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Editor
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Students' Perceptions about Technical Education in Pakistan and China

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Abstract

Technical education is a device for achieving sustainable socio-economic development by producing manpower. This study was designed to compare the students' perceptions about technical education in Pakistan and China. A purposive sampling technique was used to draw a sample of students from technical education programs. The online questionnaire developed on Google Docs was used for this purpose. Responses of sixty-nine respondents from China and one hundred and five from Pakistan were considered for analysis. The results indicate that students faced many issues and challenges in both countries and need improvement for producing dexterous manpower.

Keywords: Technical Education, Comparison, Pakistan, China

INTRODUCTION

The development of any country depends on technical education because it provides the opportunities to empower the people to achieve sustainable socio-economic development and it is needed to enhance the attractiveness of technical education (Khan & Ali, 2024). Atchoerena and Delluc (2001) assert that technical education mainly leads a person to acquire practical skills with proficiency and understanding which is essential for employment. Lynch (2000) states that the aim of technical education is not only to provide skills to people but also to provide a way of exploring careers and planning which improves academic, motivation and achievement. Technical education is related to the jobs and occupations that require comprehensive knowledge of the theory associated with the scientific and technological base (Karam, 2006). Technical education is a gadget for sustainable socio-economic development. The real aim of

technical education is not only to educate and train the people but also to give them a sense of responsibility and enable them to realize the intentions of cultural peace and harmony (UNESCO, 1999). It needs to develop focused and sustainable policy related to technical education to achieve progress in society (UNESCO, 2006). Pakistan is a developing country and applies a decentralized education system. There are three levels in the stream of technical education; (a) post-secondary technical education conducted at polytechnics/colleges of technology. It proposes a three-year diploma in technologies, it is also known as the Diploma of Associate Engineer (DAE). (b) Colleges of Technology also award two-year degree courses of Bachelor of Technology (B. Tech.) and (c) B. Tech. (Hons) it is an undergraduate academic degree awarded after completion of four-year program of studies at an accredited institution. The degree

of B.Tech. (Hons) requires practical work or internships. Due to these requirements, the degree normally takes at least four years (Norric, 2006).

Pakistan is facing a shortage of manpower in the technical education system across the country (Mustafa, 2012). The main problem of technical education is outdated courses and contents that do not fulfill the requirements of the world of work. As far as the curriculum is not applying the approach of demand-driven and is unable to fulfill the market demands and modify skill needs in the public and private institutions of Pakistan. Due to insufficient resources, institutions are ignoring hands-on-

learning. Most courses are run along traditional teaching methodologies and adopt lecture methods (Mustafa, 2012). Technical institutions are not interested in building linkage with industry. Students are just taught skills and knowledge that are not also relevant to the market, the government should prioritize technical education at the national level in policy documents (Ashraf, Xu, & Xiang, 2024). The main issues of polytechnics and technical training that outdated instruments in the workshops, lack of furniture, labs, libraries, books, textbooks, consumable preparing materials and stores, etc. (Shah, Ajmal & Hamidullah, 2010).

Table 1. Students' Perceptions of Technical Education

Items	Country	Mean	S.D	t	Sig.
Availability of standardized curriculum	Pakistan	2.7	1.0	-6.7	0.02
	China	3.7	0.9		
The curriculum emphasizes on hands-on learning	Pakistan	2.4	1.0	-12.0	0.00
	China	4.1	0.7		
The curriculum taught is based on solutions of practical problems	Pakistan	2.3	0.8	-6.3	0.01
	China	3.2	0.9		
Variety of courses according to modern technology	Pakistan	2.3	0.9	-9.7	0.52
	China	3.8	0.9		
No mandatory group projects to demonstrate linkage with the industry	Pakistan	1.9	0.7	-2.7	0.03
	China	2.3	0.8		
Ethical promotion being focused in the curriculum	Pakistan	2.6	0.9	-10.1	0.00
	China	4.0	0.8		
Lab hazards being observed at the laboratory	Pakistan	3.0	1.3	-2.1	0.00
	China	3.4	0.9		
Non- non-availability of standardized tools and equipment in labs	Pakistan	1.9	0.6	-12.7	0.00
	China	4.2	0.7		
Libraries out-dated	Pakistan	3.2	1.1	5.7	0.00
	China	2.2	1.0		
Low facilities for student's welfare	Pakistan	1.9	0.7	-5.6	0.00
	China	2.7	1.0		
Effective counseling and guidance services	Pakistan	1.9	0.6	-6.0	0.00
	China	2.7	1.0		
Students encouraged for profitable products	Pakistan	2.1	0.7	-4.9	0.00
	China	2.7	1.1		
Promote entrepreneurship	Pakistan	2.6	1.0	-1.1	0.25
	China	2.8	0.9		
Standard examination system being existed	Pakistan	3.6	1.3	0.8	0.07
	China	3.5	1.1		
Unaffordable fee structure	Pakistan	2.4	1.0	0.08	0.02
	China	2.4	0.9		

China is recognized as a developing country and provincial governments apply substantial dominance in evolving legislation. The stream of technical education is working under VET. It has concentrated on lifelong learning and the expansion of technical education and training. China is also targeting to produce trained people rather than large numbers of people with general qualifications (SCQF, 2008). For this purpose, the Chinese Ministry of Education considered technical education as a way to provide training and education that may plan pupils to be skilled laborers and high-level professional experts. These pupils are obliged to go through a variety of training and education offered by the sector of technical education at three levels: (a) Primary technical school or junior technical school. (b) Middle-level specialized vocational schools, or secondary technical schools. (c) Higher level technical institutes, or tertiary institutes. Technical education is also provided at higher levels through Higher Technical Institutes and some specialist universities (DICE, 1998, Wang, 2003 CERN, 2006). The sector of VTE is observed as a challenging area in the recent educational system and requires improvement (Yan, 2010). China has to adopt standards according to the labor market and sponsor new models of education such as the “model of combining, working and learning”. These innovations are essential to improve the condition of vocational and technical education through

support of enterprises and build a bridge between school diplomas and professional qualifications (Wang, 2010).

Research Methodology

The survey method was used for this research study to compare the provision of technical education according to the perception of students in Pakistan and China.

Sample and Sampling Technique

The sample consisted of 69 Chinese students and 105 Pakistani students. The purposive sampling technique was used to target the sample in the study. In the first phase, a representative sample was targeted from all four provinces of Pakistan likewise for equal representation four provinces from China out of twenty-three were targeted. Keeping in view the technical education and nature of programs offered in such institutions, the same level of programs was considered from China. In the second phase, students of technical institutes from each country enrolled in three-year diploma and B. Tech. programs were targeted. After several attempts, a sample of sixty-nine students from China and one hundred and five from Pakistan was considered sufficient for the research process.

Tool of Research

The instrument used for this study was a structured questionnaire. It comprised 15 items based on a five-point Likert scale related to curriculum, provision of learning resources, infrastructure, and other supporting facilities rendered by technical education institutions.

Validity and Reliability

The tool was validated through experts' opinions; the items were improved according to such directions. The pilot test was applied to identify the flaws and complications of the questionnaire. The result of the pilot test was analyzed by Cronbach alpha to assess the reliability of the scale with a total sample size of 15 students (Students = 15, Cronbach's α = 0.90). This result proved high reliability for said questionnaire.

Data Collection Process

For Pakistan, the questionnaire was administered in person whereas for China, it was administered through Google Docs. In the process of data collection, online questionnaires were emailed to students and after several attempts, sixty-nine responses were considered sufficient from Chinese students whereas, in the case of Pakistan, data was collected personally.

Data Analysis

As the data was collected on a five-point Likert Scale, the responses were tabulated and rated through simple percentages, and values of the Mean Score and Standard Deviation of responses were calculated. For differentiation between the responses of students from China and Pakistan, the t-test was applied to this concern.

RESULTS

In the terms of availability of a standardized curriculum, the respondents showed diversity in the responses to items. The calculated t-values were found -6.7 at 0.05 level which was less than the table value. Hence, the statement, "Available standardized curriculum in Pakistan and China" is accepted. Although the statement, "Curriculum emphasizes hands-on learning" is also accepted, calculated t- t-values were found -12.0 at 0.05 level which was less than the table value. Likewise, the calculated t-values were found -6.3 at 0.05 level which was less than the table value. Hence, the statement, "Curriculum taught is based on the solution of practical problems" is accepted. Furthermore, the statement, "Ethical promotion being focused in the curriculum" is accepted. As a result, calculated t-values were found -10.1 at 0.05 level which was less than the table value. However, the respondents negated the availability of a variety of courses according to modern technology.

In the area of industry linkage with institutions, the result shows the calculated t-values were - 2.7 at 0.05 level which was less than the table value. Hence, the statement, "No mandatory group projects to demonstrate linkage with industry" is accepted. In terms of facilities, revealed diversity in responses. Such as lab hazards being observed at the laboratory. Moreover, labs are not provided with standardized tools and equipment. Likewise, the calculated t-values were found 5.7 at 0.05 level which was less than

the table value. Hence, the statement, “Libraries are outdated” is accepted. Similarly, the services of effective counseling and guidance are in practice but on the other side, adequate facilities are not observed for students’ welfare. In terms of result, calculated t-values were found -5.6 at 0.05 level which was less than the table value. In the area of entrepreneurship, the students are not encouraged to their profitable products. Moreover, the calculated t-values were found -1.1 at 0.05 level which was greater than the table value. Hence, the statement, “Learning enables the students to do work independently in your professional field” is rejected. In the system of examination, the calculated t-values were found 0.8 at 0.05 level which was greater than the table value. Hence, the statement, “Standard examination system existed” is rejected. To fee structure, the calculated t-values were found 0.08 at 0.05 level which was less than the table value. Hence, the statement, “Provide unaffordable fee structure for students” is accepted.

DISCUSSION

The purpose of the study was to give insight into the betterment and suggest improvement in the sector of technical education of both countries. In the case of Pakistan, data from this study indicated no statistically significant in the field of quality, relevancy, and industry linkage. Results proved that the major flaws are prevailing in the system of technical education including lack of quality, relevancy, and industry linkage which affect the production in

both countries. Hameed’s (2009) findings were similar to the findings of this study. He suggested that there is a need to improve the linkage between institutes, industries, and enterprises for not only enhancing quality and relevancy but also generating endowment funds.

This research study reported the findings according to statistical analysis that technical education is not supportive in employment because the curriculum that is taught in technical institutes is outdated, theory-oriented, and has less emphasis on practical work in Pakistan. The examination system is based on cramming and is not able to evaluate the competency of students and the same results were reported by Inamullah et al., (2011). Moreover, there are no appropriate opportunities to build a linkage between industry and technical education. Ali (1985) reported the same findings in his study. The data from this study showed statistically significant results that there is no system to attract quality teachers and most teachers are not professionally and academically well because of inappropriate opportunities for professional development. Adiviso (2003) had exposed the same results in his study.

In the case of China, the result of this study indicates by statistical analysis that there is a need to improve the quality of technical and vocational education by enhancing modern facilities such as quality teaching staff, imported teaching aids, updated curricula, standardized examinations, adequate funds, and research.

It is assumed that in a technically advanced country like China, the expectations towards the provision of support from technology may be considered much higher by students enrolled in their system. The same findings were revealed by Biermann's (1999) study. This study exposed statistical findings that there are fewer opportunities for apprenticeships and internships for students in both countries which affects quality in terms of less qualified and skilled manpower as well as the quality of products. Similar findings were derived by Hou's (2010) study.

CONCLUSION

The variety of courses according to modern technology is lagging in Pakistan as compared to China. There are no mandatory group projects to demonstrate linkage with industries in both countries which affect quality and gradation in the sector of technical education. Labs are not provided with standardized tools and equipment as well as libraries are outdated in the institutions of technical education in Pakistan.

There are observed inadequate facilities for student welfare in technical institutions. Students are not encouraged to their profitable products and learning does not enable them for entrepreneurship. There is the absence of a standard examination system in both countries. The fee structure is unaffordable for students in Pakistan as compared to China.

RECOMMENDATIONS

- The expectations of students are considered at their level and so are

considered improvable as a continuous process. There is a need to improve the curriculum and update the structure of labs according to modern technology in Pakistan and China.

- There is a need to develop a strategy to encourage students to their profitable products and enable them for entrepreneurs in both countries.
- Both countries may create opportunities to develop industry linkages with technical institutes by providing group projects for students.
- There is a need to improve the standard of the examination system to enhance the quality of technical education.
- The fee structure may be affordable for students.

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