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THE IMPACT OF CONGRUENCE ON STUDENT ACADEMIC PERFORMANCE: ASSESSMENT OF HOLLAND THEORY IN NON-WESTERN CULTURE

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Abstract

Purpose of the study: The current study was conducted to investigate Holland's circular order model of interest, congruence between career interest and career aspiration, and congruence impact on students' academic performance in an indigenous context.

Methodology: Data have collected from 669 (356 boys & 313 girls) students studying in grade 10th from 16 high schools, 8 boys school (4 government & 4 private sectors), and 8 girls school (4 government & 4 private sector)-from significant towns of Gilgit division, Pakistan. Career interest was measured using the Urdu version of Career Key (Jones, 2010), students' obtained marks measured academic achievement in the last examination, and career aspirations were assessed by asking about aspired future careers from students. A randomized test of hypothesized order (Hubert & Arabie, 1987) was applied to determine the circular model, congruence was measured using Holland's (1963) first-letter agreement, and academic achievement of congruent, incongruent, and ambivalent groups of students was compared using one-way analysis of variance.

Main Findings: The study's findings revealed that the results did not support Holland's circular order model of interest. The congruence hypothesis was partially funded, and the impact of congruence on academic achievement was fully supported in the present study. Gender differences were found in some career interests as well as in aspired occupations. The findings are discussed in a cultural context.

Applications of this study: The results of the study are applicable and valuable for the educational institutes. In the present study, we have evaluated three assumptions of Holland's theory: circular order model of interest structure, congruence between career aspiration and career interest, and impact of congruence on students' academic achievement.

Novelty: In Pakistan, career success and relevant domains are least explored by researchers. However, it is imperative to provide academic and career counselling services to ensure academic and career success and satisfaction. Therefore, the current study was conducted to assess Holland's model of interest, congruence between career aspiration and interest, and its impact on student's academic achievement in Pakistan.

Keywords: *Career Aspirations, Career Interest, Academic Achievement, Gender, Indigenous Context.*

INTRODUCTION

Holland's theory (1994, 1997) of vocational personalities and work environments categories individuals into six types; Realistic, Investigative, Artistic, Social, Enterprising, and Conventional (RIASEC) appears as a distinctive theory in the field of counselling psychology, especially in the area of interest assessment (Nauta, 2010). Cross-cultural researches have been conducting to investigate the applicability of Holland's theory from an international perspective, and some scholars claimed that it had been the most widely studied career theory (Brown & Lent, 2005; Spokane & Cruza-Guet, 2005). Researchers warrant caution for practitioners in using recommendations and interventions based on such theories without proper validating their use in countries, which are different culturally and economically from the societies where those theories have been developed and tested and feel the importance of researching to understand their applicability (Glosenberg et al., 2019).

The first assumption of Holland's theory is interest structure, also known as Holland's Hexagonal Model (figure, 1) or RIASEC calculus (Nauta, 2010) that is contiguous scales have a higher level of associations as compared to noncontiguous scales (Armstrong et al., 2003; Armstrong & Rounds, 2008; Darcy & Tracey, 2007). According to this model, adjacent scales have more psychological similarities (beliefs, values, abilities, interests, & preferred activities), alternative scales have a moderate level of similarity, and scales positioned opposite have the slightest similarity (Kiani, 2011). For example, in the RIASEC structure, the Realistic and Investigative types are more similar in terms of their interest, skills, attitudes, and values compared to Realistic and Social types. Additionally, Realistic and Artistic types are moderately similar in terms of their abilities, skills, preferences, and attitudes. A vast pool of researchers (Armstrong & Rounds, 2008; Elosua, 2007; Gupta et al., 2008; Hedrih, 2008; Tracey & Robbins, 2005; Liu, et al., 2020; Chu, Creed, & Conlon, 2021) has been devoted to testing the model, and most of them have found supporting evidence across gender, race and ethnicity, and socioeconomic status (Armstrong et al., 2003; Darcy & Tracey, 2007; Rounds & Tracey, 1993;

Ryan et al., 1996; Swanson & Gore, 2000). However, the model's fit in different nationalities is under debate (Armstrong & Rounds, 2008; Darcy & Tracey, 2007; Hussan et al., 2014; Morgan & de Bruin, 2017; Sung et al., 2016; Xu, & Li, 2020; Ding, Wang, Hourieh, & Yu, 2020).

The environment can also be categorized into the same six types, and people tend to choose the environments (e.g., field of study & place of employment/occupation) that fit with their personality (Holland, 1997). For example, realistic personality and realistic environment would prove highly congruent in terms of skills and abilities, rewards and incentives, and the overall environment and personality demands. The fit of people's personality and environment is called *congruence*. It received empirical support and was found to has a modest predictive power (Nauta, 2010). The theories of congruence between person and environment have emphasized matching people to a work environment that best fits their personality and interest. In this area, the most widely used framework of person-environment fit is Holland's theory of vocational personalities and work environments (Spokane & Cruza-Guet, 2005; Swanson & Gore, 2000). Studies from different cultures reported mixed findings. e.g., a moderate degree of congruence between students' aspiration and their interests was found in Pakistan (Kiani, 2011), China (Tang, 2009), and Germany (Ertl & Hartmann, 2019). Some researchers reported a positive relationship between interest and career aspiration, e.g. in Switzerland by Hirschi (2010) and in Kosovo by Jemini-Gashi and Berxulli (2017). Ertl and Hartmann (2019) reported that students' sex was a significant factor in predicting their congruence and showed higher levels of congruence where they were under-represented, particularly female students in STEM-L. Apart from that, the essential point identified by Ertle and Hartmann (2019) about congruence is the use of congruence indices to assess the concept (e.g. Holland's (1963) first-letter agreement, Healy and Mourton (1983) two-letter agreement, Zener and Schnuelle (1976) Z-S index, M-Index by Iachan, 1984, etc.). Different indices revealed different congruence results, i.e. the level of congruence reported using different indices ranged from $r = 0.05$ to $r = 0.98$ (Camp & Chartrand, 1992; Brown & Gore, 1994; Young et al., 1998). Congruence indices suffered from both conceptual and methodological limitations (Nye et al., 2018). Recently, Glosenberg et al. (2019) have studied the global validity of vocational interest and trends in person-vocation reasonable assumption. The circular model fits well in high economic development areas and people with more education, particularly in individualistic and higher-income countries. Findings necessitated the importance of additional research work to understand the relevance of the circular order model in countries that differ culturally and economically from those societies where such theories have been developed and tested.

The third assumption of Holland's theory set to test in this study was the impact of congruence on academic achievement. Suppose the level of congruence is high-match between personality and environment that leads to higher academic and career success and satisfaction (Bai & Liao, 2018; Hussain et al., 2015; Nye et al., 2017), career maturity, career certainty (Jemini-Gashi & Berxulli, 2017), and mastery-approach and performance-approach among high school students (Sawitri & Creed, 2015). Some researchers reported inconsistent findings, i.e. students' congruence was found to be a poor predictor of their significant academic satisfaction and performance (Young et al., 2016) and nonsignificant predictor of their career planning, career decidedness, occupational self-efficacy, and career engagement (Jaenschi et al., 2016). IT professionals' congruence was not significantly associated with their occupational satisfaction (Carpenter et al., 2018). Engineers with high and low congruence did not differ in work satisfaction. However, the low initial congruence group reported higher congruence in their second job, but the high initial congruence group unexpectedly reported lower congruence in their second job (Earl et al., 2019). Nye et al. (2017) have conducted a meta-analysis to address the discrepancies in the congruence hypothesis, concluded that interest congruence was a better predictor of performance than interest scores alone.

Vocational aspirations and vocational interest, the degree of agreement between them, and its impacts on students' academic achievement are well-studied academic and career counselling domains in the west and other developed nations. However, in Pakistan, this is a relatively less explored area. However, it is essential to provide academic and career counselling services to ensure academic and career success and satisfaction. Therefore, the current study was conducted to assess Holland's model of interest, congruence between career aspiration and interest, and its impact on student's academic achievement in Pakistan.

Research Objectives

The current study was conducted to investigate Holland's circular order model of interest, congruence between career interest and career aspiration, and congruence impact on students' academic performance in an indigenous context.

H_1: Holland's model structure of interest will be present in a Non-Western Pakistani cultural context.

H_2: There is positive congruence between career aspiration and career interest in Non-Western Pakistani cultural context.

H_3: There is a positive impact of congruence on academic achievement of students in Non-Western Pakistani cultural context.

H_4: There exist significant gender differences in career aspirations among students in Non-Western Pakistani cultural context.

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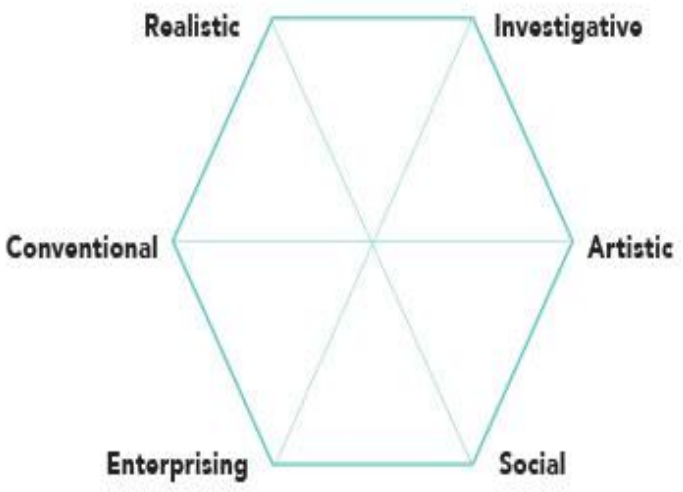

Figure 1: Hexagonal model proposed by Holland (1997)

METHODOLOGY

Participants

To conduct the present study, we have recruited a total of 669 (356 boys & 313 girls) students studying in grade 10th from 16 high schools-8 boys (4 government & 4 private sectors) and 8 girls (4 government & 4 private sectors)-from significant towns of Gilgit division, Pakistan. Students' age was ranged from 13 to 19 years with a standard deviation of 15.72. The purposive sampling technique was used with the inclusion criteria of; only those students who study in class 10 and regular students.

Measures

The Urdu version of Career Key (CKU) by Jones (2010): CKU was used to assess students' career interests. According to Holland's theoretical postulation, this is an empirically validated test in Pakistan (Hussain et al., 2014) that measures individuals' personality. The CKU categorized participants into six personality types: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional (RIASEC).

Career Aspiration: Demographic sheet along with two questions about the career aspiration of students were administered. The first question was "what career do you intend to adopt in the future?" and "if you have more than one career choice, please write them in order of preference".

Academic Achievement: Students' obtained board marks in the last examination were recorded to measure their academic achievement.

Procedure

The data were collected from 16 schools from significant towns of the Gilgit division (Gilgit, Ghizer, Hunza, & Nagar districts), Pakistan. After obtaining formal consent from school authorities, CKU and a demographic information sheet were administered to students in a class setting. Students' marks in the last board examination were obtained from the school administration. Researchers ensure their presence in class during the assessment to facilitate participants. Statistical Package for Social Sciences (SPSS. ver. 20) was used to analyze collected data.

Ethical Considerations

The American Psychological Association (APA) followed ethical principles and a code of conduct in the whole research. Moreover, the researchers also followed recommendations provided by the Bio-Ethics Committee of the Karakoram International University during each research step. Dual informed consent was obtained from both the institutions and from the participants. Only those participants were selected who have willingly participated in this study. No harm was caused for participants in this research.

Statistical Analysis

The Pearson correlation analysis was used to assess all intercorrelations for all scales of CKU, and a randomized test of hypothesized order (Hubert & Arabie, 1987) was applied to test Holland's circular order model. Congruence was measured using Holland's (1963) first-letter agreement. We have created three groups of students based on the results of the first-letter agreement; first, congruent group, students whose career interests and career aspirations match. Second, the incongruent group, those students whose career interests and career aspirations were not matched, and the third, ambivalent group, consisting of students who scored high on more than one type. To compare their academic

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achievement, we have applied a one-way analysis of variance (ANOVA). To assess gender differences in career interests, career aspirations, and academic achievement, we have applied an independent sample *t*-test.

RESULT

As shown in figure 1, all intercorrelations for all scales of CKU were statistically significant. A close examination of the correlation matrix indicated that the general pattern coincides with Holland's theoretical expectation; there are some notable exceptions. For example, the correlation between R and I is less than the correlation between R and C, the correlation between I and A is less than the correlation between A and all other subscales, and the correlation between A and S is less than the correlation between A and next to the adjacent scales Figure 2.

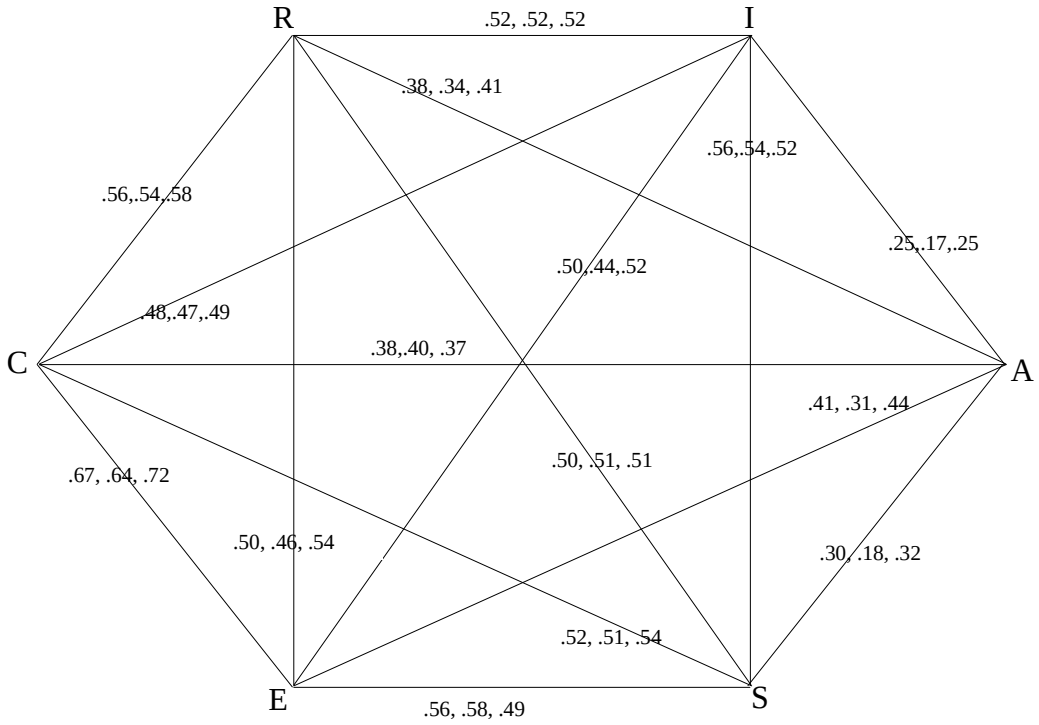

Figure 2: Hexagonal Model of Intercorrelations for RIASEC of CKU (N=669)

Note: Correlations from left to the right overall sample, boys and girls for Holland's hexagonal model.

We then evaluated Holland's circular order model using the randomized test of hypothesized order by Hubert and Arabie (1987). Holland's circular order model proclaimed that adjacent types of RIASEC are more similar than more distant types. For example, Realistic and Investigative types are expected to be more similar than Realistic and Artistic types. Similarly, Artistic and Social types are expected to be more similar than Artistic and Enterprising types. Test results indicated that out of 72, 41 (general sample), 43 (boys), and 37 (girls) order predictions were consistent with theoretical expectations. The significance levels for all samples were not significant. It revealed that the structure-of-interest of the studied sample do not support Holland's circular order model (Table 1).

Table 1: Randomization test of the fit of Holland's Circular order model on each of samples for RIASEC of CKU (N = 669)

Sample	*N*	Number of Predictions	Predictions Met	Tie	CI	*p*
Overall	669	72	41	6	.22	.11
Boys	356	72	43	2	.22	.13
Girls	313	72	37	4	.08	.35

We also evaluated the degree of congruence between students' career aspiration and their career interests assessed by CKU. The students whose probable career choice is a doctor; their dominant summary code is Investigative. It is consistent with Holland's theoretical expectation. The students who aspired to be a teacher; their dominant summary code is Social. It is aligned with Holland's theoretical classification. The students whose career aspiration is an army; their dominant summary code is Social. It indicated a high degree of incongruence because its dominant summary code should be Realistic. For the students who want to be a lawyer, their dominant summary code is also Social. This is also incongruent because the dominant summary code of those who want to be a lawyer should be Enterprising. The students whose career aspiration is an engineer; their dominant summary code is Investigative. It is in accordance with the

theoretical expectations. The dominant summary codes for the aspired careers; air pilot, police, business, nurse, politician, superior central service (CSS), journalist, athlete, banker, singer, agriculture, CA, dress designer, forest officer, and insurance clerk, are incongruent. The dominant summary codes for the desired careers; artist, scientist, astronomer, psychologist, and social worker are congruent with Holland's theoretical expectation.

Table 2: Frequencies of RIASEC highest summary codes based on students' vocational aspiration (N = 664)

N	R	I	A	S	E	C	Tie
Doctor (n = 181)	2	74	21	41	6	10	27
Teacher (n = 122)	2	25	10	51	7	7	20
Army (n = 85)	7	16	7	18	9	10	18
Lawyers (n = 66)	0	8	9	18	5	6	20
Engineer (n = 60)	3	29	6	4	5	3	10
Pilot (n = 22)	2	3	5	6	1	1	4
Police (n = 20)	1	5	3	3	1	3	4
Business (n = 17)	0	3	1	1	2	4	6
Nurse (n = 15)	0	2	3	2	3	1	4
Artist (n = 13)	0	1	7	3	0	0	2
Politician (n = 13)	0	4	2	4	0	1	2
CSS (n = 13)	1	5	3	0	3	0	1
Journalist (n = 7)	1	3	1	1	0	1	0
Scientist (n = 7)	0	4	1	0	0	0	2
Athlete (n = 4)	0	0	1	1	0	0	2
Banker (n = 4)	0	1	0	0	0	1	2
Singer (n = 4)	0	1	1	1	0	1	0
Agriculture (n = 2)	0	0	0	1	0	0	1
CA (n = 2)	0	2	0	0	0	0	0
Dress Designer (n = 2)	0	1	0	0	0	0	1
Astronomer (n = 1)	0	1	0	0	0	0	0
Forest Officer (n = 1)	0	1	0	0	0	0	0
Insurance Clerk (n = 1)	0	0	0	0	0	0	1
Psychologist (n = 1)	0	1	0	0	0	0	0
Social Worker (n = 1)	0	0	0	1	0	0	0
Total	19	190	81	156	42	49	127

Only five students didn't express their career aspirations.

To assess the role of congruence between career aspiration and career interest in students' academic achievement, we have created three groups: congruent, incongruent, and ambivalent groups. One-way analysis of variance indicated that students' congruence significantly influenced their academic achievement, but the effect size is weak (Table 3). Post-hoc analysis revealed that congruent group reported highest level of academic achievement when compared with incongruent group (*MD = 2.8, p = .01*) and ambivalent group (*MD = 3.0, p = .03*). However, no difference was found between incongruent and ambivalent groups (*MD = .29, p = .8*).

Table 3: Comparison of academic achievement among congruent, incongruent, and ambivalent groups (N = 664)

Sources	SS	Df	MS	F	Effect size
Between Groups	1122.1	2	561.0	3.43*	.1
Within Groups	107774.0	661	163.2		
Total	108896.2	663			

Note. *$p < .05$.

Gender differences in career interests were also assessed. As shown in table 4, girls reported higher levels of Investigative, Artistic, Social, and enterprise interest than boys. The effect size for Investigative and Enterprising types is small, while it is medium for Artistic and Social types (Table 4).

Table 4: Gender differences in each type of CKU for general sample (N = 669)

	Boys (n=356)	Girls (n=313)		95% CI		
Scale	***M(SD)***	***M(SD)***	***t (667)***	***LL***	***UL***	***Cohen's d***
Realistic	8.74(3.0)	9.17(3.1)	1.7	.89	.04	.13
Investigative	11.57(4.4)	13.27(3.9)	5.1**	2.3	1.0	.44
Artistic	8.25(4.4)	10.92(4.6)	7.5**	3.3	1.9	.58
Social	11.52(3.1)	13.42(3.1)	7.7**	2.3	1.4	.60

Enterprising	9.74(3.6)	11.34(3.7)	5.5**	2.1	1.0	.43
Conventional	10.29(3.8)	10.67(3.9)	1.2	.97	.20	.09

Note. CI = Confidence Interval; LL = Lower Limit; UL = Upper Limit. ***p* < .01.

As shown in Table 5, the aspired careers for girls were doctor, teacher, lawyer, nurse, artist, journalist, dress designer, astronomer, and psychologist. Boys' aspired careers were army, engineer, police, business, politician, CSS, scientist, banker, singer, agriculture, CA, forest officer, insurance clerk, and social worker. For air pilots and athletes, both boys and girls preferred equally (Table 5).

Table 5: Gender differences in career aspiration (N = 664)

Career aspiratio	Boys	Girls	Total
Doctor	71	110	181
Teacher	49	73	122
Army	77	8	85
Lawyers	20	46	66
Engineer	44	16	61
Pilot	11	11	22
Police	19	1	20
Business	16	1	17
Nurse	0	15	15
Artist	6	7	13
Politician	11	2	13
CSS	7	6	13
Journalist	2	5	7
Scientist	5	2	7
Athlete	2	2	4
Banker	3	1	4
Singer	3	1	4
Agriculture	2	0	2
CA	2	0	2
Dress Designer	0	2	2
Astronomer	0	1	1
Forest Officer	1	0	1
Insurance Clerk	1	0	1
Psychologist	0	1	1
Social Worker	1	0	1

DISCUSSION

In the present study, we have evaluated three assumptions of Holland's theory: circular order model of interest structure, congruence between career aspiration and career interest, and impact of congruence on students' academic achievement.

Results of the circular order model did not support the structure of interest in the present study. Our results are consistent with previous findings reported from the same social context, where students' hexagonal structure-of-interest did not support Holland's theoretical expectations (Hussan et al., 2014). However, researchers reported supporting evidence to Holland's interest structure from other non-western cultures. For example, Yilmaz (2017) found supporting results to Holland's personality types in Turkey. Morgan et al. (2015) found that in South Africa, university students' interest structure supported the tight circular order model. In China, research findings supported the hexagonal structure of interest and endorsed two additional assumptions of Holland's theory: congruence and calculus (Yul & Alvi, 1996). Supporting evidence to Holland's interest structure was also reported from European countries. For example, Belgium (Fonteyne et al., 2017), Germany (Blankenburg et al., 2016), Iceland (Einarsdottir et al., 2002), and Serbia and Bulgaria (Hedrih et al., 2016).

Nevertheless, Morgan and de Bruin (2017) reported some mixed findings from African countries, i.e. slight disordering in personality types for the Eastern African region and correct ordering of the personality types for Southern and Western African regions. In China, the interest structure of students among interest types was partially consistent with Holland's theory (Sung et al., 2016). Another study in China found that the circumplex model was not supported, while the circular order model was supported irrespective of culture and gender (Yang & Hui, 2005). Another study conducted in South Africa found that the circular order model and multidimensional scaling analysis, which suggested poor fit, indicated the structure of interest might not be valid for South Africa. According to Khan et al. (1990), students' structure of interest in Pakistan was not identical with the US context. Farh et al. (1998) found similar results for students in Hong Kong. Based on the American college testing database, Darcy and Tracy (2007) found differences in conclusions, i.e.

circumplex model did not support while the other three models, circular order, multidimensional scaling, and unidimensional scaling, were supported. In conclusion, despite its hallmark importance in career counselling, Holland's interest structure is not fully supported across studies and cultures.

Results of the second assumption-congruence between career aspiration and career interest-were moderately consistent with the theoretical expectation. The congruence between career aspiration and career interest was found for the aspired careers of a doctor, teacher, engineer, artist, scientist, astronomer, psychologist, and social worker. Incongruence between career aspiration and career interest was found for the aspired careers of; the army, lawyer, air pilot, police, business, nurse, politician, CSS, journalist, athlete, banker, singer, agriculture, CA, dress designer, forest officer, and insurance clerk. Kiani (2011) reported consistent findings from Pakistan where students' aspired careers of doctor and teacher were congruent with their career interest and aimed careers of army and lawyer were incongruent with their career interest. Another study conducted in Pakistan found that there was a good level of congruence for students of fine arts, social sciences, and engineering and medicine, less congruence for students of administrative sciences, and almost no congruence for commerce students indicated some support for the concept of congruence aligned with findings of the present study (Khan et al., 1990).

The congruence hypothesis was also supported by research findings reported from different socio-cultural contexts (Volodina et al., 2015; Yul & Alvi, 1996). However, in the present study, incongruence was also found in some occupations. It is not easy to establish any firm assumption behind such findings, but the role of specific factors cannot be ignored completely. For example, in the socio-cultural structure of Pakistan, an occupation mirrors the socio-economic status of the individual, so that human capital variables more influence an individual's occupational choice compared to the individual characteristics (Nasir, 2005). Additionally, Hussain et al. (2014) argued that several socio-economic factors tend to influence the young generation's aspired careers, i.e. Pakistan is a developing country lacking diverse opportunities. As a result, career choice is directed by the convenience and availability of the opportunity instead of an individual's dispositional characteristics, interest, and aptitude. Farh et al. (1998) also highlighted the importance of socio-cultural fabric in determining students' interest structure coined by Holland. They found that students in Hong Kong with more strong Chinese traditional values performed less consistently with Holland's model than students with weaker traditional values. Following the fundamental essence of the social cognitive career theory (SCCT; Lent et al., 1994), Byars-Winston and Fouad (2008) reported the importance of parental involvement in undergraduate college students' career goals. According to Ertl and Hartmann (2019), there are multiple factors in choosing those aspiring occupations, which do not fit with one's interest, e.g., sex type, the prestige of occupation, and an associated outcome like the job. Young et al. (2016) reported job security as an essential factor influencing students' career optimism and career planning ability.

Furthermore, the previous meta-analysis reported consistent and theoretically meaningful relationships between personality traits and personal values but not generally large, revealing that both traits and values are two separate constructs (Parks-Leduc et al., 2015). Nye et al. (2018) has questioned the conceptual and methodological operationalization of congruence indices. Therefore, we conclude that due to the socio-economic fabric of the research region, different operational definitions and indices of congruence and differences in theoretical constructs, career interest, and choice were not neatly fit with the theoretical expectation proposed by Holland.

Findings of the third assumption-impact of congruence on academic achievement-was consistent with the theoretical expectation, i.e. congruent group scored the highest level of academic achievement compared to incongruent and ambivalent groups. Our results validated previous meta-analysis findings; interest-congruence was a stronger predictor of performance outcomes than interest scores alone (Nye et al., 2017). Similarly, congruent groups scored higher on academic achievement than incongruent groups in the same region (Hussain, Ali, & Ansar-ud-Din, 2015). The positive impact of congruence on career outcomes, including academic achievement and timely degree completion, was reported by several studies (Allen & Robbins, 2010; Gitonga et al., 2013; Tracey & Robbins, 2006; Ukwueze et al., 2014) supporting findings of the present study.

Gender differences in career interest were observed in the present study, i.e. girls reported a higher level of Investigative, Artistic, and Social interest than boys, partially replicating previous findings reported from the same social context where girls' scored higher on Artistic and Social. Boys scored higher on Investigative, Enterprising, and Conventional (Khan et al., 1990), while another study reported that girls scored higher on Artistic while boys scored higher on Realistic, Enterprising, and Conventional (Hussain et al., 2014). According to Morris (2016) and Dierks et al. (2016), women scored higher on Artistic and Social interests than men supported our findings.

In the present study, the aspired careers for girls were doctor, teacher, lawyer, nurse, artist, journalist, dress designer, astronomer, and psychologist. Boys' aspired careers were army, engineer, police, business, politician, CSS, scientist, banker, singer, agriculture, CA, forest officer, insurance clerk, and social worker. Our findings are consistent with the result of a previous study conducted in Pakistan. The most aspired occupations by boys were engineer, armed forces, business, and scientist, while their most minor preferred occupations were nurse, artist, flight attendant, and beautician. Girls' most aspired occupations were medicine, lecturer, and psychologist, while their least aspired occupations were police, contractor, and clerk. The study further revealed that boys and girls aspired more for those compatible with their gender within the Pakistani cultural context (Aziz & Kamal, 2012). Other studies in Pakistan found that boys' most

preferred occupations were army officers and engineers, while girls' most aspired occupations were doctor, teacher, and lawyer, who fully supported our findings (Kiani, 2011; Riaz, 1995). According to Riaz (1995), the underlying reasons for gender-based preference for occupations are altruistic and social, while reasons for disliking occupations are ethical and personal. Wong (2015) also argued that gender and ethnic identifies work in multifaceted ways to determine students' career ambitions. Another study in Pakistan found that parents' profession, mass media, and personal choice influenced students' career selection (Saleem et al., 2014), hints, we cannot say that only cultural factors influenced students' career aspiration.

CONCLUSION

To conclude, Holland's circular order model of interest was not supported, but the congruence hypothesis was partially supported, and the impact of congruence on academic achievement was fully supported in the present study. Therefore, we recommend organizing awareness programs for parents, teachers, and career counsellors to consider the importance of students' interest in their selection of the field of study so that students will perform better during their academic and later in professional life.

LIMITATIONS AND STUDY FORWARD

As this study was confined to a specific geographic location, it is suggested to consider other segments of society and a much bigger sample size to generalize the study results. A good number of participants had never been to a university to receive a higher-level education. To represent the general population, future researchers should consider university students as a simple for their studies.

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AUTHORS CONTRIBUTION

Ammar Hussain worked on the drafting of the article, Sadiq Hussain and Zaigham Ali collected the data. All authors worked collectively on the analysis and interpretation of results.

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