressing the identification and pursuit of suitable opportunities for establishing new businesses. Posits that entrepreneurship encompasses any endeavor involving the creation of a new business or engaging in risky ventures like self-employment and establishment of a new or expansion of an existing enterprise by an individual, team, or organization. Entrepreneurship is explored within information science and knowledge studies from various dimensions, notably its contribution to economic development through business engagement. Meanwhile, given global advancements, it is vital to pay close attention to entrepreneurship within this field of study. Considering the gravity of the issue, enhancement of the educational system emerges as a crucial factor influencing entrepreneurial development. Entrepreneurship can effectively address deficiencies within this discipline. Thanks to its close association with information and knowledge resources, it can facilitate entrepreneurial activities that accelerate business growth and success in the job market. Entrepreneurship stands out as a fundamental aspect of information science and knowledge studies alongside other disciplines. It highlights that graduates in this field are seen as knowledge seekers since they are familiar with information resources and technological skills thanks to their specialized training[8].

Raising awareness about entrepreneurship among librarians, managers, and professors through libraries can promote hope and motivation to tackle problems stemming from poverty and social and cultural disarray and help to reduce unemployment. These professionals are often overlooked despite their potential as cultural pillars with a high potential for promoting entrepreneurship. If supported, these individuals can create jobs through entrepreneurial initiatives in line with the goals of social progress. Given the importance of entrepreneurship and employment coupled with insufficient attention to them within the discipline under study, the present research evaluated the state of entrepreneurship in this field while identifying its potential grounds and opportunities. This research investigated entrepreneurship among librarians, managers, and professors in the universities of Kermanshah (namely Razi University, Payam-e Noor University, Islamic Azad University, and Medical Sciences University).

Research questions

Primary question:

- What entrepreneurial and employment opportunities are there within information science and knowledge studies?

Secondary questions:

- What are the educational opportunities in Information Science and Knowledge Studies?
- What are the research opportunities in Information Science and Knowledge Studies?
- What are the technological opportunities in Information Science and Knowledge Studies?
- What are the socio-cultural opportunities in Information Science and Knowledge Studies?
- What are the political opportunities in Information Science and Knowledge Studies?
- What are the occupational opportunities in Information Science and Knowledge Studies?

8 Tina Seeling, *I wish I knew when I was 20*, translated by Mina Safari. Tehran: Milkan, 2009, p. 19, <https://www.30book.com/book/95402/>.

Research background

A research titled *Obstacles of Academic Entrepreneurship and Commercialization of Knowledge in the Field of Knowledge and Information Science*, explored the perspectives of faculty members on the primary obstacles to entrepreneurship in information science and knowledge studies. Some of the identified obstacles were beyond the control of experts. However, boosting and investing in factors within their control can facilitate progress towards academic entrepreneurship. The results of this study offer valuable insights for fostering academic entrepreneurship[9].

A study was carried out on *Entrepreneurship in Public Libraries: Using the Research Synthesis Method*. Findings revealed that at the international level, general research trends focused on 'entrepreneurial information services' while trends in Iran focused on 'organizational entrepreneurship, organizational culture, creativity, and organizational innovation'[10].

Entrepreneurship was assessed in librarianship for poverty reduction among librarians in Colleges of Education in North Central, Nigeria. The findings reveal that librarians and other information professionals expand their interests and enthusiasm for entrepreneurial opportunities both within and beyond the library setting[11].

It was examined the role of managers in organizational success and enhancing work quality through a study on entrepreneurial methods. The outcomes underscored that managers play a pivotal role in organizational success. Moreover, recognizing entrepreneurial personality traits emerged as crucial factors to ensure organizational prosperity. In addition, risk-taking mindsets, pursuit of success, creativity, and independence were highlighted as important traits of entrepreneurship[12].

Entrepreneurship drivers, barriers, and facilitators among Australian students were explored. They concluded that lack of self-confidence, poor leadership skills, idea generation challenges, fear of failure, and concerns about limited experience pose significant obstacles to entrepreneurship among these students[13].

It was conducted a study titled *Identification and analysis of barriers in knowledge commercialization in information science and knowledge studies from the viewpoints of faculty members and doctoral students*. They categorized 40 identified barriers into seven general categories, with the most important barriers being individual, infra-

9 Hasan Mahmoudi Tupkanlo; Rahman Marefat, *Obstacles of academic entrepreneurship and commercialization of knowledge in the field of knowledge and information science*, «Librarianship and information organization studies», 2 (2023), n. 34, p. 71-98. DOI: 10.30484/NASTINFO.2023.3400.2208.

10 Farzaneh Ghanadinezhad, *Entrepreneurship in public libraries: a review of studies using the meta-synthesis method*, «Library and information science research», 1 (2022), n. 12, p. 100-120. DOI: 10.22067/infosci.2022.24194.

11 B. M. Samaila; T. A. Said; R. O Bakai, *Assessment of Entrepreneurship in Librarianship for Poverty Reduction and Unemployment Among Librarians in Colleges of Education in North Central, Nigeria*, «International journal of research and innovation in social science (IJRISS)», 6 (2022), n. 7, p. 510-516, <https://ideas.repec.org/a/bcp/journl/v6y2022i7p510-516.html>.

12 Magdalena Markowska; Johan Wiklund, *Entrepreneurial learning under uncertainty: exploring the role of self-efficacy and perceived complexity*, «Entrepreneurship & regional development», 32 (2020), n. 7-8, p. 628-606. DOI: 10.1080/08985626.2020.1713222.

13 Sally Smitha; Margaret Hamiltonb; Khristin Fabian, *Entrepreneurial drivers, barriers and enablers of computing students: gendered perspectives from an Australian and UK university*, «Studies in higher education», 45 (2019), n. 9, p. 1905-1892. DOI: org\10.1080\03075079.2019.1637840.

structural, and legal-organizational factors, whereas technological barriers proved less significant among others[14].

The role of public and university libraries was examined in enhancing entrepreneurship services through a systematic review. The results showed that libraries contributed to entrepreneurial development through services and products, teaching entrepreneurship, entrepreneur networking and support, establishing business enterprises, attracting investment and budget, and fostering an innovative entrepreneurial culture via creativity[15].

It was investigated the job prospects of university graduates in the labor market. The results underscored two central themes, namely entrepreneurship in the labor market and the university's need to develop instructional materials. The students generally saw no stable relationship between education and the labor market and many of them felt unqualified to start working. Moreover, all graduates believed that improving educational activities is of great importance in encouraging them and facilitating their employment[16].

The job prospects of library and information science graduates was then investigated. The students showed significantly lower optimism than average regarding securing a job in their field of study and higher than average regarding prospects of securing any job[17].

The role of library services in entrepreneurship development from the perspective of managers and librarians was explored. Results indicated that educational facilities surpassed average levels at 71% while information services met or exceeded the average threshold of 65%[18].

Environmental obstacles to entrepreneurship tendencies among students and graduates were studied. Some of these obstacles included poor supportive governmental policies and plans, closed market conditions, and restrictive business development regulations[19].

A thesis focused on opportunities and variables of educational and research activities in entrepreneurship among master's students at Isfahan and Zanjan universities

14 Sadegh Yari; Gholam Reza Heydari; Mohhamad Hassan Azimi, *Identification and analysis of barriers in knowledge commercialization in information science and knowledge studies from the viewpoints of faculty members and doctoral students*, «Sciences and techniques of information management», 5 (2019), n. 2, p. 182-157. DOI: 10.22091/STIM.2019.1417.

15 Razia Kazemi; Lili Seifi, *Role of public and academic libraries in promoting and dissemination of entrepreneurship services: systematic review*, «Librarianship and information organization studies», 30 (2019), n. 82, p. 57-39. DOI: 10.30484/nastinfo.2019.2324.

16 David Alvarez Garcia [*et al.*], *Individual family, and community predictors of cyber-aggression among adolescents*, «The European journal of psychology applied to legal context», 10 (2018), n. 2, p. 88–79. DOI: 10.5093/ejpalc2018a8.

17 Zahed Bigdeli; Seyedeh Sedigheh Taherzadeh Mousavian; Shabanam Shahini, *Job Expectancy of LIS students after Graduation*, «Social development quarterly», 4 (2017), n. 11, p. 182-155. DOI: 10.22055/qjsd.2017.13010.

18 Marzieh Fallah Kordabadi, *Role of library services in entrepreneurship development from the perspective of managers and librarians*, «Journal of research in psychology and educational sciences», 19 (2017), n. 819, p. 97-106, <https://civilica.com/doc/1501395/>.

19 Mohmmad Taghi Ansari; Bahman Fakour, *A survey one on textual barriers to business startup by Iranian graduates*, 82 (2023), n. 20, p. 141- 117.

in 2008-2009. The author stated that most experts in economics see entrepreneurship as one of the essential needs of society, which requires substantial attention in terms of education and research.

The role of entrepreneurs concerning the effect of entrepreneurship education and experience based on their traits was studied. They found that entrepreneurs with above-average traits had prior entrepreneurial training. A significant direct relationship was observed between training and work performance based on these traits[20].

Background Summary

This section examined the findings of the literature on entrepreneurship and employment, focusing on studies in the field of information science and knowledge studies. Moreover, studies that used a similar methodology to that of the present research were given priority. A review of various texts and sources showed no specific book or research investigating contexts and opportunities of entrepreneurship and employment in the field of information science and knowledge studies from the perspectives of librarians, managers, and university professors in Kermanshah.

The research background related to entrepreneurship in Iran and abroad was prepared in a historical order. Entrepreneurship holds great significance in humanities, particularly in the fields of information science and knowledge studies. Entrepreneurship and employment are crucial drivers behind scientific and academic endeavours. According to both national and international research, one of the major obstacles to motivating university graduates to become entrepreneurs in this field is the misalignment between instructional materials and the demands of the job market, inadequate financial training, and the absence of formal and informal support foundations. Moreover, motivation and prospects of securing a suitable job related to their field of study were found to be declining among these students in recent years.

Research Methodology

This was an applied study using a survey-analytical approach. The target population consisted of librarians, managers, and professors from universities in Kermanshah, including Razi University, Payam-e Noor University (Kermanshah Branch), University of Medical Sciences, and Islamic Azad University, Paramedicine, Nursing, Dentistry Faculty). The total population size for this research was 55 individuals. All 55 people were present in the research and there was no need for sampling. The data was collected through fieldwork and using a researcher-made questionnaire with 50 items, categorized into three sections. The first section was related to demographic information, including gender, age, education level, job position, and work experience. The second section contained the main questions, comprising 50 items, designed to identify the contexts and opportunities for entrepreneurship and employment in information science and knowledge studies. The questions used a 5-point Likert scale ranging from very little to very much. The third section examined the importance of each component from the viewpoint of the research population, in addition to an open question to collect their solutions and suggestions. The validity of the questionnaire was tested through face validity based on expert opinions, and its reliability was determined with a Cronbach's alpha coefficient at 783%.

20 Kevin Daum, *Entrepreneurs: the artistic of the business world*, «Business strategy», 26 (2013), n. 85, p. 53-57. DOI: 10.1108/02756660510700546.

No.	Variable	Cronbach's alpha
1	Educational context	0.736
2	Research context	0.708
3	Technological context	0.720
4	Political context	0.752
5	Sociocultural context	0.745
6	Occupational context	0.789
7	Entrepreneurial opportunities	0.783

Figure 1 – Results of Cronbach's coefficient

The data was analyzed using descriptive and inferential statistical analysis. Descriptive statistics provided insight into the demographics of the participants. This was achieved using tools such as frequency tables, frequency percentages, pie charts, measures of central tendency like mean, and measures of dispersion such as variance, standard deviation, minimum, and maximum. Meanwhile, inferential statistics was employed to test the research hypotheses using the simple linear regression technique in the SPSS 26 environment.

Findings

Variable		Frequency	Frequency (%)
Gender	Female	38	69
	Male	17	31
	Total	55	100

Figure 2 – The frequency distribution and frequency percentage of respondents based on gender

As shown in Figure 2, there were 38 female and 17 male respondents.

Variable		Frequency	Frequency (%)
Age	20-30	2	3.6
	30-40	4	7.2
	40-50	25	45.4
	50-60	21	38.1
	60-70	2	3.6
	N/A	1	1.8
	Total	55	100

Figure 3 – The frequency distribution and frequency percentage of respondents based on age groups

According to Figure 3, 2 individuals were in the 20–30 years age group, 4 in the 30–40, 25 in the 40–50, 21 in the 50–60, and 2 in the 60–70 age group. One individual did not respond to this item.

Variable		Frequency	Frequency (%)	Cum. frequency
Education	High school diploma	4	7.3	4
	Bachelor's Degree	19	34.5	23
	Master's Degree	23	41.8	46
	PhD	9	16.4	55
	Total	55	100	

Figure 4 – The frequency distribution and frequency percentage of respondents based on education

As shown in Figure 4, 4 individuals held a high school diploma, 19 a bachelor's degree, 23 a master's degree, and 9 a PhD degree.

Variable		Frequency	Frequency (%)	Cum. frequency
Job Position	Librarian	33	60	33
	Professor	5	9.1	38
	Manager	6	10.9	44
	Employee	11	20	55
	Total	55	100	

Figure 5 – The frequency distribution and frequency percentage of respondents based on occupational status

As shown in Figure 5, 33 individuals were librarians, 5 were professors, 6 were managers, and 11 were employees.

Variable		Frequency	Frequency (%)	Cum. frequency
Work Experience (years)	10>	6	10.9	6
	10-20	20	36.3	26
	20-30	26	47.2	52
	30<	3	5.4	55
	Total	55	100	

Figure 6 – The frequency distribution and frequency percentage of respondents based on work experience

According to the data presented in Figure 6, there were 6 individuals with less than 10 years of experience, 20 individuals with 10 to 20 years, 26 individuals with 20 to 30 years, and 3 individuals with over thirty years of experience.

No.	Variable	Number	min	max	Mean	Standard Deviation
1	Educational context	55	27	60	43.25	6.52
2	Research context	55	20	58	37.95	8.58
3	Technological context	55	14	54	36.95	7.91
4	Political context	55	4	20	12.04	4.53
5	Sociocultural context	55	7	32	21.42	5.05
6	Occupational context	55	4	20	13.29	3.20
7	Entrepreneurial opportunities	55	88	215	27.48	5.93

Figure 7 – Descriptive statistics for variables of entrepreneurship and employment opportunities in information science and knowledge studies

According to Figure 7, the mean values and standard deviations were 12.04 ±4.53 for the political context, 21.42 ±5.05 for the sociocultural context, and 13.29 ±3.02 for the last component. In most parametric tests, the validity of results hinges on meeting several basic assumptions, and the test results would be unreliable if these prerequisites were not met. Central among these is the assumption of data normality. When assessing data normality, researchers typically assume a normal data distribution for the null hypothesis with a significance level of 5%. The Kolmogorov-Smirnov test serves as one method for scrutinizing data normality by examining variable distributions. Accordingly, data normality was tested before correlation and regression analyses.

No.	Variable	Test Statistics	Significance level	Normality
1	Educational context	0.101	0.200	Normal
2	Research context	0.106	0.181	Normal
3	Technological context	0.068	0.200	Normal
4	Political context	0.097	0.200	Normal
5	Sociocultural context	0.032	0.118	Normal
6	Occupational context	0.035	0.114	Normal
7	Entrepreneurial opportunities	0.038	0.200	Normal

Figure 8 – Results from the Kolmogorov-Smirnov test assessing the normality of the entrepreneurial opportunities variable* and its components

A significance level exceeding 5% in the Kolmogorov-Smirnov test suggests a high likelihood of data normality. As shown in Figure 8, all components related to entrepreneurial opportunities exhibit significance levels above 0.05, confirming a normally distributed dataset, which allows for using linear regression analysis. Accordingly, entrepreneurship and job prospects within information science and knowledge studies were analyzed using linear regression analysis (Figure 9).

	Correlation coefficient R	R-squared (coefficient of determination)	Adjusted R-squared	Standard error of estimate
Model	0.996	0.992	0.991	2.46

Figure 9 – Summary of Regression Analysis Model

The correlation coefficient (R) quantifies the strength of association between observed and predicted values of dependent variables, i.e., entrepreneurial and employment opportunities in information science and knowledge studies. This coefficient shows the extent of correlation among independent and dependent variables; values closer to one signify robust correlations between them. In this study, a correlation coefficient of 0.996 was obtained, indicating a robust correlation between the dependent variable (i.e., entrepreneurial and employment opportunities in information science) and independent variables (i.e., educational, research, technological, political, sociocultural, and occupational contexts).

The coefficient of determination (R2) illustrates the explanatory power of the model. That is, it indicates what percentage of variations in the dependent variable can be explained by the independent variables. As shown in Figure 9, R2 was recorded at 0.992, signifying that 99% of variations in the dependent variables are accounted

for by educational, research, technological, political, sociocultural, and occupational variables. A model exhibiting a high R2 (close to 1) is deemed appropriate; hence, the regression model used in this study is highly suitable.

		Sum of squares	Degree of freedom	Mean square	F-test	Significance level
Model	Regression	36090.812	5	7218.162	1184.759	000/0
	Residual	298.533	49	6.093		
	Total	36389.34	5	54		

Figure 10 – Results of regression model's ANOVA

With a significance level of 0.000 (Figure 10), it can be concluded that the fitted model holds significance and that the regression model is suitable. The figure above is related to the output of variance analysis test. This output is the most important part in ANOVA. In the last column, as well as column F, which can be seen in the figure, it is clear that the null hypothesis, that is, the equality of the average between entrepreneurship and employment opportunities, is rejected. The significance value (sig) was less than 0.05. As a result, there is a significant difference in information science in terms of identifying entrepreneurship and employment opportunities.

Model	**Nonstandard coefficients**		**Standard coefficients**		
	Beta Coefficien	Standard error	Beta Coefficient	Test statistics	Significance level
Y-intercep	6.166	2.490		2.477	0.017
Educational	1.197	0.066	0.301	18.141	0.000

Figure 11 – The regression coefficient for the educational context variable

According to Figure 11, a significance level of 0.000 was obtained for the educational context variable, showing its high effect on the dependent variable. The resulting beta coefficient indicates that 30% of variations in the dependent variable are determined by the educational context variable.

Entrepreneurship and skill training should be included in curriculum. We should include skill training in our curriculum. Our teaching method In Iran is more theoretical. Even the practical part of the lesson which is theoretical-practical is not implemented much, but those lessons which have been read in the theory part are tried to be experienced in school workshops. The operational part of this course is not in the real meaning of skill training. Skill training means that a person can enter the labor market after graduation and does not need to undergo practical training again. So, a fundamental revision in the teaching method is inevitable.

Model	**Nonstandard coefficients**		**Standard coefficients**		
	Beta Coefficient	Standard error	Beta Coefficient	Test statistics	Sig. level
Y-intercept	1666.	4902.		4772.	0170.
Research	1251.	0530.	3720.	23721.	0000.

Figure 12 – Regression coefficient for the research variable

According to Figure 12, a significance level of 0.000 was obtained for the research context variable, showing its high effect on the dependent variable. The resulting beta coefficient indicates that 37% of variations in the dependent variable are determined by the research context variable, which also provided the highest estimate of the dependent variable.

Despite the increase in the number of researches in the field of information science, in some cases, the quantitative growth of researches is not accompanied by an increase in their quality. Some of the researches in this field are not practical and are not aimed at solving the problems of the society. A number of researches in this field are repetitive and lack innovation. This can be caused by the inability of researchers to choose the topic for their research.

Model	Nonstandard coefficients		Standard coefficients		
	Beta Coefficient	Standard error	Beta Coefficient	Test statistics	Sig. level
Y-intercept	6.166	2.490		2.477	0.017
Technological	0.939	0.064	0.286	14.672	0.000

Figure 13 – Regression coefficient for the technological variable

According to Figure 13, a significance level of 0.000 was obtained for the technological context variable. The beta coefficient shows that 28% of variations in the dependent variable are determined by the technological context variable.

From the point of view of university professors and librarians, among the various topics identified in the field of entrepreneurship in information science, topics related to information technologies have more priority for conducting future research than traditional topics and theoretical topics.

Model	Nonstandard coefficients		Standard coefficients		
	Beta Coefficient	Standard error	Beta Coefficient	Test statistics	Sig. level
Y-intercept	6.166	2.490		2.477	0.017
Political	0.830	2.116	0.145	7.145	0.000

Figure 14 – Regression coefficient for the political variable

According to Figure 14, a significance level of 0.000 was obtained for the political context variable. Moreover, the resulting beta coefficient indicates that 14% of variations in the dependent variable are determined by the political context variable. Compared to other variables, the political context provided the least estimation of variations.

In the current research, the average of this component among the research community was lower than other components. As a result, the reasons for ignoring political issues in identifying opportunities and entrepreneurship capabilities of information sciences should be investigated in this regard.

Model	Nonstandard coefficients		Standard coefficients		
	Beta Coefficient	Standard error	Beta Coefficient	Test statistics	Sig. level
Y-intercept	1666.	4902.		4772.	0170.
Sociocultural	9150.	1100.	1780.	3398.	0000.

Figure 15 – Regression coefficient for the sociocultural variable

According to Figure 15, a significance level of 0.000 was obtained for the sociocultural context variable. The beta coefficient shows that 17% of variations in the dependent variable are determined by the sociocultural context variable.

From the point of view of the researched society, in the field of information science, more than education, cultural work should be done. There is this idea among information science students in Iran that they study the course, get the degree and get employed in an institution. Students are constantly waiting for the public library institution to call to enter this institution through the recruitment test. Their view is employment, while if they are careful, they can be entrepreneurs with the plans they have made and the capabilities they have acquired. Specialists in this field can work in different fields and even be active in fields such as editing, magazine offices, consulting information centers and workshops, consulting libraries, etc.

Model	Nonstandard coefficients		Standard coefficients		
	Beta Coefficient	Standard error	Beta Coefficient	Test statistics	Sig. level
Y-intercept	1666.	4902.		4772.	0170.
Occupational	9120.	1140.	1540.	4656.	0000.

Figure 16 – Regression coefficient for the occupational variable

According to Figure 16, a significance level of 0.000 was obtained for the occupational context variable. The beta coefficient indicates that 15% of variations in the dependent variable are determined by the occupational context variable.

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.301	.303		.993	.326
	Educational	.297	.104	.271	2.852	.006
	Research	.105	.081	.125	1.287	.204
	Technological	.297	.086	.358	3.450	.001
	Political	.217	.057	.412	3.776	.000
	Sociocultural	-.180	.094	-.218	-1.926	.060
	Occupational	.282	.069	.358	4.077	.000

Figure 17 – Regression coefficient for the Coefficients All variables

Librarians, managers, and professors in the universities of information sciences know the benefits and privileges of information entrepreneurship and are willing to create new opportunities from their science and knowledge reserves. Considering the importance of entrepreneurship, the following works and activities are worthy of consideration from the point of view of the research society:

1- Organization of digital resources: Librarians can organize and present digital resources. In addition, creating specialized collections or producing databases is another important role that librarians have basic responsibility on. These organized collections can be monetized in various ways, including subscription services.

2- Online courses and workshops: Using their expertise, librarians can conduct online courses or workshops on topics related to information literacy, research skills, or specialized topics in their field.

3- Consulting services: Librarians can provide consulting services to businesses, educational institutions, or individuals seeking guidance on information management, research methods, and knowledge organization.
4- Information products: Produce and sell information products such as e-books, guides or tools that help individuals and organizations improve their information management practices.
5- Research services: Providing research services to businesses or people who need detailed and in-depth information on specific topics.
6- Information brokerage: Librarians can provide information brokerage services and facilitate the exchange of knowledge as an intermediary between people or organizations that are looking for information.
7- Customized training programs: Developing and providing customized training programs for organizations that seek to increase information literacy and research skills of their employees.
8- Integration of information technology: Librarians can provide opportunities to integrate information technologies such as databases, develop information retrieval systems or provide solutions for digital knowledge management.
9- Digital archive services: Providing protection and digital archive services for individuals or organizations that seek to protect and manage their digital assets.
10- Producing and selling specialized research reports: Produce and sell specialized research reports on emerging trends, industry reporting (meaning the process of gaining a comprehensive understanding of consumers, customers, competitors and the entire business) or other valuable information in their specialty.

Discussion and Conclusion

One of the major problems in the field of information science and knowledge studies pertains to low job prospects and unemployment. Expanding entrepreneurship and embracing an entrepreneurial role are viable solutions for this pressing concern. Entrepreneurship is an innovative solution within the academic system. Its emerging role and effect on job creation as well as its development as a discipline among librarians can significantly contribute to employment, thereby improving optimism and drive among librarians. The primary objective of this study was to identify contexts and opportunities for entrepreneurship and employment within information science and knowledge studies as perceived by librarians, managers, and professors affiliated with universities in Kermanshah. The results revealed seven contexts, including educational, research, technological, political, sociocultural, and entrepreneurship and employment opportunities. Results showed that 92% of variations in the dependent variable—namely entrepreneurship and employment opportunities within information science and knowledge studies—are determined by these seven contexts. Moreover, educational, research, technological, political, sociocultural, and occupational variables affected the entrepreneurship and employment opportunities variable.

Primary question: What entrepreneurial and employment opportunities are there within information science and knowledge studies?

Research results showed that 92% of variations in the dependent variable can be accounted for using the proposed model using the educational, research, technological, political, sociocultural, and occupational context variables.

What are the educational contexts related to entrepreneurship and employment opportunities in information science and knowledge studies? For the educational context variable, a significance level of 0.000 was obtained, and its beta coefficient

showed that 30% of variations in entrepreneurship and employment opportunities are determined by this variable. With a mean value of 43.25, the educational context is placed in the above-average category. In other words, the average educational context in entrepreneurship and employment is acceptable. The results of this research are consistent with those of.

Considering the special importance of entrepreneurship training in the field, it is necessary to take measures to improve training conditions. This requires using more suitable educational facilities and equipment and including entrepreneurship in the academic curriculum as a specialized unit. Moreover, extracurricular training and educational workshops can be provided to improve job skills and help aspiring entrepreneurs.

What are the research contexts related to entrepreneurship and employment opportunities in information science and knowledge studies? A significance level of 0.000 was obtained for the research context. The beta coefficient demonstrates that 37% of variations in the dependent variable are determined by the research context variable. The average value reported for this component was 95.37, showing that the research context in information science and knowledge studies enjoys acceptable conditions in the average category. The findings of this research are consistent with those of Nabiollah Bayat (2010), highlighting the importance of close attention to entrepreneurship research in this discipline. Attention to journals and studies can help to better introduce entrepreneurship in the field.

What are the technological contexts related to entrepreneurship and employment opportunities in information science and knowledge studies? A significance level of 0.000 was reported for the technological context. Its beta coefficient showed that 28% of variations in entrepreneurship and employment opportunities are determined by this variable. With a mean value of 36.95, the technological context is placed in the average category. The results were in line with the findings of Sarfarazi et al. (2020).

Nowadays, the effect and expansion of technology worldwide are undeniable. the existence of information networks, social platforms, national media, and websites, alongside further investments in them, can greatly improve the technological competencies of individuals and thereby improve entrepreneurship in this discipline.

What are the political contexts related to entrepreneurship and employment opportunities in information science and knowledge studies? A significance level of 0.000 was achieved for the political context. The beta coefficient indicated that 14% of variations in the dependent variable are determined by the political context variable. With a mean value of 12.04, the political context is placed in the very poor category, which is consistent with the findings of Ansari and Fakour (2014). Therefore, governments must take measures to improve the political context in this discipline, place greater attention on creative and enterprising individuals, and develop better policies, plans, and budgeting for these entrepreneurs.

What are the sociocultural contexts related to entrepreneurship and employment opportunities in information science and knowledge studies? A significance level of 0.000 was reported for the sociocultural context. Its beta coefficient demonstrated that 17% of variations in entrepreneurship opportunities are determined by this variable. With a mean value of 21.42, the sociocultural context is placed in the poor category. There were no other studies with the same finding. Culture and society are central pillars within every society, and so it is important to pay closer attention to them in libraries to pave the way for entrepreneurship in this field. The culture of entrepreneurship should be embedded within libraries, and academic and organizational environments as a crucial step towards fostering entrepreneurship. This is particularly important given the high status of libraries and librarians in society.

What are the occupational contexts related to entrepreneurship and employment in information science and knowledge studies? A significance level of 0.000 was reported for the occupational context, showing the high effect of this independent variable on entrepreneurship and employment in this discipline. With a mean value of 13.29, this variable is placed in the poor category. This is in line with the results of Mansourian et al. (2012) and Bigdeli et al. (2017). Having a job is of high importance for every individual, and librarians and graduates of information science and knowledge studies are no exception. Given the field's below-average conditions in this regard, measures should be implemented to enhance employment conditions, such as increasing annual recruitments in public libraries. This will improve the job prospects of these graduates and resolve some of the existing concerns.

By adopting entrepreneurial approaches and using their expertise in information management and dissemination, librarians can contribute to the digital economy as information entrepreneurs. This transition often involves adapting to new technologies, exploring diverse revenue streams, and understanding the unique value of librarians for information management.

The evolving landscape of information and technology shows that success in information entrepreneurship requires making changes in the curricula of educational groups of information science which seems increasingly inevitable today.

Recommendations

1. Creating fundamental changes in courses and educational content based on entrepreneurial thinking, providing entrepreneurial training, and promoting entrepreneurial attitudes in librarians, managers, and university professors.
2. Changing educational content and planning concepts to new solutions that enhance entrepreneurial education and emphasizing specialized and applied education in different fields.
3. Boosting entrepreneurial growth through research funding, using university-based incubators, and strengthening organizations of university librarians, managers, and professors to increase educational, research, and consulting services.
4. Investigating the cultural and social aspects of entrepreneurship in the field of information science and knowledge studies and identifying effective factors in creating an entrepreneurial culture in this discipline.
5. Transforming the culture of librarians, managers, and university professors and promoting entrepreneurial thinking by emphasizing the importance of entrepreneurship education.
6. Encouraging transformation of concepts such as work, goods, market, and income, which requires universities to revise their curricula.
7. Identifying and determining the qualitative needs of the labor market and aligning academic education with the needs of librarians, managers, and university professors.
8. Promoting the use of new technologies in the field of information science and knowledge studies and identifying areas for facilitating entrepreneurship.

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ABSTRACT

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Individuazione di opportunità imprenditoriali e occupazionali nella scienza dell'informazione e negli studi sulla conoscenza

Obiettivo: Questo studio mira a identificare i vari contesti e opportunità per l'imprenditorialità e l'occupazione nel campo delle scienze dell'informazione e degli studi sulla conoscenza dal punto di vista di bibliotecari, manager e professori nelle università di Kermanshah, Iran.

Metodologia: Questa è stata una ricerca applicata che ha utilizzato come strumento di rilevazione il questionario. La raccolta dei dati ha comportato l'uso di un questionario creato dal ricercatore con una scala Likert a 5 punti. La validità del questionario è stata valutata tramite opinioni di esperti, mentre la sua affidabilità è stata determinata utilizzando il coefficiente alfa di Cronbach ($\alpha = 0{,}783$). La popolazione di ricerca era composta da 64 individui, tra cui bibliotecari, manager e professori nelle università di Kermanshah. La dimensione del campione è stata determinata a 55 tramite la formula di Cochran. I dati sono stati analizzati utilizzando il normale metodo di regressione lineare con statistiche descrittive nell'ambiente SPSS 26. Il test di Kolmogorov-Smirnov è stato utilizzato per valutare la normalità dei dati.

Risultati: I risultati della ricerca hanno rivelato che le variabili indipendenti influenzano significativamente la variabile dipendente, ovvero l'imprenditorialità e l'occupazione nelle scienze dell'informazione e negli studi sulla conoscenza. Circa il 92% delle disparità nelle opportunità imprenditoriali e occupazionali in questo campo può essere condizionato da contesti educativi, di ricerca, tecnologici, politici, socioculturali e occupazionali. Dopo aver analizzato ciascuna variabile separatamente, si è scoperto che relativamente alle differenze nelle opportunità imprenditoriali e occupazionali il 30% può essere attribuito al contesto educativo, il 37% al contesto di ricerca, il 28% al contesto tecnologico, il 14% al contesto politico, il 17% al contesto socioculturale e il 15% al contesto occupazionale.

Risultati: I risultati hanno dimostrato che le variabili educative, di ricerca, tecnologiche, socioculturali, occupazionali e politiche hanno un impatto significativo sulle opportunità imprenditoriali e occupazionali. È stato anche osservato che i contesti educativi, di ricerca, tecnologici e socioculturali godono di condizioni relativamente favorevoli, mentre gli aspetti occupazionali e politici richiedono più supporto e attenzione.

Identification of entrepreneurship and employment opportunities in information science and knowledge studies

Objective: This study aims to identify the various contexts and opportunities for entrepreneurship and employment in the field of information science and knowledge studies from the perspective of librarians, managers, and professors in the universities of Kermanshah, Iran.

Methodology: This was an applied research using a survey-analytical method. Data collection involved the use of a researcher-made questionnaire with a 5-point Likert scale. The face validity of the questionnaire was assessed through expert opinions, while its reliability was determined using Cronbach's alpha coefficient ($\alpha = 0.783$). The research population consisted of 64 individuals, including librarians, managers, and professors in the universities of Kermanshah. The sample size was determined at 55 through Cochran's formula. Data was analyzed using the ordinary linear regression method with descriptive statistics in the SPSS 26 environment. The Kolmogorov-Smirnov test was employed to assess data normality.

Findings: The research findings revealed that the independent variables significantly influence the dependent variable, i.e., entrepreneurship and employment in information science and knowledge studies. Approximately 92% of the variations in entrepreneurship and employment opportunities within this field can be predicted by educational, research, technological, political, sociocultural, and occupational contexts. After analyzing each variable separately, it was found that of the changes in entrepreneurship and employment opportunities, 30% can be attributed to the educational context, 37% to the research context, 28% to the technological context, 14% to the political context, 17% to the sociocultural context, and 15% to the occupational context.

Results: The results demonstrated that educational, research, technological, sociocultural, occupational, and political variables have a significant impact on entrepreneurship and employment opportunities. It was also observed that the educational, research, technological, and sociocultural contexts enjoy relatively favorable conditions, whereas the occupational and political aspects require more support and attention.