[806-819]



# Pakistan Languages and Humanities Review www.plhr.org.pk

## RESEARCH PAPER

## Challenges to Career Counseling in Pakistan: Implication for Career **Pathway**

#### Atif ur Rahman Yousafzai 1 Dawra\*2 Amna Kanwal 3

- 1. Independent Researcher: Department of International Relations, Preston University Islamabad, Pakistan
- 2. Clinical Psychologist: Visiting Lecturer: Department of Psychology Thal University Bhakkar, Punjab, Pakistan
- 3. Visiting Lecturer Government College Women University Madina Town (GCWUF) Punjab, Pakistan

\*Corresponding Author Atifyousafzai334@gmail.com **ABSTRACT** 

Human capital is a rising precious asset in the modern world; where the developing world lags, Pakistan faces plenty of educational challenges where career counselling is the most daunting issue. Career planning plays a pivotal role in achieving personal and collective socio-economic growth and contributing to the overall advancement of a nation. This research aimed to explore the challenges to career planning and its implications on candidates' performance in Pakistan. The data has been collected through a questionnaire survey. The collected data underwent SmartPLS and Thematic analysis, leading to insightful results that supported the study's hypothesis. The qualitative responses revealed a strong inclination towards career choice based on individual interest among the participants. In addition, positive correlations were observed among various variables. However, the study also identified several obstacles in career planning, particularly during the subject selection process. These challenges encompassed unemployment, societal pressures, peer influence, and the lack of proper guidance and platforms for career exploration.

Career Counselling, Career Planning, Challenges, Implications, Interest-Based **Keywords:** Selection, Youth Challenges

#### Introduction

Hunan society has continually evolved since the dawn of human beings on the globe with an exploration of knowledge and innovation. Throughout this journey from simplicity to a complex societal structure, numerous challenges and hurdles have been encountered by humankind that now require more sound minds and comprehensive educational strategies in order to cope with them further. In this context, the global society emerged with diverse opportunities and challenges where it is necessary to unleash human potential and put them on the right pathway to contribute to society's enhancement and prosperity lucratively. Therefore, better career choices of subject areas and professions while aligning the learners' passion is significant in this contemporary era (Bilal & Malik, 2014d).

According to Rogers (1999), career counseling refers to assessing a counselee's candidate interests, skills, and abilities to provide direction in the form of information about the available scoop of market jobs, career options, and opportunities that can be ideal for the counselee. Nevo (2007) defined the principal function of career experts to maintain a bridge between academia and industries by matching human potential and

demanding the scope of the job market and industries. Schmidt (2003) has explained that the goals set by the students must be harmonious in the work environment of the world and must be aligned with the career choices of the candidates, which is a career counseling process that can be sure with a reasonable approach (Minhas & Ahmad, 2020).

Therefore, Pakistan is a youth bulge country with over 60% of its population. At the same time, there are numerous educational and career counseling challenges, remarkably lacking in career options and choices. In addition, no formal and informal platform or institute can provide services for that or fill this vacuum effectively. Numerous factors, directly and indirectly, affect the career decision-making process, such as parent choices, market trending scope, personal and parental interest, and peer group. However, a very minimal percentage of the candidates take proper counseling with the right direction and options who have enough resources or proper personal guidance (Islam et al., 2020).

Moreover, societal factors play a vital role in the student's career decision-making process, such as the cultural dynamics and expectations of adults, the country's economic well-being, and rising job market trends. In addition, the sub-continent culture is more dominated by a patriarchal pattern, where the father is the central and final decision figure. According to the study of multiple professions and diverse backgrounds, the perception of the importance of the interest in the career field remains very high among all respondents. Secondly, the basic needs of the poor segments of society are also more attractive to the trending jobs market (Nadeem, Qamar, Khan, 2021).

In this context, especially in developing countries, most students face career-related challenges such as a lack of financial resources, a significant barrier when considering prestigious and ambitious institutes, a lack of job market opportunities, and unemployment in their respective fields. Unfortunately, most students become prey to ill-direction and misguidance; most mismatch the career lines and do their jobs to satisfy their basic needs rather than their higher-level goals. Consequently, the wrong selection of career path leads to poor performance in the job sector and economic problems, ultimately leading to candidates' unemployment. Therefore, proper career guidance successfully presents itself to the market as brands and employers find competent employees, boosting the organization's revenue, thus stabilizing the country's economic conditions and ultimately leading to its prosperity and firmness. (Keshf & Khanum, 2021)

The research study is explorative to investigate the challenges and implications of students' career decision-making process at various educational levels. However, mixed methods of data sources have been applied, such as primary and secondary data sources, to analyze thematically and thoroughly, including the past literature and field collected data to present fruitful findings and recommendations to future researchers and industries.

The modern era demands excellent human capital and somewhat soft skills to appropriately fulfill the requirement for more resilient social development and economic prosperity in any country. In this context, Pakistan's deficiencies in human capital and soft skills are the major human development barriers created by the lack of a career counseling process in academia and industry. This phenomenon has numerous reasons, including parental force, social pressure, peer group influence, professional attraction, and poor economic circumstances. It produced distorted behaviors and mental illness among youngsters due to mismatching their passion and profession, unemployment, poor performance, and less growth in the economic sector.

#### Literature Review

The modern age bred various challenges and opportunities, especially for the underdeveloped economies of the countries. However, Pakistan has over 60% youth bulge, a precious untapped human capital asset. Therefore, there is a dire need for educational and career choice programs and the increment of related information that must be accessible to fresh graduates and undergraduates. In addition, the education system lacks a unified career guidance system, so there must be some unified platform for seven million students to assist them in developing self-understanding and making mindful subject/career choices along with due consideration of certain familial, social, and economic factors (Zahid et al., 2019).

The researcher highlighted the significance of career counseling in this study, as the rapid social and economic structure variations have brought significant repercussions while most of the developed world is coping effectively. Unfortunately, it is the weakest area and most negligent sector of the Pakistani educational system. Therefore, most career guidance practices rely on traditional methods or theories that do not meet the modern and domestic needs of the country. Many candidates lack soft skills such as good communication, critical thinking, and leadership skills due to a deficiency in career counseling. Therefore, it has created an enormous gap between the graduate's and industries' requirements, negatively impacting candidates' socio-economic status and well-being, ultimately leading to unemployment and poor economic growth. (Zaheer, 2020)

According to the author of this article, several economic studies have identified work values and job characteristics as essential elements that play critical roles in students' occupational choices. Agarwala (2008) found that financial gains from careers are the most significant factor in the career choice decisions of students regarding their subject choice and selection. Students are also influenced by the leisure and hours of working in jobs in their career choice decisions. Obinu and Ebunu (2010) identified that economic factors, like financial needs and luxurious desires, influence secondary school students' career choices. According to Kee (2013), such values attract the candidate to adopt a career while keeping status occupations typical professional professions like doctors, engineers, and lawyers. They attract many individuals because of high-status perception in society, prestige, recognition, and high income, but such jobs require high academic scores and skills. Customary occupations are increased in number because most people are employed in these. Minor and Mclean (2002) reported that most undergraduates preferred law, medicine, and engineering as their careers because they offered status, prestige, and high income (Akhter et al., 2021).

In this article, the author has pointed out critical areas of career counseling that lack Pakistan, such as the absence of suitable platforms for career decision-making and guidance, as well as the majority of students even unaware of how to match their potential with industries and markets through a selection of the right career choice. However, more than 70% of the students are influenced by their peer groups, elder brothers, without knowing the scope of the subject significance of their talent and aptitude. Additionally, more than 50% of students are forced by their parents to select their desired subject, which often contradicts their personality traits and interests without knowing their benefits and tendencies (Iqbal, 2017).

In this article, the researcher has indicated several key areas missing in Pakistan's decision-making process. Such as insufficient information available to the students while

conflicting information, lack of preparation, lack of motivation, overall indecisiveness, and cognitive distortions all contribute to a shortage of practice. A bulge of students expressed a deficiency in social acceptance and a loss of temper, contributing to their inability to hold a job or any position in the organization due to mismatching personality traits and market requirements. However, most higher education institutions are still ignorant of counseling services for university students who need to asses personal, social, learning, and professional issues. Therefore, uncertainty regarding their future career always stays with the students due to the forfeiture of communication with experts and industries. (Zeb, 2016)

The author has highlighted that Pakistan is facing severe challenges at all levels of education and is quite incapable of providing quality educational services. However, career pathways guidance and counseling are the most neglected area of higher education, which holds the foremost significance in this modern world and the eyes of the educationist. The diverse economic structure and complex society need more specific talent, labor division, skill-set, and passion that can be matched and met through proper career counseling services. Pakistan has no formal or informal institutional structure, proving the country's educational authority's negligence. ("CAREER ASSESSMENT IN PAKISTAN: CURRENT SCENARIO | New Horizons," 2020).

#### **Material and Methods**

The research is explorative and investigative, and both research studies have been adopted, including qualitative and quantitative. The research study contained both primary and secondary sources of data. Several methods and techniques are utilized for data collection and analysis.

#### **Primary Source of Data**

Primary data consists of a Survey questionnaire to obtain the stance and opinion of the candidates in a general context regarding their plan for selection of subject and career decision-making process and method, including the factors which affected their decision-making process regarding career plan and its implication, data is analyzed through SmartPLS software applied various tests.

## **Secondary Sources of Data**

The secondary data sources are utilized from various materials such as journals, research reports, articles, e-books, books, web reports, Magzine reports, and official documents. The content material undergoes a thematic/content analysis to examine all collected data, including past literature on the challenges to career counseling in academia and society, and explicitly highlight the factors and challenges mentioned by the previous researchers to the candidates and students in the job market and educational journey.

## Sample

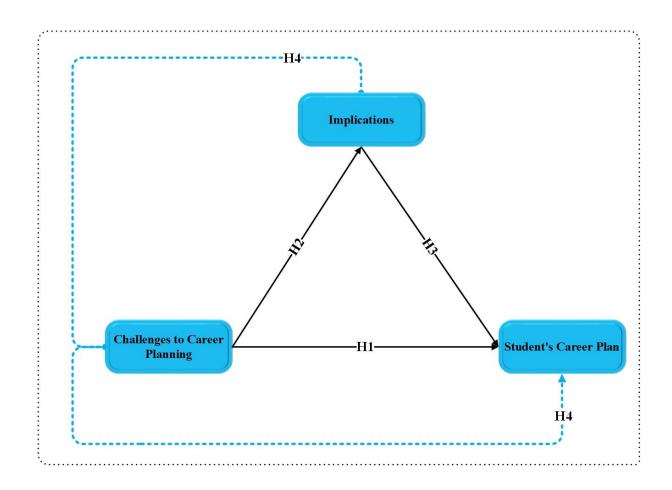
The questionnaire is randomly filled out by 221 undergraduate and graduate candidates of the universities and fresh job-holders from across the districts of Pakistan, regardless of their discipline/faculty of education and socioeconomic and political backgrounds.

## Research Technique

The questionnaire consists of 5 Likert scales, and its calculation and analyses are made through software like SmartPLS through various tests and analysis forms and presented in simple tables. The entire content, such as past literature and key highlights factors and material, undergoes a Thematic and critical analysis procedure to withdraw an accurate result.

## **Data Analysis**

## Conceptual framework



## **Hypotheses**

- **H1:** Challenges to career planning has a positive and significant impact on student's career plan.
- **H2:** Challenges to career planning have a positive and significant impact on consequences.
- **H3:** Repercussions positively and significantly impact students' career plans.
- **H4:** Implications mediate the relationship between challenges to career planning and student's career plan.

#### **Results and Discussion**

## **Demographics of Respondents**

Table 1 provides the complete details of the demographic characteristics of respondents participating in this study. 63.8% of male and 36% of female respondents had taken part in various educational sectors of Pakistan (*N*=221).

Table 1 Frequency distribution for gender

Ge	ender	Frequency	Percent
Valid	Male	141	63.8
	Female	80	36.2
	Total	221	100.0

The maximum number of respondents belong to the less than 30 age group, and a few are from the age group above 31 years.

Table 2 Frequency distribution of age

			<u> </u>	
Age group		Frequency	Percent	
Valid	19 - 30	120	54.3%	
	31 - 40	101	45.7%	
	Total	221	100.0%	

About 114 respondents have graduation degrees, 48 have Master's degrees from the study sample, and 59 are from MPhil. It shows the study is based on the youth's opinion.

**Table 3** Frequency distribution of Qualification

Troduction and an experimental					
Q	Qualification		Percent		
Valid	Graduation	114	51.6%		
	Masters	48	21.7%		
	MPhil.	59	26.7%		
	Total	221	100.0%		

The descriptive analysis showed that above 47.1% of respondents have chosen their subject based on interest. While 20.4% prefer degree scope and market demands, 16.7% of the candidates relied on parent choices, the peer group influenced 10.4%, and 5.4% took teacher advice during their career planning.

Descriptive Analysis of the Qualitative Statement

<u> </u>	dulitutive Statement
I have chosen my field based on	Percentage
Degree Scope	20.4%
Interest	47.1%
Parents Choice	16.7%
Peer group	10.4%
Teacher advice	5.4%

**Common Method Bias** 

This research also applied the standard method bias using Harman's single-factor approach. The variance extracted by one factor is 6.364%, less than 50%, indicating no common method bias exists in this study.

#### **Assessment of Measurement Model**

The first step is to evaluate the reliability and validity of the measurement model. The CR and Alpha values must be greater than 0.7 in the reliability analysis. (Henseler et al., 2014). In concurrent validity analysis, the outer loadings of each construct were also higher than 0.5. Moreover, the AVE is more significant than 0.5, indicating no convergent validity issue in this study (see Table 2).

For evaluating the discriminant validity, the present study follows the Fornell Larcker method. In the Fornell-Larcker method, the square root of the AVE of each construct must be higher than all the absolute values (see Table 3) (Fornell & Larcker, 1981). The current study also used a new technique for evaluating the discriminant validity called HTMT. Henseler et al. (2015) argue that the HTMT values must be lower than 0.85, resulting in no discriminant validity issue in this research (Henseler et al., 2014) (see Table 4).

Table 5

Reliability & Validity Analysis

Construct **Items** Loading CR AVE α **CCP** CCP 1 0.762 0.894 0.893 0.627 CCP\_2 0.752 CCP\_3 0.926 CCP\_4 0.673 CCP 5 0.823 **IMP** IMP\_1 0.796 0.880 0.878 0.591 IMP 2 0.668  $IMP_3$ 0.810 IMP 4 0.820 IMP 5 0.740 **SCP** SCP\_1 0.743 0.878 0.876 0.588 SCP 2 0.643 SCP 3 0.718 SCP\_4 0.860 SCP 5 0.850

Table 6
Discriminant Validity Analysis (Fornel Larcker)

		-) (	7
Constructs	1	2	3
1. CCP	0.792		
2. IMP	0.461	0.769	
3. SCP	0.529	0.484	0.767

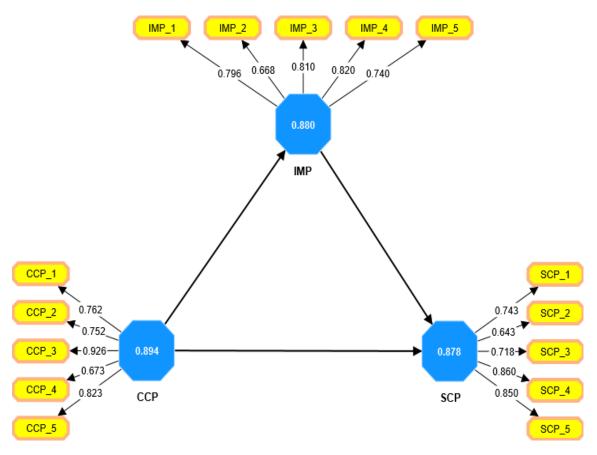
**Note:** "Values on the diagonal (italicized) represent the square root of the average variance extracted, while the off diagonals are correlations"

Table 7

Discriminant Validity Analysis (HTMT)

Constructs	1	2	3
1. CCP		l	
2. IMP	0.455		
3. SCP	0.525	0.477	

## Graphical reprsentation of assessment of measurement model



## Structural Model

## **Hypotheses testing**

This research applied the PLS-SEM technique for hypothesis testing using SmartPLS software version 4.0.9.2. According to Ringle et al. (2015), the bootstrapped procedure was applied by recommending a 5,000 sample size to obtain the hypothesis results. The following Tables 4, 4.1, and 4.2 provide the complete details of direct, indirect, and interaction effects.

Table 8 Hypotheses testing Direct Effect

Hymothesis	Direct	Std.	Std.	T	P
Hypothesis -	Relationships	Beta	Error	Values	Values
H1	CCP → SCP	0.388	0.087	4.489	***
H2	CCP → IMP	0.461	0.079	5.870	***
Н3	IMP → SCP	0.305	0.090	3.388	**

<sup>\*</sup>Indicates significant paths: \*p<0.05, \*\*p<0.01, \*\*\*p<0.001, NS = not significant

In H1, CCP is positively associated with SCP. The path coefficient of 0.388 and t-statistics 4.489 denote the significant positive relationship between CCP and SCP; thus, H1 is accepted. For H2 & H3, this study found positive associations between CCP to IMP and IMP to SCP, and both are taken (beta = 0.461, 0.305 respectively) (see table).

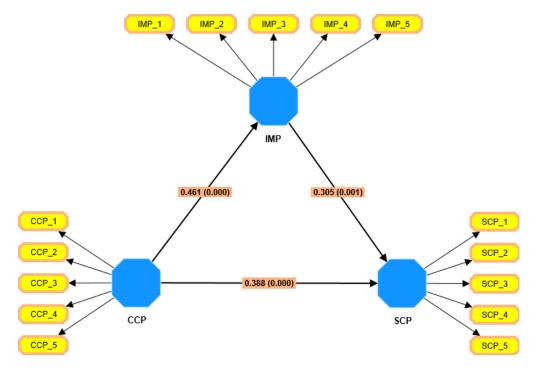
Table 9
Hypotheses testing Mediation Effect

Hypothesis	Mediation/Indirect	Std.	Std.	T	P		
	Relationships	Beta	Error	Values	Values		
H4	CCP → IMP → SCP	0.141	0.052	2.721	0.007		

<sup>\*</sup>Indicates significant paths: \*p<0.05, \*\*p<0.01, \*\*\*p<0.001, NS = not significant

In H4, the mediating effect from CCP  $\rightarrow$  IMP  $\rightarrow$  SCP is positively significant and established (beta = -0.206).

## Graphical representation of the structural model



Quality criteria

 $\mathbb{R}^2$ 

Generally, 0.25, 0.50, and 0.75 values represent small, medium, and large effects. R square "measures the proportion of an endogenous construct's variance explained by its predictor constructs" (Fornell & Larcker, 1981).

 $\mathbf{f}^2$ 

"The effect size of each exogenous construct can be acquired from SmartPLS in the Consistent PLS Algorithm report. Generally, values of 0.02, 0.15, and 0.35 represent small, medium, and large effects on the exogenous latent variable" (Hair et al., 2014). The following Table 4.11 provides the  $f^2$  results.

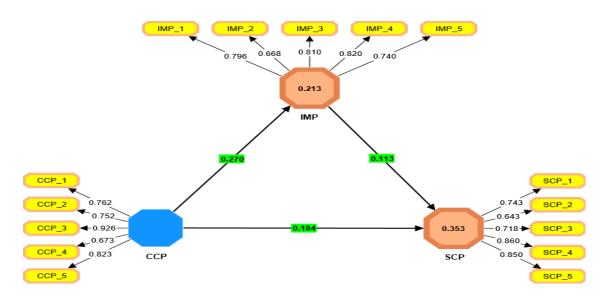
 $Q^2$ 

The  $Q^2$  effect categories as 0.02, 0.15, and 0.35 demonstrate a small, medium, and large effect" (Chin, 1998). The model has predictive relevance when the Q-square is over and above zero. The following Table presents the value of  $Q^2$  for latent constructs in the model.

Quality criteria

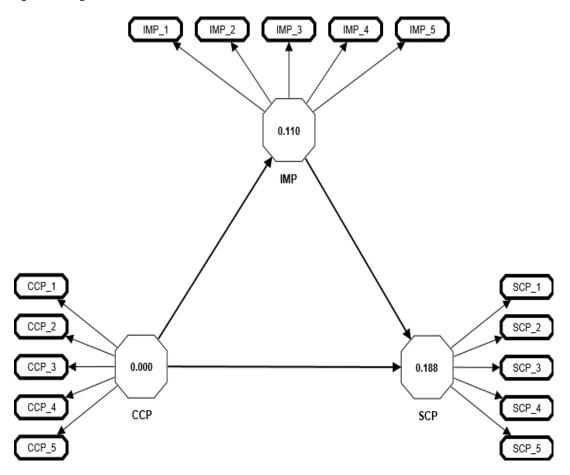
Table 10

Quality criteria				
Latent variables	$\mathbb{R}^2$	R <sup>2Adj</sup>	$Q^2$	F <sup>2</sup>
IMP	0.213	0.209	0.110	
SCP	0.353	0.347	0.188	
CCP → IMP				0.270
CCP → SCP				0.184
IMP → SCP				0.113



Graphical representation of R2 & F2

## Graphical representation of Q2



## Discussion

The research findings and analysis demonstrate accurate and fruitful results while the hypothesis has been tested successfully. Therefore, the male participant ratio is more than female in this research, and undergraduate and fresh graduates were the majority in the qualification categories. In the qualitative statement analysis, more than 50% of the respondents were inclined to choose their subject based on their interests and personal choice, even if they did have any insights or exposure to the discipline and field. Additionally, degree scope is on the second number, while parent choice is on the 3rd number, and the rest of the options have a minimal contribution. In contrast, the literature of the study shows that more than 70% of the students are influenced by their peer groups, elder brothers, without knowing the scope of the subject significance of their talent and aptitude, which seems quite contradictory with the research study. Even more than 50% fulfill their parent's desirable subject choice, according to the literature of the study. Therefore, the rest of the relations between the variables are also positive and significant; consequently, the number of challenges to students was relatively high, as per the analysis of this research, during the planning of a career or making a decision. As a financial crisis, lack of research and information, and lack of guidance platforms and services were the high challenges to the students. Although the obstacles to the candidates might vary from city to city and province to province in Pakistan, the above factors are almost similar to them. Thus, basic needs and desirable lifestyles are also leading aspects among the trending young generation in Pakistan.

#### Conclusion

Proper investment in human capital, including necessary education, training programs, professional development, and healthcare, is essential for enhancing workforce capabilities and overall socioeconomic development. The research study has yielded valuable results, shedding light on the challenges faced by students in higher education and their career-planning decisions in Pakistan. Therefore, various factors influence their career choices, making it crucial for the government to allocate sufficient resources to the education sector and implement effective measures to improve the quality of education. One particular area that requires attention is career guidance services for students. The government should establish dedicated platforms for career counseling, both at private and public levels, across all districts of Pakistan. Education experts and academics must actively engage in this endeavor, advocating for improved career counseling processes and services through awareness campaigns and initiatives. This holistic approach will improve student outcomes and enhance personal and professional growth opportunities.

#### Recommendations

- The government and educational institutions should invest in comprehensive career counseling services in order to enhance career counseling services. Welltrained and well-versed field experts must be available for the students to guide them at different stages of their academic journey.
- There must be a greater emphasis on vocational education and skills development
  programs to promote vocational education across the country, which will equip
  the students with practical skills and increase their employability.
- Encouraging collaboration between educational institutions and industries can
  provide valuable insights into the job market to the students, and real-world
  requirements, such as internships, workshops, and industry visits, can be
  integrated into the curriculum.
- Academia should conduct awareness campaigns to educate students, their parents, and teachers regarding the significance of career planning and available resources.
- The government-supported education sector should develop friendly online platforms that offer career assessments, job market trends, and educational pathways; this way, students will have access to the right information across the country.
- Fostering partnerships between the government, educational institutions, and private organizations to support career counseling initiatives and collaboration can lead to more comprehensive and effective career counseling programs.

By implementing these recommendations and addressing the research implications, Pakistan can improve its career counseling services, leading to better-informed career decisions and increased socio-economic prosperity for its students and the nation.

#### References

- Akhter, N., Ali, M., Siddique, M. H., & Abbas, R. (2021). Exploring the Role and Importance of Career Counselling in Developing Awareness of Graduate Students' Career Choices during Corvid 19. Zenodo (CERN European Organization for Nuclear Research). https://doi.org/10.5281/zenodo.5843337
- Alexander, P. M., Holmner, M. A., Lotriet, H., Matthee, M., Pieterse, V., Naidoo, S., . . . Jordaan, D. (2010). Factors Affecting Career Choice: Comparison Between Students from Computer and Other Disciplines. *Journal of Science Education and Technology*, 20(3), 300–315. https://doi.org/10.1007/s10956-010-9254-3
- Austin, J. T. (1994). Career choice and development (2nd edn). Brown, D. Brooks, L. & Associates, San Francisco, CA: Jossey-Bass, 1990. *Journal of Behavioral Decision Making*, 7(3), 214–216. https://doi.org/10.1002/bdm.3960070307
- Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, 16(1), 74–94. https://doi.org/10.1007/bf02723327
- Bilal, A., & Malik, R. K. (2014a). Career counseling in Pakistan. *Developing Country Studies*, 4(16), 1–11. https://iiste.org/Journals/index.php/DCS/article/download/14732/15091
- CAREER ASSESSMENT IN PAKISTAN: CURRENT SCENARIO | New Horizons. (n.d.). http://greenwichjournals.com/index.php/NH/article/view/444
- Chin, W. W. (1998). The partial least squares approach for structural equation modeling. In G. A. Marcoulides (Ed.), *Modern methods for business research* (pp. 295–336). Lawrence Erlbaum Associates Publishers.
- Cohen, J. (2013). Statistical Power Analysis for the Behavioral Sciences. *Routledge eBooks*. https://doi.org/10.4324/9780203771587
- Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18(1), 39–50. https://doi.org/10.1177/002224378101800104
- Gefen, D., Straub, D. W., & Boudreau, M. (2000). Structural Equation Modeling and Regression: Guidelines for Research practice. *Communications of the Association for Information Systems*, 4. https://doi.org/10.17705/1cais.00407
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Retrieved from http://ci.nii.ac.jp/ncid/BB15179462

- Henseler, J., Ringle, C. M., & Sarstedt, M. (2014). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8
- Iqbal, S. I. M. (2017). Availability of career-related practices in Pakistani universities. *Psychology and Behavioral Science International Journal*, 6(5). https://doi.org/10.19080/pbsij.2017.06.555698
- Keshf, Z., & Khanum, S. (2021). Career guidance and counseling needs in a developing country's context: a Qualitative study. *SAGE Open*, 11(3), 215824402110401. https://doi.org/10.1177/21582440211040119
- Islam, S. U., Noor, S., & Malik, H. A. (2020). Exploring Perceived Barriers in Career Planning And Counseling Among Students. *Global Regional Review*, *V*(III), 192–203. https://doi.org/10.31703/grr.2020(v-iii).20
- Khan, S. B. (2019). Career Decision-Making: Relationship Among Youth Career Choices, Career Knowledge And Self Knowledge At Higher Secondary Level In Pakistan. Islamabad: International Islamic University.
- Minhas, S., & Ahmad, M. (2020). Career counselling approaches in Pakistani students. *ResearchGate*. Retrieved from https://www.researchgate.net/publication/354355591\_Career\_Counselling\_Appro aches\_in\_Pakistani\_Students
- Nadeem, H. A., Qamar, A. M., & Khan, T. (2021). An Assessment Of Career Counseling Facilities For Graduate And Postgraduate Students. *Pakistan Journal of Humanities & Social Sciences Volume* No. 04, Issue No. 02, 2-6.
- Zahid, G., Hooley, T., & Neary, S. (2019). Careers work in higher education in Pakistan: current practice and options for the future. *British Journal of Guidance & Counselling*, 48(4), 443–453. https://doi.org/10.1080/03069885.2019.1576030
- Zeb, A. (2016). Factors affecting the career choices of secondary school students in Khyber Pakhtunkhwa,

  Pakistan.

  http://prr.hec.gov.pk/jspui/bitstream/123456789/10398/1/Thesis.pdf