

How RIASEC Personality Traits Crystallizes Occupational Preferences among Adolescents: Match or Mismatch

Samiah Ahmed

National College of Business Administration and Economics Lahore, Pakistan
Email: samiahahmed21@gmail.com

Alia Ahmed

National College of Business Administration and Economics Lahore, Pakistan
Email: dralia@ncbae.edu.pk

Taseer Salahuddin

Government Sadiq College Women University Bahawalpur, Pakistan
Email: salahuddin.taseer@gmail.com

Abstract

Current Study investigated how RIASEC personality traits impact the crystallization of occupational preferences among young adolescents via theoretical lens of vocational choice theory. A sample of 1147 students ranging from 13 to 21 years was used to test RIASEC model. Results using Holland's RIASEC Scale test (1997) depicted a significant impact of RIASEC personality traits in occupational preferences. Gender appeared to be a strong determinant in variation pattern of vocational choice. Understanding these patterns can help students, parents, policy makers and academic institutions in helping young adolescents in making better career choices and in turn will direct human resource to most optimal productive path in an economy.

Keywords: personality interests, occupational preferences, occupational gender segregation, RIASEC personality traits.

1. Introduction

Vocational indecision has an outgrown concern for career counselors, educators, career psychologists and researchers, as the process of career decision has become rather complex (Vignoli, 2009). Vocational indecision refers to failure to come to a decision regarding which occupation to pursue (Guay et al., 2003). Many juveniles, when step into gates of college campuses, are actually unaware of who they are and what they want to become in near future; also referred to as undecided students (Gordon, 2007) or exploratory students (Carduner et al., 2011). The failure of making a final vocational choice is a common situation for young adolescents (Braunstein-Bercovitz et al., 2012), which entails to a lack of occupation-person fit, a decrease in vocational motivation and well-being (Feldman, 1990). Therefore, in order to reduce vocational indecision and career barriers, exploring many occupations, selecting and committing to a particular

occupation is a pivotal task for young high school students (Vignoli, 2009), in order to ascertain career commitment and career aspirations (Bluesteine *et al.*, 1989).

During the period of adolescents, a young adolescent after acquiring formal education, actually jolts his thoughts and feelings and aligns them with his preferred occupational choice (Schoon & Silbereisen, 2009), also reflecting his self-identity (Meyer *et al.*, 1993) in order to fit into professional world (Yun and Min, 2015) and belong to a society (Vijaykumar and Lavanya, 2015). Person-occupation fit shall entail career commitment (Orkibi, 2010), adjustment and well-being (Strauser *et al.*, 2008), life satisfaction (Hirschi, 2011), educational and professional success (Lee, Lawson, and McHale, 2015), vocational calling and diminishing dysfunctional career thoughts (Galles & Lenz, 2013).

In order to annihilate career barriers and vocational indecision, there is a career exploration process for college students and sophomores. Correct recognition of factors, for crystallization of occupational preferences can be expedient in students' selection of educational programs, which can also assist employment policies towards their bright future (Karaca *et al.*, 2016). A recurrent theme in discussions has been personality traits, abilities and interests, which can be used in applied settings such as career counseling (Armstrong *et al.*, 2008).

Personality traits are a striking factor regarding the decision of college major and vocational preferences and gender segregation among Asian students (Han, 2016; Liao and Ji, 2015). Therefore, how adolescents or college students gain specificity and develop a pattern for vocational preferences and decide academic majors, this research visualized how RIASEC personality traits determined occupational preferences among Pakistani adolescents; as these personality traits need to be considered and validated (Akbulut, 2016; Hirschi and Jansch, 2015; Spurk *et al.*, 2015).

Internationally this has become a much researched topic as wrong career choices not only create personal life time dissatisfaction; these accumulatively adversely impact human resource allocation optimality and economy's productivity (Ahmed, Sharif, Ahmed, 2017). Interest in career choice determinants has increased in Pakistan therefore some studies can be found on general determinants of career choice in Pakistan. Current study is a novel effort to determine the impact of RIASEC personality traits on occupational choice of adolescents in Pakistan. Focusing on personality traits to make right career choices can be a step forward in raising student counseling available to students of the studied age group where a major transition from college to university is taking place. This precisely is the main focus of research study; which leads us to the study's research questions.

1.1 Research Questions

- What is the impact of RIASEC personalities on vocational preferences? And how do RIASEC personalities affect vocational preferences among adolescents?
- Can the knowledge of RIASEC personality types aid parents, educators, career counselors and policy makers in shaping up career preferences for better vocational or career prospects?

2. Theoretical Underpinning

To depict vocational behavior and crystallize occupational preferences, theory of work adjustment (TWA: Dawis & Lofquist, 1984) had been widely recognized and Holland's theory of career interests and personalities (Holland, 1973, 1997) is the most dominant vocational structure, in line with theory of work adjustment. Under theory of work adjustment, occupational satisfaction can be derived by the congruence between a person's needs and reinforcers given by the work environment and so person must look for work environment which truly supports their abilities, interests and personalities (person to environment fit) (Dawis & Lofquist, 1984), in order to develop occupational interest profiles (Rounds et al., 1999). In line with work adjustment theory, Holland's theory connects an individual to an occupation which matches with their interests and personalities. The theoretical framework consists of six basic personality types, collectively known as RIASEC; R=realistic; I=investigative; A=artistic; S=social; E=enterprising and C=conventional (Holland, 1973; Holland, 1997). The theory explains RIASEC; R=realistic activities are connected to practical tasks or working with an individual's hands; I=investigative tasks are about problem solving, interest in science and thinking patterns; these are intellectual tasks; A=artistic activities comprise of intuitional and innovative tasks; S=Social activities are actually about helping or training tasks and informing; E=enterprising activities are more about leading and informing tasks; and lastly conventional tasks are clerical in nature, these are organized, detail oriented and conscientious practices (Holland, 1997). Using a sample of 1147 students from high school to university level, Holland's RIASEC theory has been tested in current research. Personality types to certain career choices, most preferred career choices in Pakistan and the least preferred careers have been segregated.

'Whether or not gender impacts career choices?' is another important aspect of the debate. Literature has interesting debate on this issue. Based on Prediger (1982) and Holland (1997), gender specific profiles of RIASEC personality types had been of uniform finding (Bergmann & Eder, 2005; Lippa, 1998). Men scored higher on the things end T/P dimension, i.e. realistic occupation, whereas women got higher scores on People end, i.e. socialistic occupation (Deng et al., 2007). Likewise, female students significantly reported more on artistic, social and conventional traits, whereas, male pupils reported more realistic, investigative and prestige personalities (Guntern et al., 2016). Lower scores on prestige scales among female pupils meant declining trend towards prestigious occupations (Creed et al., 2010; Norredam & Album, 2007). Current research also aimed to shed a light on gendered career choices based on RIASEC personality traits.

Literature had also suggested relationships between five factor model of personality and RIASEC personality types (Costa & McCrae, 1992). For detailed discussions see (Ackerman & Heggstad, 1997; Hogan & Blake, 1999; Tokar et al., 1998, Kwon and Park, 2016; Kwon and Park, 2016; Larson et al., 2002, Gottfredson et al., 1993; De Fruyt & Mervielde, 1997).

Numerous models have supported RIASEC personality types (Day & Rounds, 1998; Rounds & Tracey, 1992) with numerous working environments (Rounds et al., 1999), thereby using more representing samples (Day et al., 1998; Fouad et al., 1997). These researches have indeed provided us validity evidence for RIASEC scale with different populations (Fouad et al., 1997). Therefore, in line with the previous researches, the

objective of this study was to gauge how well RIASEC personality types crystallize vocational preferences.

4 .Method

4.1 Participants and Procedure

Participants were 1147 students, out of which 516 (45%) were male adolescents and female adolescents outnumbered to 631(55%). The minimum age was reported to be 13 and maximum was 21, with the mean age 17.14 years (SD=1.932). Furthermore, data was collected from public institutions (28%) and 72% were private institutions. 17.2% of the participants registered in secondary school, 43.50% were in high school and lastly 39.30% were at under grad level. The percentage of respondents, studying arts at different educational levels was 21%, 56% were studying sciences and approximately 23% were enrolled in commerce.

Moreover, these pupils had to mark their first preferred occupations out of the given list of 40 occupations existing and known and preferred. The list was actually prepared after scrutinizing academic programs offered by the public and private institutions around Pakistan. The websites of the institutions and admission advertisements in the newspapers were reviewed for the purpose. The list was then presented to and approved by five senior professors (two from private and three from public universities). The inter-rater reliability of the five experts was 0.92. Therefore, it was further stamped that no more customization or changes were required in the occupations being selected for the research study.

Table 1: Most Popular Occupations in Pakistan

S#	Occupations	S#	Occupations
1	Accountant	21	Journalist/Media
2	Actor/Model	22	Judge
3	Agriculture	23	Lawyer
4	Architect	24	Machine Operator
5	Army/Navy/Air force	25	Manager
6	Auditor	26	Musician/Artist
7	Banker	27	Nurse
8	Beautician	28	Photographer
9	Business analyst	29	Policeman/woman
10	Business/Self	30	Politician
11	Call center	31	Professor/Lecturer/ Teacher
12	Car dealer	32	Real Estate
13	Chartered Accountant	33	Receptionist
14	Commercial pilot	34	Researcher/Scientist
15	Craftsman	35	Sales person
16	Doctor/Dentist/Vet	36	Social worker
17	Engineer	37	Sportsman/Athlete
18	Fashion Designer	38	Steward/airhostess
19	Government Official	39	Telecommunication
20	Insurance agent	40	Travel Agency

These 40 occupations also eliminated the problem of going through a vast list of occupations, also saving time and energy; letting us an understanding of how preferences could be distributed easily amongst 40 occupations (Alm, 2015).

5. Measures

The first section of the questionnaire accounted for demographic variables. Gender had been measured using (1=male, 2=female) which is a very essential factor in determining vocational preferences; also helped us out in classifying occupations as gender specific (Ko and Jun, 2015). Age had been marked as a nominal item. Then, current academic institution had been marked on a dichotomous scale (1=public, 2=private), with the name of the institution as well. Students also marked the current program, in which they were enrolled in. This allowed us to classify different academic majors students were enrolled in, in line with their preferred occupations and RIASEC personality types.

Holland's (1997) scale was also adopted, consisting of six personality types in congruence with six types of working environment, highlighting occupational interests. RIASEC, an acronym for six personality types, "Realistic (R), Investigative (I), Artistic (A), Social (S), Enterprising (E) and Conventional (C)", is actually used to steer people into their occupational preferences. RIASEC test consisted of 42 items; each personality type depicted seven items, each eliciting either yes or no response. Sample item for

Realistic (R) is 'I like to work on cars' where if a respondent agrees with the statement, he or she marks it as a YES and if a respondent doesn't agree with the statement, leaves it blank and move on to next. The sample item for Investigative (I) consists of 'I like to do puzzles' which is again marked with a Yes or No answer. Sample item for Artistic (A) contained 'like to read about art and music'. Furthermore, sample item for Social (S) accounted for 'I like to train or teach people'; for Enterprising included 'I like to try to influence or persuade people' and for Conventional comprised of 'I like to organize things (like files, desks/offices)'. The responses definitely exhibited preferred vocations of the adolescents or respondents. The Cronbach's alpha of this scale was 0.847, highlighting the reliability, consistency (goodness of measure) and stability of these 42 items being adopted. Another previous study reported reliability estimates i.e. Alpha ranking from 0.82 to 0.87 (Hirschi, 2010).

Because our research question referred to the transition from high school to college, therefore we delimited our sample to adolescents who were not older than 25 years (Ochsenfeld, 2016). The target population was students of the secondary high schools and undergraduate students in Lahore. The inclusion of respondents from various dispersed cities of Pakistan highlighted different cultures and their varying influence on the occupational preferences. Since the sampling frame of these adolescents or students was unavailable, therefore we adopted convenience and purposive sampling strategy. As all the students, who were present in the targeted institutions were included in the sample, hence it is convenience sampling. All the secondary high school students and university students in each class session, be it any subject or course were actually aimed for in the contacted institution; therefore it was purposive sampling technique.

6. Data analysis

When we need to separate total observed variation in the data into the individual components resulting from actual determining factors from random fluctuations, we use ANOVA or Analysis of Variance. Although this is not the only available method but this is by far the most commonly used method (Kaufmann, 2014). Current study has also used ANOVA analysis for testing the determination of occupation choice on the basis of RIASEC personality traits.

Table 2: The Top Ten Preferences out of Listed Occupations

S#	Occupations	Males		Females		Total	%
		Freq.	%	Freq.	%		
1	Doctor/Dentist/Vet	31	9%	330	91%	361	31.5%
2	Army/Navy/Air-Force	69	64%	39	36%	108	9.4
3	Business/Self	82	85%	14	15%	96	8.4
4	Accountant	61	72%	24	28%	85	7.4
5	Engineer	37	48%	40	52%	77	6.7
6	Chartered Accountant	36	50%	36	50%	72	6.3
7	Manager	41	65%	22	35%	63	5.5
8	Banker	39	63%	23	37%	62	5.4
9	Auditor	19	83%	4	17%	23	2
10	Fashion Designer	6	26%	17	74%	23	2
11	Actor/Model	10	62%	6	37%	16	1.4%
12	Musician/Artist	4	25%	12	75%	16	1.4
13	Sportsman/Athlete	16	100%	0	0%	16	1.4
14	Government Official	9	64%	5	36%	14	1.2

With the objective in our mind, we sought to identify which occupations were highly preferred by the respondents. With limited time constraints and resources, we looked into the top ten or fourteen occupational preferences. Our results depicted that out of 1147 students, 31.5% preferred becoming a doctor/dentist/Vet, 9.4% wanted to go into army/Navy/Air force, 8.4% of the respondents wanted to go into business venture. Likewise, 7.4% aspired to become accountant.

When we analyzed occupational preferences gender wise, results depicted that higher percentage of female adolescents aspired to become ‘Doctor/Dentist/Vet’ and engineering, and their least aspired occupation was sports/athlete. Also preferences for occupations including music and fashion designing were higher in females as compared to males. On the contrary, male adolescents ranked business/self, army/navy/ air-force, accountant, manager and banker as their most preferred occupations.

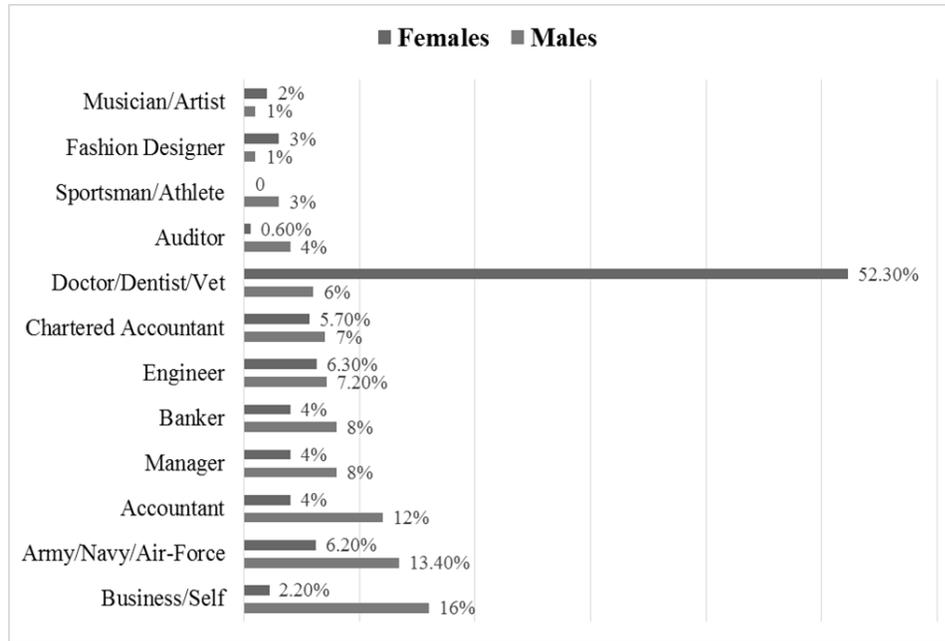


Figure 1: Gender-Wise Occupational Preferences

7. Occupational Identity and Vocational Personalities

This research study aimed for a precise picture of adolescents' interests in numerous occupations. After retrieving their first preferences trend, our research also wanted to classify our 40 selected occupations into RIASEC model, in order to seek out if their personalities had any say in the selection of vocational preferences. Therefore, we identified and categorized our 40 occupations according to it (see Table). We indeed investigated whether the six personality types had recognized their first occupational preference according to their marked personality type.

RIASEC Personality Traits and Occupational Preferences

Table 3: Distribution of Occupations Categorized According To RIASEC Model

Occupations Categorized According to RIASEC		RAISEC Personalities			
Realistic		Realistic Traits	Males	Females	
1.	Agriculture	2	0	2	R = Realistic These people are often good at mechanical or athletic jobs.
2.	Army/Navy/Air Force	63	39	24	
3.	Craftsman	0	0	0	
4.	Machine Operator	0	0	0	
5.	Sportsman/Athlete	7	7	0	
Total		72	46	26	
INVESTIGATIVE		Investigative Traits	Males	Females	
6.	Business Analyst	5	2	3	I = Investigative These people like to watch, learn, analyze and solve problems
7.	Doctor/Dentist/Vet	203	20	183	
8.	Policeman/woman	4	4	0	
9.	Engineer	45	21	24	
10.	Researcher / Scientist	1	1	0	
Total		258	48	210	
ARTISTIC		Artistic Traits	Males	Females	
11.	Actor/Model	15	9	6	A = Artistic These people like to work in unstructured situations, where they can use their creativity
12.	Architect	4	2	2	
13.	Beautician	3	0	3	
14.	Fashion Designer	20	5	15	
15.	Journalist/Media	10	4	6	
16.	Musician/Artist	16	4	12	
17.	Photographer	7	2	5	
18.	Call Center	2	1	1	
19.	Telecommunication	1	1	0	
Total		78	28	50	
SOCIAL		Socialistic Traits	Males	Females	
20.	Commercial Pilot	3	3	0	S = Social These people like to work with other people, rather than things
21.	Nurse	2	0	2	
22.	Professor/Teacher	9	3	6	
23.	Receptionist	0	0	0	
24.	Social Worker	2	1	1	
25.	Steward/Airhostess	1	0	1	
26.	Travel Agents	2	0	2	
Total		19	7	12	
ENTERPRISING		Enterprising Traits	Males	Females	
27.	Business/Self	63	55	8	E = Enterprising These people like to work with others and enjoy persuading and performing
28.	Car Dealer	2	2	0	
29.	Insurance Agent	0	0	0	
30.	Judge	6	2	4	
31.	Lawyer	5	2	3	
32.	Manager	36	29	7	
33.	Politician	5	3	2	
34.	Real Estate	0	0	0	
35.	Salesperson	0	0	0	
Total		117	93	24	
CONVENTIONAL		Conventional Traits	Males	Females	
36.	Accountant	45	34	11	C = Conventional These people are very detail oriented, organized and like to work with data.
37.	Auditor	11	8	3	
38.	Banker	24	16	8	
39.	Chartered Accountant	40	20	20	
40.	Government Official	7	6	1	
Total		127	84	43	

The matching of one's personality with occupations is still an essential perspective and is therefore significant for career development (Van Tuijl and Molen, 2015), which also

opened an avenue to discover the promising structure of RIASEC for us. Our data revealed that five occupations were classified as being realistic, including agriculture, Army/Navy/ Air-force, craftsman, machine operator and sportsman/athlete. This is because realistic occupations comprise of manual activities including machinery operation, athletics, mechanics, plants and animals. Realistic individuals love working outdoors with things, in a more practical way, using tools, working on motors, welding and designing equipment. Then five occupations were classified under investigative occupations, for instance, business analyst, doctor/dentist/vet, policeman/woman, engineer, and researcher/scientist. This is because investigative occupations comprise of analytical, intellectual, scientific and mathematical activities, using logic and solving highly complex and abstract problems with experimentation and exploration. Furthermore, under artistic occupations appeared actor/model, architect, beautician, fashion designer, journalist/media, musician, photographer, call centre and Telecommunication. This is because artistic occupations comprise of creative activities such as composing lyrics and playing music, drawing or painting, writing, directing and acting even stage products. Artistic individuals lack clerical and organization skills. Results further depicted that commercial pilot, nurse, professor/teacher, receptionist, social worker, airhostess, and travel agents had been classified as social occupations. Social occupations comprise of activities involving human relations and welfare of others, solving interpersonal problems using interpersonal skills, helping training , healing developing and counseling others, often communicating warmly and persuasively. Furthermore, some of the occupations were also classified as enterprising. Respondents mostly marked business/self, manager and politician as their first preference. Enterprising occupations comprise of activities in which individuals persuade others such as sales and interpersonal skills to acquire organizational goals and economic gain by being a leader as well. They avoid systematic activities but are effective energetic public speakers but lack scientific abilities. Lastly, accountant, auditor, banker, chartered accountant, government official were classified as conventional occupations. Conventional occupations comprise of systematic activities, clerical, numerical and organizational abilities as well. These individuals enjoy manipulating and organizing schedules, record keeping and data management.

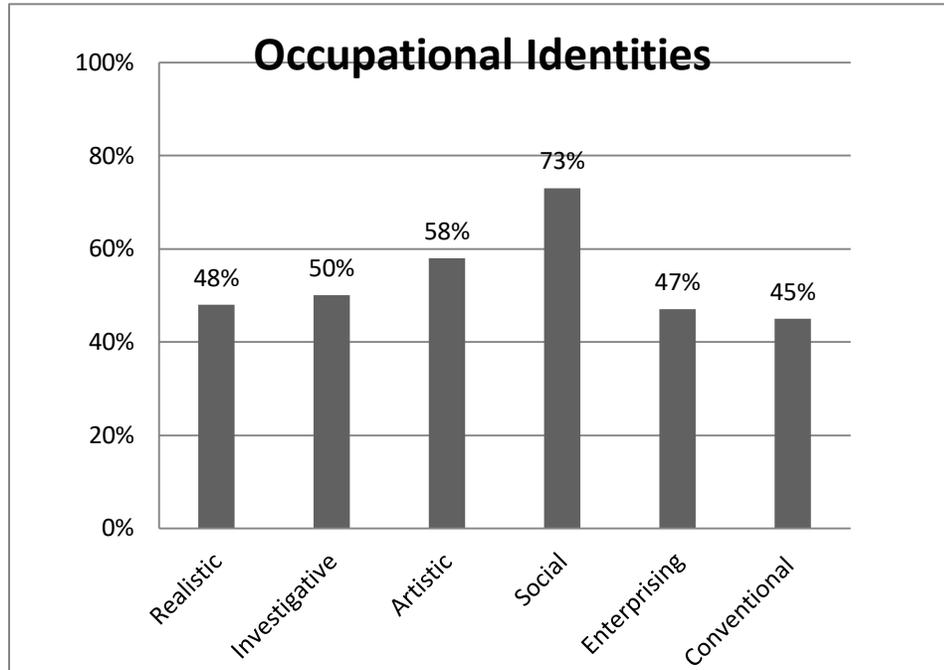


Figure 2: Occupational Identities via RIASEC

After categorizing 40 occupations into RIASEC, we further sought that out of 1147 sampled respondents, 48% were realists, 50% were investigative personalities, 58% were actual artists, 73% were social personalities, 47% enterprising and lastly 49% of the respondents were of conventional personalities. It is to be noted that each RIASEC scale had seven items, and we put a cutoff point and asserted that for instance, if a respondent marked more than 3 yes responses on each RIASEC scale, he or she belongs to that respective category.

Furthermore, since we categorized our selected list of occupations according to RIASEC model, results revealed that 11 % had only opted for realistic occupations, 40% opted for investigative vocations, 8% had marked for artistic vocations, only 2% of the respondents appeared to be social and lastly 23% marked conventional occupations. The results depicted that the percentage of selected RIASEC occupations did not match the percentage of RIASEC occupational identities. For instance, there were 48% realists but only 11% aspired for realistic occupations. Similarly, there were 73% social personalities, only 2% had marked social occupations as their first preference.

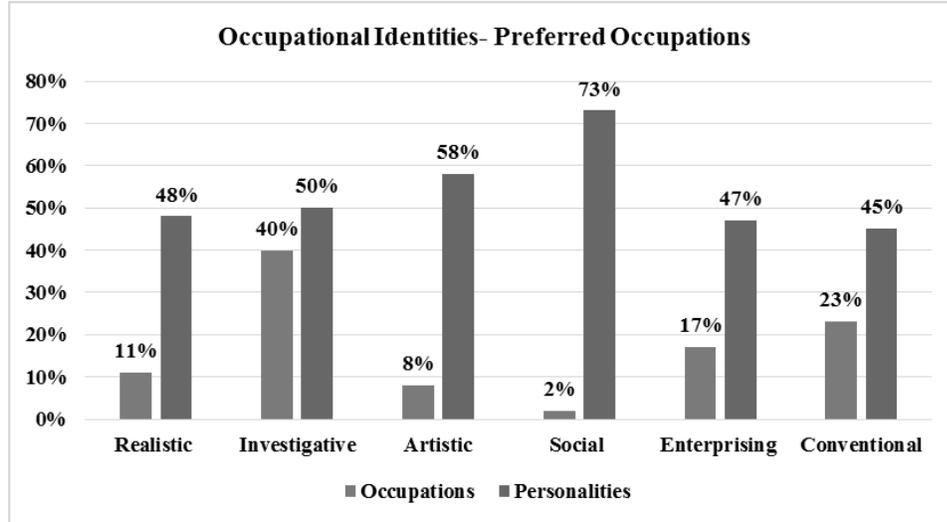


Figure 3: Occupational Identities and Occupational Preferences

Then, we looked for occupational preferences gender wise among adolescents according to RIASEC personalities and results predicted that 70% male adolescents reflected social traits, 55% male adolescents held realistic traits, 49% male adolescents reflected conventional personality and 56% of males held enterprising traits. On the other hand, females represented higher investigative traits (52%), artistic (63%) and 74% female adolescents portrayed social traits.

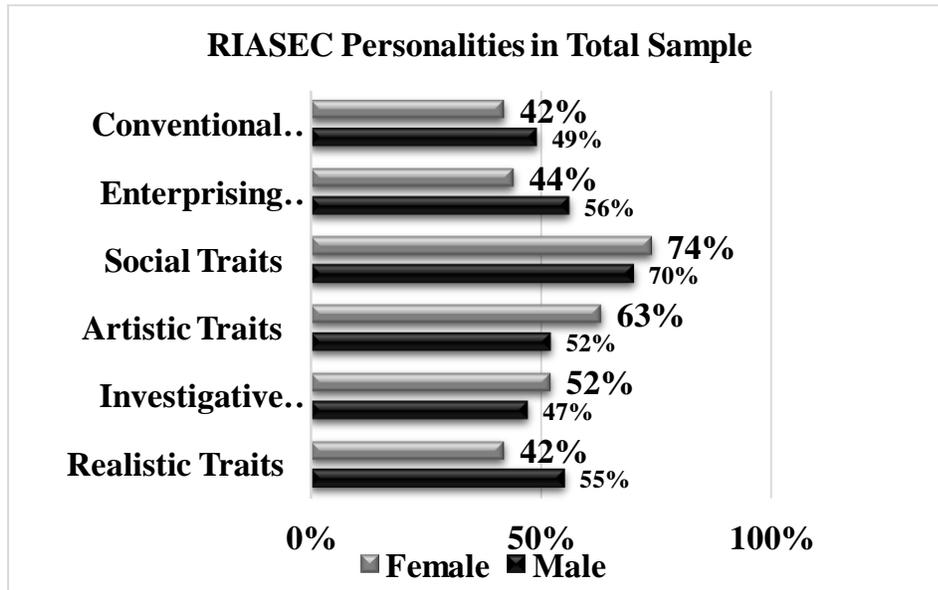


Figure 4: Gender based Six Personality Types

Table 4: RIASEC Occupations* RIASEC Personalities* Gender Cross Tabulation

	Holding Respective Traits			Chi Square Test		
	Males	Females	n/Total	X^2 Value	Df	Asymp. Sig. (2-sided)
Realistic Occupations	46/72 (64%)	26 /72 (36%)	72/552	95.7	5	.000
Investigative Occupations	46/253 (18%)	207/253 (82%)	253/577	123.0	5	.000
Artistic Occupations	27/78 (35%)	51/78 (65%)	78/669	130.5	5	.000
Social Occupations	7/19 (37%)	12/19 (63%)	19/837	186.1	5	.000
Enterprising Occupations	93 (80%)	24 (20%)	117/569	139.2	5	.000
Conventional Occupations	85/130 (65%)	45/130 (35%)	130/521	117.6	5	.000

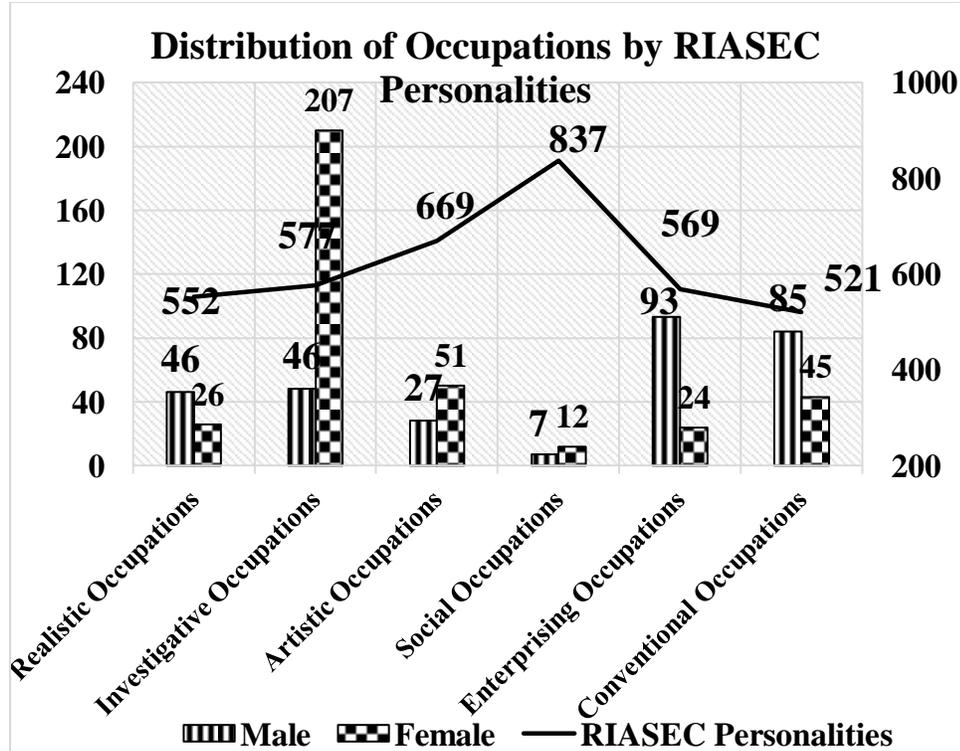


Figure 5: Gender based Six Personality Types

In the table and figure above, since the p-value is $0.000 < .05$, in all cases than our chosen significance level ($p\text{-value} = 0.05$), we found support for the assertion that the association between occupational identity, gender and occupational preferences had been found to be significant. Unlike Prediger (1982), Holland (1997), (Bergmann & Eder, 2005 and Lippa (1998) gender specific profiles of RIASEC personality types did not have uniform findings. Rather, results strongly supported (Deng et al., 2007; Guntern et al., 2016) as males did score higher on realistic, enterprising and conventional occupations, whereas females got higher scores on social, artistic and investigative occupations.

8. Discussion

Based on Holland's theory of vocational choice (1973) and Holland's (1997) RIASEC model, RIASEC personality traits taxonomy revealed that adolescents tend to prefer vocations for which they are well equipped (Holland, 1997; Pabler & Hell, 2012). Our results confirmed that RIASEC personality traits played a significant role in occupational choice.

Furthermore, our results support gender differences in personality traits (Dierks et al., 2016; Vock et al., 2013) which in turn impact career choices. Male adolescents surfaced to be more realistic (37%), enterprising (30%) and conventional (22%) than female participants. Male participants expressed more interest in realistic dimensions; for

instance, an inclination towards working on cars, assembling and constructing things, working outdoors. They preferred realistic occupations including army/navy/air-force and athletes. Similarly, boys also marked conventional occupations including accountant, chartered accountant and banking the most; and enterprising occupations including business and manager. Male participants expressed interest in business, persuading others, seeking out leadership roles and management roles. However, male adolescents did not display much of investigative traits. This result is in contradiction with previous results where boys indeed displayed an interest in investigative activities and science domain (Taskinenan et al., 2013; Vock et al., 2013). On the other hand, just as (Sparfeldt, 2007) mentioned, our female participants were more investigative (10%), social (50%) and artistic (71%) as compared to males. Personality types where females were stronger showed major difference as compared to the traits where males were stronger i.e. social and artistic personality traits. Female participants exhibited more interest in investigative activities which manifested their preferences in investigative occupations including doctor/dentist/vet and engineering. They indicated a liking for puzzles, science and experiments. Our sampled female adolescents also indicated preference for social dimensions including training and teaching people, healing people and trying to help people and solve their problems. An interest in social dimensions by female adolescents is supported by previous research (Vock et al., 2013). However, very few female adolescents marked their preference over nursing and teaching. Also, female adolescents exhibited interest in artistic dimensions and preferred occupations including beautician, fashion designer, journalism and music/artist. These results coincide with previous research (Dierks et al., 2016; Vock et al., 2013). An interest in artistic occupations could also be because of other factors including media which highlights stereotypical images of clothes and fashion, collection of bags, shoes with makeup accessories, also highlighting beautiful faces and bodies (Ali and Batool, 2015).

9. Contribution of Current Research

9.1 Theoretical Contribution

When any theory is tested repeatedly across different cultures in the world with repeatedly similar results, this adds to the strength of that theory. For Holland's RIASEC (1997) theory, this has been done by current research by extending the literature to include Pakistan in experimental countries. For Pakistan, this paper for the very first time builds a foundation for understanding and further investigating cultural specific gendered personality traits and their impact on occupational choice within this economy.

9.2 Practical Contribution

Can knowledge of RIASEC personality traits aid adolescents, educators, policy makers and career counselors in crystallizing or defining occupational preferences and career aspirations? In this research study, we sought how adolescents mark their preferred occupations through the lens of RIASEC and how they develop career aspirations especially during the period of adolescence. Our research revealed that indeed RIASEC personality traits do influence occupational preference and career aspirations. Our data results illustrated that male adolescents exhibited more interest in realistic, enterprising and conventional activities; female adolescents rendered investigative, socialistic and artistic traits.

Also, educational institutions and college students in Pakistan do not adopt RIASEC model so that they could align their occupational interests and personality traits with their academic programs and later enroll in congruent academic program. This is highly essential for academic and occupational success. Application of RIASEC model by college students would assist those who are unaware of their traits and help them avoid opting for a wrong academic program or degree. For instance, our data illustrated that 330 females marked becoming a doctor/dentist yet only 183 female participants exhibited investigative traits. That means only 150 female adolescents were either going through the process of career indecision or opting for a wrong academic program. Hence, careful examination and in depth exploration about occupational options is extremely important for the actualization stage. This is because at the actualization stage, the most suitable career option is selected in line with the respective personality trait (Gati and Asher, 2001). Furthermore, with the recognition of RIASEC personality traits, career counselors and education institutions can help those students who have split personality or who are not able to recognize their occupational interests and skills (Kemboi *et al.*, 2016).

10. Limitations and Suggestions for Future Research

Although current study is one of its kind in Pakistan and has studied personality types as an important determinant of career choice, it is by no means exhausting. The results of the study are grounded on cross sectional data. Future researchers could work more from longitudinal data (Casper, EBay, Bordeaux, Lockwood and Lambert, 2005; Kelly *et al.*, 2008). List of occupations can be extended to include hundreds of other types of jobs (Athanasou, 2017). There are other factors that meddle with the occupational preferences among adolescents, such as social networks including influence of peers, family, teachers or educational institution (Adler and Kwon 2002; Bozionelos, 2008; Pintrich, 2003). Especially, future studies are guided to explore other factors which could impact not preferring to become a politician in Pakistan. This could be a very interesting avenue to explore thoroughly. This research study was conducted in just one city of Pakistan. Future researchers could investigate other provinces or cities of Pakistan in order to test whether personality traits determine the occupational preferences among adolescents. Moreover, our research looked into the impact of current degree or academic programs, those students got enrolled in, on the occupational preferences. Future research could also look into different school subjects which might influence their crystallization of their preferred choice of occupation.

11. Conclusion

Our research has been the first to examine the influence of personality traits on the crystallization of vocational preferences among adolescents, in Pakistan. Occupational preferences were assessed via personality traits under the RIASEC model. We found out that indeed RIASEC model may still be the most effective tool of career counseling for these adolescents at the hands of vocational counselors and psychologists existing in Pakistan. However, where occupational preferences are not bases on RIASEC model, there could be other factors influencing the preferences of certain occupations. Future research could dig deep into why certain occupations are preferred and other occupations not preferred, based on inter play of several other factors.

Also, our research strength was that we considered vocational preferences of the young students from numerous colleges and schools, tapping a variety and showing us the connection of occupational preferences with the personality traits. Also, our research has contributed to an improved understanding of what are the occupations mostly preferred in Pakistan and what are the difference in occupational preferences between female and male adolescents in colleges and schools.

REFERENCES

- Ackerman, P.L. and Heggstad, E.D. (1997). Intelligence, personality, and interests: Evidence for overlapping traits. *Psychological Bulletin*, 121(2), 219-245.
- Ackerman, P.L., Kanfer, R. and Goff, M. (1995). Cognitive and noncognitive determinants and consequences of complex skill acquisition. *Journal of Experimental Psychology: Applied*, 1(4), 270-304.
- Adler, P.S. and Kwon, S.W. (2002). Social capital: Prospects for a new concept. *Academy of Management Review*, 27(1), 17-40.
- Ahmed, K. A., Sharif, N., & Ahmad, N. (2017). Factors influencing students' career choices: empirical evidence from business students. *Journal of Southeast Asian Research*, 2017, Article ID 718849, 1-15.
- Akbulut, A.Y. (2016). Majoring in Information Systems: An Examination of Role Model Influence. *Journal of Educational Computing Research*, 54(5), 660-679.
- Ali, R. and Batool, S. (2015). Stereotypical Identities Discourse Analysis of Media Images of Women in Pakistan. *Multidisciplinary Journal of Gender Studies*, 4(2), 690-717.
- Alm, S. (2015). Dreams meeting reality? A gendered perspective on the relationship between occupational preferences in early adolescence and actual occupation in adulthood. *Journal of Youth Studies*, 18(8), 1077-1095.
- Armstrong, P. I., Day, S. X., McVay, J. P., & Rounds, J. (2008). Holland's RIASEC model as an integrative framework for individual differences. *Journal of Counseling Psychology*, 55(1), 1-18.
- Athanasou, J.A. (2017). A preliminary examination of occupations and interests in Australia. *Australian Journal of Career Development*, 26(2), 81-88.
- Bergmann, C., & Eder, F. (2005). Allgemeiner Interessen-Struktur-Test. Revidierte Fassung (AIST-R). [General-interest-structure-test. Revised version]. Weinheim: Verlag Beltz.
- Bozionelos, N. (2008). Intra-organizational network resources: How they relate to career success and organizational commitment. *Personnel Review*, 37(3), 249-263.
- Braunstein-Bercovitz, H., Benjamin, B. A., Asor, S. and Lev, M. (2012). Insecure attachment and career indecision: Mediating effects of anxiety and pessimism. *Journal of Vocational Behavior*, 81(2), 236-244.

- Carduner, J., Padak, G.M. and Reynolds, J. (2011). Exploratory honors students: Academic major and career decision making. *NACADA Journal*, 3(1), 14-28.
- Costa Jr, P.T. and McCrae, R.R. (1992). Four ways five factors are basic. *Personality and Individual Differences*, 13(6), 653-665.
- Creed, P. A., Searle, J., & Rogers, M. E. (2010). Medical specialty prestige and lifestyle preferences for medical students. *Social Science & Medicine*, 71(6), 1084-1088.
- Dawis, R.V. and Lofquist, L.H. (1984). *A psychosocial theory of work adjustment*. Minneapolis, MN: University of Minnesota Press.
- Day, S.X. and Rounds, J. (1998). Universality of vocational interest structure among racial and ethnic minorities. *American Psychologist*, 53(7), 728-736.
- Day, S.X., Rounds, J. and Swaney, K. (1998). The structure of vocational interests for diverse racial-ethnic groups. *Psychological Science*, 9(1), 40-44.
- De Fruyt, F. and Mervielde, I. (1997). The five-factor model of personality and Holland's RIASEC interest types. *Personality and Individual Differences*, 23(1), 87-103.
- Deng, C.P., Armstrong, P.I. and Rounds, J. (2007). The fit of Holland's RIASEC model to US occupations. *Journal of Vocational Behavior*, 71(1), 1-22.
- Dierks, P.O., Höffler, T.N., Blankenburg, J.S., Peters, H. and Parchmann, I. (2016). Interest in science: a RIASEC-based analysis of students' interests. *International Journal of Science Education*, 38(2), 238-258.
- Feldman, R. O. (1990). *Understanding Psychology*. New York: McGraw Hill.
- Fouad, N. A., Harmon, L. W. and Borgen, F. H. (1997). Structure of interests in employed male and female members of US racial-ethnic minority and nonminority groups. *Journal of Counseling Psychology*, 44(4), 339-345.
- Galles, J. A. and Lenz, J. G. (2013). Relationships among career thoughts, vocational identity and calling: Implications for practice. *The Career Development Quarterly*, 61(3), 240-248.
- Gati, I. and Asher, I. (2001). The PIC model for career decision making: Prescreening, in-depth exploration and choice. In F.T. Leong and A. Barak (Eds.), *Contemporary models in vocational psychology* (pp. 7-54). Mahwah, NJ: Erlbaum.
- Gordon, V. N. (2007). *The Undecided College Student* (3rd ed.). Springfield, IL: Charlie C. Thomas Publisher, LTD.
- Gottfredson, G. D., Jones, E. M. and Holland, J. L. (1993). Personality and vocational interests: The relation of Holland's six interest dimensions to five robust dimensions of personality. *Journal of Counseling Psychology*, 40(4), 518-524.
- Guay, F., Sénécal, C., Gauthier, L., & Fernet, C. (2003). Predicting career indecision: A self-determination theory perspective. *Journal of Counseling Psychology*, 50(2), 165-177.

- Guntern, S., Korpershoek, H., & Werf, G. V. D. (2016). Prestige added to Holland's vocational interest scales for the prediction of medical students' aspired work environments. *Journal of Career Assessment, 24*(2), 333-346.
- Hirschi, A. (2010). Individual predictors of adolescents' vocational interest stabilities. *International Journal for Educational and Vocational Guidance, 10*(1), 5-19.
- Hirschi, A. (2011). Vocational identity as a mediator of the relationship between core selfevaluations and life and job satisfaction. *Applied Psychology: An International Review, 60*(4), 622-644.
- Hirschi, A. and Jaensch, V. K. (2015). Narcissism and career success: Occupational self-efficacy and career engagement as mediators. *Personality and Individual Differences, 77*, 205-208.
- Hogan, R. and Blake, R. (1999). John Holland's vocational typology and personality theory. *Journal of Vocational Behavior, 55*(1), 41-56.
- Holland, J. L. (1973). *Making vocational choices: A theory of careers*. Englewood Cliffs, NJ: Prentice Hall.
- Holland, J. L. (1997). *Making vocational choices: A theory of vocational personalities and work environments* (3rd ed.). Psychological Assessment Resources.
- Karaca, E., Gökçek Karaca, N. and Dziegielewska, S. F. (2016). Factors Affecting Choice and Satisfaction: Social Work in Turkey. *Journal of Social Service Research, 42*(4), 565-571.
- Kaufmann, J. and Schering, A. G. (2014) Analysis of Variance ANOVA. *Wiley StatsRef: [ONLINE]* Available: <https://doi.org/10.1002/9781118445112.stat06938> (March 19th, 2019).
- Kelly, E. L., Kossek, E. E., Hammer, L. B., Durham, M., Bray, J., Chermack, K., & Kaskubar, D. (2008). 7 Getting There from Here: Research on the Effects of Work–Family Initiatives on Work–Family Conflict and Business Outcomes. *Academy of Management Annals, 2*(1), 305-349.
- Kemboi, R. J. K., Kindiki, N. and Misigo, B. (2016). Relationship between personality types and career choices of undergraduate students: A case of Moi University, Kenya. *Journal of Education and Practice, 7*(3), 102-112.
- Ko, K. and Jun, K. N. (2015). A Comparative Analysis of Job Motivation and Career Preference of Asian Undergraduate Students. *Public Personnel Management, 44*(2), 192-213.
- Kwon, O. Y. and Park, S. Y. (2016). Specialty choice preference of medical students according to personality traits by Five-Factor Model. *Korean Journal Of Medical Education, 28*(1), 95-102.
- Larson, L. M., Rottinghaus, P. J. and Borgen, F. H. (2002). Meta-analyses of Big Six interests and Big Five personality factors. *Journal of Vocational Behavior, 61*(2), 217-239.

- Le, H., Robbins, S. B. and Westrick, P. (2014). Predicting student enrollment and persistence in college STEM fields using an expanded P-E fit framework: A large-scale multilevel study. *Journal of Applied Psychology*, 99(5), 915-947.
- Lee, B., Lawson, K. M. and McHale, S. M. (2015). Longitudinal associations between gender-typed skills and interests and their links to occupational outcomes. *Journal of Vocational Behavior*, 88(1), 121-130.
- Lippa, R. (1998). Gender-related individual differences and the structure of vocational interests: The importance of the people–things dimension. *Journal of Personality and Social Psychology*, 74(4), 996-1009.
- Meyer, J. P., Allen, N. J. and Smith, C. A. (1993). Commitment to organizations and occupations: Extension and test of a three component conception. *Journal of Applied Psychology*, 78(4), 538-551.
- Norredam, M., & Album, D. (2007). Prestige and its significance for medical specialties and diseases. *Scandinavian Journal of Public Health*, 35(6), 655-661.
- Ochsenfeld, F. (2016). Preferences, Constraints and the Process of Sex Segregation in College Majors: A Choice Analysis. *Social Science Research*, 56(1), 117-132.
- Orkibi, H. (2010). Creative arts therapies students' professional identity and career commitment: A brief pilot study report. *The Arts in Psychotherapy*, 37(3), 228-232.
- Päßler, K. and Hell, B. (2012). Do interests and cognitive abilities help explain college major choice equally well for women and men? *Journal of Career Assessment*, 20(4), 479-496.
- Pintrich, P. R. (2003). A motivational science perspective on the role of student motivation in learning and teaching contexts. *Journal of Educational Psychology*, 95(4), 667-686.
- Prediger, D. J. (1982). Dimensions underlying Holland's hexagon: Missing link between interests and occupations? *Journal of Vocational Behavior*, 21(3), 259-287.
- Rounds, J. and Tracey, T. J. (1993). Prediger's dimensional representation of Holland's RIASEC circumplex. *Journal of Applied Psychology*, 78(6), 875-890.
- Rounds, J., Smith, T., Hubert, L., Lewis, P. and Rivkin, D. (1999). Development of occupational interest profiles for O* NET. *Raleigh, NC: National Center for O* NET Development*, [ONLINE] Available: <http://www.onetcenter.org/reports/OIP.html> (October 17th, 2019).
- Rounds, J., Tracey, T. J. and Hubert, L. (1992). Methods for evaluating vocational interest structural hypotheses. *Journal of Vocational Behavior*, 40(2), 239-259.
- Schoon, I., Silbereisen, R. K. (2009). Conceptualising school-to-work transitions in context. In: Schoon, I., Silbereisen, R. K. (Eds.), *Transitions from school to work: Globalization, individualization and patterns of diversity*. University Press, Cambridge, pp. 3-29.
- Sparfeldt, J. R. (2007). Vocational interests of gifted adolescents. *Personality and Individual Differences*, 42(6), 1011–1021.

- Spurk, D., Keller, A. C. and Hirschi, A. (2015). Do bad guys get ahead or fall behind? Relationships of the dark triad of personality with objective and subjective career success. *Social Psychological and Personality Science*, 6(7), 1-9.
- Strauser, D. R., Lustig, D. C. and Ciftci, A. (2008). Psychological well-being: Its relation to work personality, vocational identity and career thoughts. *Journal of Psychology: Interdisciplinary and Applied*, 142(1), 21-35.
- Taskinen, P. H., Schütte, K. and Prenzel, M. (2013). Adolescents' motivation to select an academic science-related career: the role of school factors, individual interest and science self-concept. *Educational Research and Evaluation*, 19(8), 717-733.
- Tokar, D. M., Fischer, A. R. and Subich, L. M. (1998). Personality and vocational behavior: A selective review of the literature, 1993-1997. *Journal of Vocational Behavior*, 53(2), 115-153.
- Van Tuijl, C. and van der Molen, J. H. W. (2016). Study choice and career development in STEM fields: an overview and integration of the research. *International Journal of Technology and Design Education*, 26(2), 159-183.
- Vignoli, E. (2009). Inter-relationships among attachment to mother and father, self-esteem and career indecision. *Journal of Vocational Behavior*, 75(2), 91-99.
- Vijaykumar, S. D. and Lavanya, T. (2015). Vocational Identity and Ego Strengths in Late Adolescence. *Annamalai International Journal of Business Studies & Research*, 1(1), 61-68.
- Vock, M., Köller, O. and Nagy, G. (2013). Vocational interests of intellectually gifted and highly achieving young adults. *British Journal of Educational Psychology*, 83(2), 305-328.
- Yun, S. and Min, S. (2015). Analysis on Occupational Preference, Career, Aspiration and Career Attitude Maturity of Middle & High School Students. *Indian Journal of Science and Technology*, 8(7), 664-673.