Artículo de investigación

Impediments faced by educational institutions in creation of knowledge economy: a case study of Punjab Pakistan

Los impedimentos que enfrentan las instituciones educativas en la creación de la economía del conocimiento: un estudio de caso de Punjab Pakistán

Impedimentos enfrentados por instituições educacionais na criação de economia do conhecimento: um estudo de caso de Punjab Paquistão

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Abstract

Knowledge has become a powerful tool for the development of economy. The important role played by educational institutions in the production of knowledge economy cannot be denied. Pakistan is a developing country and has limited resources to deal with the new challenges of economy, so the research was designed to find out the problem faced by educational institutions in the process of creation of knowledge economy. The research was conducted into two parts. In the first part, qualitative approach is used to develop variables. These variables are further analyzed by using quantitative inquiry. Collected data is analyzed by using the SPSS. Descriptive statistics are applied to data to get the results. Results guide us that educational institutions are facing problems in providing access to knowledge, rich infrastructure, funds, incentives, research and development, developed human capital, and developing link between industry and universities. These problems are impeding the process of knowledge creation. Knowledge creation can only be enhanced by dealing the above mentioned problem.

Keywords: Knowledge economy, educational institutions, access to knowledge, poor

Resumen

El conocimiento se ha convertido en una herramienta eficaz para el desarrollo de la economía. El rol desempeñado por las instituciones educativas en la producción de conocimiento de la economía no puede ser denied. El Pakistán es un país de transición y tiene recursos limitados para satisfacer los nuevos desafíos de la economía, ya que la investigación está diseñada para resolver el problema de las instituciones educativas en el proceso de creación de conocimiento de la economía. La investigación se llevó en dos partes. En el primer paso, se utilizó un método de aproximación para desarrollar variables. Estas variables se analizan mediante la utilización de cuantitativos cuantitativos. Se ha recopilado la fecha con el SPSS. La descripción estática se aplica a la fecha para obtener los resultados. En el caso de que se produzca un cambio en la calidad de la información, se debe tener en cuenta que, Estos problemas impiden el proceso de creación de conocimiento. La concepción de Knowledge Base sólo se puede mejorar al tratar el problema anteriormente mencionado.

Palabras clave: conocimiento de la economía, educación de las comunidades, acceso al conocimiento, pobre infraestructura,

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infrastructure, funds, incentives, research and development, human capital development, collaboration with industry.

fondos, incentivos, investigación y desarrollo, desarrollo de capital humano, colaboración con la industria.

Resumo

O conhecimento tornou-se uma ferramenta poderosa para o desenvolvimento da economia. O importante papel desempenhado pelas instituições educacionais na produção da economia do conhecimento não pode ser negado. O Paquistão é um país em desenvolvimento e tem recursos limitados para lidar com os novos desafios da economia, então a pesquisa foi projetada para encontrar o problema enfrentado pelas instituições educacionais no processo de criação da economia do conhecimento. A pesquisa foi realizada em duas partes. Na primeira parte, abordagem qualitativa é usada para desenvolver variáveis. Essas variáveis são analisadas posteriormente usando a pesquisa quantitativa. Os dados coletados são analisados usando o SPSS. Estatísticas descritivas são aplicadas para obter os resultados. Os resultados nos orientam que as instituições de ensino estão enfrentando problemas para fornecer acesso ao conhecimento, rica infraestrutura, fundos, incentivos, pesquisa e desenvolvimento, desenvolvimento de capital humano e desenvolvimento do vínculo entre a indústria e as universidades. Esses problemas estão impedindo o processo de criação do conhecimento. A criação de conhecimento pode ser melhorada ao lidar com o problema mencionado acima.

Palavras-chave: Economia do conhecimento, instituições educacionais, acesso ao conhecimento, infraestrutura deficiente, fundos, incentivos, pesquisa e desenvolvimento, desenvolvimento do capital humano, colaboração com a indústria.

Introduction

Nowadays countries are becoming powerful on the basis of production of knowledge not on the basis of production of weapons. Educational institutions are considered the industries for production of knowledge economy. Unfortunately, Pakistan's educational institutions are not contributing as much as needed in the production of knowledge economy. This is the reason behind the economic instability of Pakistan.

Economy and education are the most important factors to bring change to meet the challenges of global economy called knowledge economy. All institutions have to change continuously according to changing trends of society, so when one institution has changed, it influenced the other institution and as a result the other institution also has to change. Any of the institution could not sustain without changes brought by other institution (Horton & Hunt, 1990). Keeping in view the influential role of educational institution the research is designed to dig out the factors which hinder the creation of knowledge economy.

Review of literature

A research is conducted by Amjad (2011) to explore the ways for rapid economic progress in Pakistan. He claimed that this is the most suitable time for Pakistan's economic strategies and plans to find out the technologies and innovative strategies from a labor concentrated economies of the world by ignoring the small and multiple stages for assets based on those tricks for knowledge based economy. A knowledge based economy does not stand on outdated resources like only enhancing human capital and focused on labor availability but on more emphasize on education and especially productive and practical based education. It was evident by researcher and proved that developed and most countries with enriched economies more relies on "knowledge" rather than outdated and old method of development. The basis and root factors described by researcher that in the "Pakistan's Medium Term Development Framework" 2005 to 2010 and "Vision 2030 Approach Paper" put emphasis on knowledge for economic progress in the context of world transforming vision of Pakistan by 2030. Both documents have plans for more sustainable development and industrialized and modern country by introducing schemes which would be based on productive knowledge. According to him it will make Pakistan more progressive, developed and wealthiest Nations. Role of knowledge and education in supporting creation of knowledge economy is very critical and the development of economy is possible with the development of knowledge and education.

Zhideleva and Sedusova (2015) said that there is need to make a favorable environment that may help educational institutions to perform its functions efficiently to create knowledge economy. Increased quality of human capital, increased life level, knowledge and high technology production as well as production of innovations and quality services are required for the growth of Knowledge economy. These activities cannot be taken place without having a rich infrastructure. So, the first priority should be given to the development of infrastructure of any institute to make it suitable for creation of knowledge.

A report is present by US in 2014 in which a serious concern is shown over the decreasing trends of investment in research and innovation activities. A major role is always played by universities in scientific and technological advances. But now they have to play much more prominent role because federal funding for research is declining. Because of this decline the research and development primacy of U.S is in danger which is the foundation of nation's knowledge economy. This problem can be resolved when universities partnered with industry for research and development activities. 200 universities of US claimed that the US knowledge economy 'who are considered the world's innovation leader, is in serious jeopardy. The deficit of US knowledge economy is result of eroding federal investment in research and higher education and involvement of other nations, who are pouring their resources in innovation. This decline in funding can influence the prosperity in US. The gap between needed and actual investment must be the priority of the nation. If developed countries like US is suffering from issues related to funding then Pakistan must be more concerned about it.

An article is written by Maria, Jalil and Idrees (2013) and they are inspired by the current progress in the theory of endogenous growth in the field of education. They described that education played significant role in the way of economic progress in Pakistan at multiple stages of economic condition and sectors of country. They took data to check economic growth in country from the period 1960 to 2010 to check the changes and growth in economic sector of Pakistan in this era. Three different categories of educational levels were taken which were "primary, secondary and tertiary" levels. The statistical model named "error correction model" based on model given by Hendry model general to specific was used to measure the educational level in at different three stages of Pakistan. They concluded that literacy has significant role in the economic progress of the country. All levels have different impact on financial progress of Pakistan with their different effects. Pakistan, which has shortage of socio-economic resources for human capital should be distributed at all levels of education for the improved performance of the economy. Their work is also highlighted significant role of education for economic growth as it is analyzed in the current research.

World Bank (2013) emphasized that for efficient national innovation system, collaboration between academia and industry is increasingly a critical component. A better understanding of different types of university – industry collaboration adopted by developed countries will help the developing countries to make strategies for developing link between education and industry because they face even greater barriers to such alliances due to limited resources.

The above mentioned reviews helped the researcher to define the variables understudy and these variables further leads to find the solution to develop the educational institutions in favor of creation of knowledge economy.

Methodology

The research was divided into two phase, as the problem was not clear so the inductive research was conducted in first phase. Three big cities and three small cities of Punjab, Pakistan were selected for data collection. Teachers, administrators, and parents of students from schools and colleges were the respondents. Data was collected with the help of FGDs, checklist, and data recording protocols. Data was analyzed in the form of themes. Major themes were, knowledge, knowledge economy, functioned performed by educational institutions in creation of knowledge, barriers in creation of knowledge, and suggestions to improve knowledge creation. The results of qualitative research helped to define variables and indicators for quantitative research. Survey method was used as technique for data collection and interview schedule was used to gather the information. Six universities of Punjab, three public and three private, were selected as population. Six hundred and six (606) respondents were selected for gathering information about topic under study. Collected data was analyzed by using the SPSS. Descriptive was applied to data to get the results.

Results and Discussions

To redesign the structure of educational institutions to support the creation of knowledge economy it is necessary to know that what kind of challenges are being faced by educational institutions in the process of generation of new knowledge. World Bank (2007) reported that developed countries moving their industries from metal bashing to knowledge generation. Advancement in technology and science has reduced the effects of weight and distance. Now the main concern of industrials and educationists is to understand the ways in which the distribution and production of information and knowledge differs from that of goods like cars and steels. In this regard the impediments faced during completion of developing economic through knowledge have great importance to be understood.

For this purpose in FGDs participants were asked to share their perception about the hurdles faced by the institutions and they said that lack of access to knowledge, poor infrastructure, non availability of funds and incentives and hurdles are faced in the process of research and development, human capital development, and collaboration with industries. Each variable is discussed in a separate table with indicators to measure the perception of people.

Distribution of respondents: The lack of access to knowledge

Participants of FGDs said that lack of access to knowledge is a major hurdle in creation of knowledge economy that include lack of access to E library, library, internet, print media, social media, leaning new languages, and outdated syllabus and the perception of people is measured by using the same indicators in quantitative inquiry.

Table 1: Distribution of respondents according to their perception about the lack of access to knowledge (N=606)

Lack of access to knowledge (a)	Strongly agree		Agree		Neither agree nor disagree		Disagree		Strongly disagree		Mean	Std.Dev.
	F	%	F	%	F	%	F	%	f	%		
Lack of Access to E Library	20	3.3	424	70	60	9.9	57	9.4	45	7.4	2.47	0.975
Lack of Access to library	47	7.8	378	62.4	86	14.2	57	9.4	38	6.3	2.44	0.983
Lack of Access to internet	10	1.7	336	55.4	158	26.1	41	6.8	61	10.1	2.68	0.995
Lack of Access to print media	133	21.9	346	57.1	94	15.5	33	5.4	0	0	2.04	0.769
Lack of Access to social media	18	3	401	66.2	104	17.2	62	10.2	21	3.5	2.45	0.848
Lack of Access to learn new languages	52	8.6	410	67.7	77	12.7	49	8.1	18	3	2.29	0.848
Outdated syllabus	59	9.7	397	65.5	73	12	24	4	53	8.7	2.36	1.016

Table 1 explains lack of access to knowledge as a hurdle in creation of knowledge economy faced by educational intuitions. Majority of the respondents were agreed that major hurdle in creation of knowledge economy that include lack of access to E library, library, internet, print media, social media, leaning new languages, and outdated syllabus and very few were disagreed with the statement while the values of mean and standard deviation supports the same direction of results. Since, societies move from labor intensive economy to knowledge intensive economy, so access to knowledge is necessary to create new knowledge. In previous section the functions performed by educational institutions are discussed and it is reported by the participants that educational institutions are not completely fulfill the requirements that are needed to create new knowledge. This section is added to get the opinion of people about the hurdles faced by them to create new knowledge. E libraries, libraries, print media, and learning new languages are considered the major sources to get knowledge but more than half of the respondents were with the idea that they cannot easily access these facilities at educational institutions and more important access to internet is also not provided since this is the best way for networking and gaining knowledge across the world. Without providing access to these sources of knowledge the goal to create new knowledge cannot be achieved.

Amjad (2011) suggested that this is time for Pakistan to move towards the knowledge economy which is possible when technology is used to provide access to knowledge. Because the growth of knowledge economy is not based on land or labor inputs and capital, but on knowledge. It is world widely recognized that new economy is derived by knowledge not by the traditional factors of production. It is emphasized in Pakistan's Medium-Term Development Framework (MTDF) 2005-2010 and Vision 2030 Approach Paper that developing knowledge inputs is the only way to make Pakistan prosperous economically and socially.

Distribution of respondents: The poor infrastructure

FGDs help to extract that poor infrastructure of educational institutions is also a big hurdle in creation of knowledge economy as computer labs and class rooms are not equipped, furniture, electricity, clean water and toilets are not available, the response of participants for quantitative are measure in keeping in view the same indicators.

Table 2 illustrate about the infrastructural problems faced by educational institutions in creation of knowledge economy. Provision of basic necessities like equipped classrooms, electricity, water and toilets positively effects the learning out comes. If these facilities are not provided to the students then they could not perform well. That is the reason that most of the respondents said that these basic facilities are lacking at educational institution which badly affect their learning. Similarly equipped science and computer labs are necessary to have access to knowledge and to create knowledge. But the existing infrastructure of educational institutions is lacking these facilities and having a bad impact on the creative abilities of the participant which can be evident by their response; very few disagreed with the statement and value of mean and standard deviation depicts the same results.

Table 2: Distribution of respondents according to their perception about the poor infrastructure as hurdle in creation of knowledge economy

Poor infrastructure of educational institutions (b)	Strongly agree		Agree		Neither agree nor disagree		Disagree		Strongly disagree		Mean	Std.Dev.
	F	%	F	%	F	%	F	%	f	%		
Science labs are not equipped	59	9.7	397	65.5	73	12	24	4	53	8.7	2.36	1.016
Computer labs are not equipped	42	6.9	405	66.8	48	7.9	79	13	32	5.3	2.43	0.981
Class rooms are not equipped	52	8.6	342	56.4	86	14.2	90	14.9	36	5.9	2.53	1.037
Furniture is not available	84	13.9	432	71.3	39	6.4	33	5.4	18	3	2.12	0.821
Electricity is not available	128	21.1	331	54.6	89	14.7	35	5.8	23	3.8	2.17	0.951
Clean water is not available	121	20	360	59.4	70	11.6	27	4.5	28	4.6	2.14	0.943
Clean toilets are not available	81	13.4	428	70.6	55	9.1	28	4.6	14	2.3	2.12	0.777

Zhideleva and Sedusova (2015) said that there is need to make a favorable environment that may help educational institutions to perform its functions efficiently to create knowledge economy. Increased quality of human capital, increased life level, knowledge and high technology production as well as production of innovations and quality services are required for the growth of Knowledge economy. These activities cannot be taken place without having a rich infrastructure. So, the first priority should be given to the development of infrastructure of any institute to make it suitable for creation of knowledge.

Distribution of respondents: The non availability of funds

The research and development activities require a great amount of investment and funding from educational institutions but the results of FGDs describe that non availability of funds from educational institutions is a major hurdle in creation of knowledge economy further they claimed that need based,

merit, indigenous and foreign scholarships and international research grant are not provided by the educational institutions for creation of knowledge economy. These claims further measured in quantitative research and the results are shown in table 3.

Table 3 explains about the problems faced by educational institutions in funding for creation of knowledge economy. Despite of having creative abilities students cannot perform in competitive environment of innovation due to lack of financial assistance. Pakistan is a developing country and has limited resources to facilitate its people. Different joint ventures are launched by HEC and HEIs for supporting students financially but these are insufficient as respondents of the research showed their disagreement over the support claimed by educational institutions and values of mean and standard deviation are explaining the same results. Without financial support research and development activities cannot be carried out and both students and educational institutions need to find out the ways through which they can raise funds for research activities.

Table 3: Distribution of respondents according to their perception about the non availability of funds by educational intuitions for creation of knowledge economy

Educational institutions are not funding (c)	Strongly agree		Agree		Neither agree nor disagree		Disagree		Strongly disagree		Mean	Std. Dev.
	F	%	F	%	F	%	F	%	f	%		
Need based scholarships are not available	155	25.6	349	57.6	57	9.4	15	2.5	30	5	2.04	0.946
Merit scholarships are not available	268	44.2	254	41.9	46	7.6	22	3.6	16	2.6	1.79	0.925
Indigenous scholarships are not available	139	22.9	352	58.1	59	9.7	46	7.6	10	1.7	2.07	0.881
Foreign scholarships are not available	91	15	366	60.4	83	13.7	33	5.4	33	5.4	2.26	0.964
International research support is not available	112	18.5	364	60.1	71	11.7	43	7.1	16	2.6	2.15	0.895

A report is present by US in 2014 in which a serious concern is shown over the decreasing trends of investment in research and innovation activities. A major role is always played by universities in scientific and technological advances. But now they have to play much more prominent role because federal funding for research is declining. Because of this decline the research and development primacy of U.S is in danger which is the foundation of nation's knowledge economy. This problem can be resolved when universities partnered with industry for research and development activities. 200 universities of US claimed that the US knowledge economy 'who are considered the world's innovation leader, is in serious jeopardy. The deficit of US knowledge economy is result of eroding federal investment in research and higher education and involvement of other nations, who are pouring their resources in innovation. This decline in funding can influence the prosperity in US. The gap between needed and actual investment must be the priority of the nation. If developed countries like US is suffering from issues related to funding then Pakistan must be more concerned about it.

Distribution of respondents: The non availability of incentives

Incentives are used to motivate the people to do creative and innovative activities but participants of FGDs said that incentives like certificates, awards, and payments are not provided by educational intuitions

for production of knowledge economy. The perception of people about these claims measured in quantitative research too.

Table 4: Distribution of respondents according to their perception about the non availability of incentives by educational intuitions for production of knowledge

Incentives are not available (d)	Strongly agree		Agree		Neither agree nor disagree		Disagree		Strongly disagree		Mean	Std.Dev.
	F	%	F	%	F	%	F	%	f	%		
Certificates are not available	118	19.5	364	60.1	81	13.4	32	5.3	11	1.8	2.1	0.833
Awards are not available	99	16.3	349	57.6	93	15.3	32	5.3	33	5.4	2.26	0.976
Payments are not available	37	6.1	406	67	96	15.8	44	7.3	23	3.8	2.36	0.852

Table 4 demonstrates about the problems regarding provision of incentives by educational institutions. Certificates, awards, and payments are provided to motivate the people to involve in research and innovative activities but majority of the respondents were agreed that these facilities are not provided by the institutions and a small number of participants were disagreed with the statement while the values of mean and standard deviation show the same trend of results. HEC is trying hard to fulfill the financial needs of HEIs as research grants are provided through the ORICs of respective universities; best teacher awards are given to boost the morale of teachers and stipends are given to the research on the publication in recognized journals. But may be the amount of such rewards provided by the educational institutions and HEC is insufficient as claimed by the respondents. Educational institutions are seemed unsuccessful to motivate its members to show their creative abilities that is a serious concern for both HEC and HEIs.

Distribution of respondents: The hurdles in research and development

Research and development is crucial for creation of knowledge economy but respondents in FGDs said that problems are faced by researcher in educational institutions such as poor infrastructure, non availability of funds and incentives, scientific and technological knowledge, incubation centers, lack of opportunities for human capital development and collaboration with industry which slow down the process of research and development activities. These indicators are used to measure the perception of people in survey.

Table 5 illustrates about hurdles in research and development faced by the respondents in educational institutions. Research and development are the driving forces of knowledge economy but in Pakistan people complaint that rich infrastructure, funding, incentives for motivation, incubation centers, developed human capital, and collaboration with industry is lacking and causing slow growth of knowledge economy, majority of the respondents were agreed with the statement, very few were disagreed and little dispersion is found in the responses. Asheim (2012) argued that after years of research it is find out that the only way to grow knowledge economy is to develop research centers for innovation. These research centers will enable the research to find the new ways to create knowledge and innovation in order to obtain a better understanding of factors enabling or impeding these processes.

Table 5: Distribution of respondents according to their perception about the hurdles faced in research and development

Hurdles in research and development (e)	Strongly agree		Agree		Neither agree nor disagree		Disagree		Strongly disagree		Mean	Std.Dev.
	F	%	F	%	F	%	F	%	f	%		
Poor infrastructure	56	9.2	276	45.5	216	35.6	41	6.8	17	2.8	2.48	0.86
Funds are not available	48	7.9	368	60.7	102	16.8	63	10.4	25	4.1	2.42	0.927

Incentives are not available	88	14.5	333	55	107	17.7	57	9.4	21	3.5	2.32	0.952
Scientific and technological knowledge is not available	133	21.9	356	58.7	57	9.4	42	6.9	18	3	2.1	0.921
Incubation centres are not available	187	30.9	348	57.4	44	7.3	27	4.5	0	0	1.85	0.734
Lack of human capital development	82	13.5	431	71.1	47	7.8	35	5.8	11	1.8	2.11	0.772
Lack of collaboration with industry	138	22.8	422	69.6	26	4.3	14	2.3	6	1	1.89	0.664

Distribution of respondents: The hurdles in human capital development

Human capital development is necessary for creation of knowledge economy but educational institutions are not developing human capital due to lack of knowledge skills, trainings, incentives, and faculty development program as shared by the participants of FGDs, and the same is measured in quantitative research for knowing about the perception of people.

Table 6 depicts about the hurdles faced in developing human capital in educational institutions. Jalil & Idrees (2013) argued that Pakistan has to invest in both physical and human capital in order to achieve higher level of development in knowledge economy. They further suggested that country like Pakistan who has limited social and economic resources should allocate all levels of education to develop its human capital for better performance in all fields of life. The results show there is dire need to invest in human capital development because the existing structure is not adequately fulfilling the requirements including; knowledge, skills, trainings, incentives, and faculty development programs. Majority of the respondents were agreed that due to lack of access to knowledge, skills, trainings, incentives, and faculty development programs human capital is not developing in educational institutions and a small number of respondents disagreed with the statement whereas the values of mean and standard deviation also supports the same trend of the results.

Table 6: Distribution of respondents according to their perception about the hurdles faced in human capital development

Hurdles in human capital development (f)	Strongly agree		Agree		Neither agree nor disagree		Disagree		Strongly disagree		Mean	Std.Dev.
	F	%	F	%	F	%	F	%	f	%		
Lack of Knowledge	64	10.6	270	44.6	77	12.7	115	19	80	13.2	2.8	1.244
Lack of skills	90	14.9	298	49.2	138	22.8	69	11.4	11	1.8	2.36	0.931
Lack of trainings	18	3	308	50.8	149	24.6	52	8.6	79	13	2.78	1.09
Lack of incentive	92	15.2	321	53	95	15.7	62	10.2	36	5.9	2.39	1.051
Lack of Faculty development programs	39	6.4	416	68.6	71	11.7	49	8.1	31	5.1	2.37	0.912

Distribution of respondents: The hurdles in collaboration with industry

The relationship between industry and educational institutions is very important for creation of knowledge economy but educational institutions failed to collaborate with industries as less opportunities are provided for research partnership, research services, shared infrastructure, human resource training & transfer, scientific publication, and informal interaction and these indicators are extracted from FGDs.

Table 7 illustrates about the hurdles in collaborating with industry. The above mentioned ways are used world widely to develop link between universities and industry. The reason for a weak relationship

between industry and educational institutions of Pakistan is inappropriate use of these ways as participants expressed through their response, majority of the participants were agreed that these ways are ignored by the institutions that cause weak relationship between industry and universities; little variation is found in the responses and very few were disagreed with the statement. World Bank (2013) emphasized that for efficient national innovation system, collaboration between academia and industry is increasingly a critical component. A better understanding of different types of university – industry collaboration adopted by developed countries will help the developing countries to make strategies for developing link between education and industry because they face even greater barriers to such alliances due to limited resources. As Weber (2011) pointed out that the countries that will not able to develop such linkages to grow knowledge economy will be marginalized.

Table 7: Distribution of respondents according to their perception about the hurdles faced in collaboration with industry

Hurdles in Collaboration with industry (g)	Strongly agree		Agree		Neither agree nor disagree		Disagree		Strongly disagree		Mean	Std.Dev.
	F	%	F	%	F	%	F	%	f	%		
Less opportunities for research partnership	168	27.7	285	47	71	11.7	51	8.4	31	5.1	2.16	1.08
Less opportunities for research services	81	13.4	388	64	69	11.4	40	6.6	28	4.6	2.25	0.931
Less opportunities for shared infrastructure	124	20.5	388	64	46	7.6	15	2.5	33	5.4	2.14	0.932
Less opportunities for Academic Entrepreneurship	91	15	409	67.5	70	11.6	20	3.3	16	2.6	2.11	0.79
Less opportunities for human resource training & transfer	114	18.8	364	60.1	70	11.6	35	5.8	23	3.8	2.16	0.924
Less opportunities for scientific publication	124	20.5	388	64	46	7.6	15	2.5	33	5.4	2.08	0.93
Less opportunities for informal interaction	40	6.6	375	61.9	108	17.8	46	7.6	37	6.1	2.45	0.948

Consequently, the major hurdles faced by the educational institutions are lack of access to knowledge, poor infrastructure, non availability of funds and incentives, lack of opportunities for research and development, human capital development, and collaboration with industry as considerable number of the respondents were agreed with the statements while small variation is found in the responses and few were disagreed with the statements. After having information about the problems faced by in creation of knowledge economy now there is need to find solutions for these problems. To achieve this goal the next segment is presented to discuss the perception of people about the suggestions to enhance the creation of knowledge economy.

Main findings

Creation of Knowledge economy is a challenging task for educational institutions of Pakistan because of limited resources. Conceicao & Heitor, (1999) suggested that some rethinking is needed to enhance the role of educational institutions to preserve knowledge. More than 60% respondents said that access to E libraries, libraries, print media, internet, and social media and to learn new languages is not provided by

educational institution that is a major hurdle to get knowledge. Amjad (2011) suggested that this is time for Pakistan to move towards the knowledge economy which is possible when technology is used to provide access to knowledge. About 70% participants said that poor infrastructure is major hurdle in creation of knowledge economy as science and computer labs, classrooms are not equipped, and furniture, electricity, clean water and toilets are not provided by the educational institutions. Zhideleva and Sedusova (2015) said that there is need to make a favorable environment that may help educational institutions to perform its functions efficiently to create knowledge economy. Non availability of financial assistance from educational institutions hinders the creation of knowledge economy as about 80% respondents said that merit scholarships, need based scholarships, indigenous scholarships, international scholarships and international research support are not provided to them for creation of knowledge. The gap between needed and actual investment must be the priority of the nation to enhance the creation of knowledge (US, 2014). More than 85% participants said that there is lack of motivation that hinder the process of creation of knowledge as no certificates, awards, and payments are provided to the researchers. Poor infrastructure, non availability of funds, incentives, scientific and technological knowledge, and incubation centers, developed human capital, and collaboration with industry are the problems faced by the researchers at educational institutions for research and development, said by more than 80% respondents. Asheim (2006) argued that after years of research it is find out that the only way to grow knowledge economy is to develop research centers for innovation. Lack of knowledge, trainings, skills, and fewer opportunities for faculty development programs are the reason for not developing the human capital as said by more than 65% respondents. Education has to face pressure to respond the challenges that presented by global economic and technological changes in the late 1980s and early 1990s, and the only way to deal with such challenges was to develop the human capital (Guile, 2001). Hurdles in collaborating with industry includes less opportunities for research partnership, research services, shared infrastructure, academic entrepreneurship, human resource training & transfer, scientific publication, and informal interaction, said by more than 85% participants. Educational institutions have to play both the roles of facilitator and creator of knowledge economy and this is not possible without collaboration with industry (Howells, *et al.*, 2012).

Conclusion

Numbers of problems are faced by the people in the process of producing new knowledge. Poor infrastructure is cause low rate of increase in creation of new knowledge. Non availability of funds and incentives also discourage the creation of new knowledge. Non availability of developed human capital is also a big hurdle in creation of new knowledge. Fewer opportunities for research and development are hinder the process of generation of knowledge economy. Educational institution has to face many problems to collaborate with industry. Without solving these problems Pakistan's educational system could not find required results to develop its economy.

Recommendations

1. Access to knowledge should be ensured by the educational institutions. This is possible when rich technologies will be used and these must be in access of all. Without having access to knowledge new knowledge cannot be produced.
2. Both government and educational institutions have to find the funding agencies for research and development activities. As research and development are deriving forces of innovation and creativity and without financial assistance these activities cannot be carried out.
3. Educational institutions should pay attention to develop infrastructure in favor of scientific and technological information which are the necessary elements of gaining and generating new knowledge.
4. Human capital development should be the priority of educational institutions. Without the supervision of skilled and professional persons we cannot get desired results from research and innovation,
5. Educational institutions should seek directions to develop better links with industry. Without collaborating with industry one cannot understand the need of market and the process of innovation is an expensive task, industry not only directs us what to but also help us to do it with financial assistance.

Implementations on these recommendations are critical for the economy of Pakistan. Educational institutions cannot do it alone; they need support from government and industry to fight against the socioeconomic challenges.

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