

Gender Differences in Holland

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Is there a gender relationship between Holland's Personality types and choice of degree program among university student?

Gender influence on the choice of a degree program was tested. The Holland's Self-Directed Search was used with 389 third year students at Kenyatta University. The results showed that gender was significantly correlated to the Holland personality types and the choice of degree programs. The results supports Holland's theory that gender predicts the choice of a degree program.

Keywords: Gender, Holland, Self-directed Search, Degree Program, and Choice

Background

Gender differences in selection of career choice emerge early in a person's life with many studies attributing it to cultural beliefs and socialization factors (Eccles, 1999). Female roles are still more associated with caring for people than engaging in fields such as Engineering that are perceived to be male suited since they require more physical energy. Mathematical interests are associated while social interest with femininity. Most female students shy away from subjects perceived to be more masculine while male students avoid subjects that are deemed feminine in nature (Hersh, 2000). On the other hand female students gravitate towards social sciences and males towards pure and applied sciences. Many studies have reported gender differences in career choice with most suggesting that socialization barriers are the main cause. Sociologists argue that the effects of gender differences in career choice are felt at different levels such as, primary, secondary and post secondary (Hyde, Fennema, Frost & Hopp, 1990). The socialization barriers that emanate from belief systems and

behaviour patterns lead women to avoid certain career fields which are related to perceived gender roles, gender identity and cultural beliefs (Eccles, 1999).

Studies show that boys and girls start out with equally high aspirations, but these levels decrease in girls over time. On the other hand, boys are said to continue pursuing their aspirations, but the youthful women's aspiration fades as they approach marriageable age. Stereotypes have significant effects because certain occupations are either classified as masculine or feminine. Gender roles that are stereotypically expressed in vocational interest have been extensively studied (Betz & Hackett, 1981), with males showing preference to realistic and investigative occupations while female students lean more to social options. Cultural beliefs make up the components of the gender stereotypes that define expectations for each person. Eccles, (1999) argues that cultural beliefs result into what we think about most people and aid in categories people as "men" or "women" as far as duties are concerned. Parents are critical in conveying the cultural beliefs and consequently influence the career choice of their children. Teachers too, whether male or female, have lower expectations of female students in science-related fields.

Fitzgerald, Fussinger and Betz (1995) noted that the history of women's traditional roles such as homemakers and mothers continue to influence every aspect of their career. They state that many women plan their career mindful of how they will integrate these roles (Betz, 2005). Farmer, (1997) found that as women mature, they downscale their career aspirations, as demands of the family life increase. Sociologists have argued that the effects of gender differences in career choice are felt at different levels (Hyde et al, 1990). The socialization dynamics that emerge immediately a child is born determine the occupational behavioral patterns in the life of a child early. The socialization dynamics are influenced by cultural and religious practices of various communities. Consequently women will distinctly choose career fields that shall lead them to social related activities while males will prefer activities that science oriented. Holland's personality classification based on interest patterns can be used to show the differences in gender differences in career choice.

Holland's Self- Directed Search

Holland (1997) offers one of the most popular theories of vocational choice which has been used to classify people according to their vocational personality types and work environment. Holland suggests that people will fall under six vocational interests and six corresponding work environments. He calls his model RIASEC model which means (R) Realistic, (I) Investigative, (A) Artistic, (S) Social, (E) Enterprising and (C) Conventional. Holland further argues that people will seek work environments that corresponds to or matches their personal interest. He states that if a person finds a work environment that fits their personal interest, congruence is achieved and the person performs well. Smart, Ethington and Feldman (2000) applied Holland's tenets in an academic environment and found that an academic environment simulates the work environment because this is where the skills are built. They concluded that students will seek an academic environment which, develop skills and competencies in order to fit in the world of work.

Holland's theory has been used to assess the personal characteristics that makes a person desire a given work environment while avoiding the other. The self-directed search developed using the principles of Holland's theory was applied to classify students and academic environment according to the RIASEC types. The purpose of this paper was to explore the relationship between gender and classification of personality types using Holland's Self –Directed Search. The objective of this paper was to identify the gender differences in personality types and the choice of the degree program. The hypothesis tested was that there was a significant relationship between gender and the choice of degree program in the Self-Directed scores.

METHOD

Participants

A total of 389 students were drawn from the third students in different academic disciplines at Kenyatta University during the 2010/2011 academic year. Student voluntarily participated in the study. The average age of the participants was 22.7 years and the most reported age was 22 years. There were 53.2% males and 46.8% females in the schools selected. The School of Engineering N= 56, female 14.5% and males 85.5%. The School of Sciences N= 46 female 37% and males 63%. The School of Education N = 139 females 66.9% and males 33.1%. The School of Creative and Performing Arts N= 26, females 50% and males 50%. The School of Business N = 46, females 42.4% and males 56.6 %. The School of Economics N= 76, females 42.1% and males 57.9%.

Using the first letter on the Holland code the results indicates that in four schools over 50% of the students personality types were found in a corresponding academic environment. They include School of Sciences dominated by Investigative types (63%), School of Creative and Performing Arts dominated by Artistic types (57%), School of Education dominated by Social Types (61.9%) and the School of Economics dominated by Conventional types (48.7%). These results show that the social type represented the largest type (61.9%).

Examining the gender and personality type distribution the results shows that science-related fields more than two-thirds of the students enrolled in Engineering and Sciences were male; (85.5%) and (63%) respectively, compared to the female students in Engineering (14.5%) and Sciences (37%). In the social sciences there were more female students in Education (67%) compared to males (33%). The findings in this study show that the enrolment patterns to science and social disciplines are influenced by gender. It is notable that other academic disciplines like music, business and economics the gender differences is not very significant.

Procedure

The participants completed the self-directed questionnaire. It took an average of 35 minutes to complete the questionnaire. This data was collected during a regular lecture session and students who were present took part voluntarily.

Instruments

Holland's Self-Directed Search (1994), is an s 228-item questionnaire that measures a person's RIASEC classification. The instruments assess preferred occupational activities, competencies, occupations and self-estimates. On a scale, the respondents indicate whether they like or dislike an activity associated with a given occupation, competencies in work activities, and preferences of specific occupations. The RIASEC scores generate a three letter code that suggests a person's personality type and the most fitting work environment.

Hypothesis and Data Analysis

There are significant differences between the student's gender, personality types and the choice of degree program. The hypothesis was tested using chi-square as a measure of relationship.

RESULTS AND DISCUSSIONS

Gender distribution in schools and departments was investigated and the results are displayed in table 1.1. The results show that among the third-year students at Kenyatta University, male students were 53.2% and female students were 46.8%. With a 6.4% gender difference, the results imply that the gender gap has been reduced considerably and more female students are accessing university education at Kenyatta University and also choosing courses that were earlier deemed as male.

Table 1.1 Gender distribution in schools

	Male		Female		Total	
	N	%	N	%	N	%
Engineering	49	85.5	7	14.5	56	100
Sciences	29	63	17	37	46	100
Education	46	33.1	93	66.9	139	100
Creative & Performing Arts	13	50	13	50	26	100
Business	26	56.6	20	42.4	46	100
Economics	44	57.9	32	42.1	76	100
Total	207	53.2	182	46.8	389	100

However, the results from different schools revealed that the gender disparities were characterized by the nature of subjects offered, with more male students dominating the physical science disciplines. The results indicate in science-related fields more than two-thirds of the students enrolled in Engineering and Sciences were males (85.5%) and (63%) respectively, compared to the females in Engineering (14.5%) and Sciences (37%). In the social sciences there were more females in Education (67%) compared to males (33%). The findings in this study show that the enrolment

patterns to science and social disciplines are influenced by gender. It is notable that other academic disciplines like music, business and economics the gender differences is not very significant.

Various department data in table 1.2 reveals that more male students were enrolled in the physical sciences. In the Energy Engineering, enrolment of male students was(82.1%), Mechanical Engineering (89.7%), Plant & Microbial Sciences and Public Health (64%); accounting for over 50% of the students enrolled in science disciplines.

In the social sciences, the results revealed that female student enrolment was 72.2% in Educational Psychology, Special Education (68.8%) and Early Childhood Studies (61.1%). In the, overall females had over 50% enrolment in social sciences.

Table 1.2: Gender Distribution in Departments

Departments	Male		Female		Total	
	N	%	N	%	N	%
Energy Engineering	23	82.1	5	17.9	28	100
Business Administration	26	56.5	20	43.5	46	100
Educational Psychology	10	27.8	26	72.2	36	100
Special Education	15	33.3	33	68.8	48	100
Early Childhood Education	21	38.9	33	61.1	54	100
Music	6	60	4	40	10	100
Fine art	7	43.8	9	56.3	16	100
Econometrics and Statistics	26	78.8	7	21.1	33	100
Applied Economics	18	41.9	25	58.1	43	100
Plant and Microbial Sciences	19	61.3	12	38.7	31	100
Public Health	10	66.7	5	33.3	15	100
Mechanical and Manufacturing	26	89.7	3	10.3	29	100
Total	207	53.2	182	46.8	389	100

The results are supported by the findings of (Holland & Gottfredson , 1991, Smart, Feldman, and Ethington, 2000) who reported more males in science fields and more females in social sciences. These results imply that gender continues to play a key role in the choice of subjects with majority of females avoiding science related fields. Studies have consistently shown that boys tend to choose career fields that traditionally seem masculine while girls those that seem feminine Gender socialization has been cited as one of the reasons for differences in career choices (Pike, 2004, Hyde, Fennema, Frost and Hopp, 1990, Eccles, 1999, Betz, 2005).

Several studies suggest that cultural believes and the compounding effects of gender stereotypes are still present. In some cultures people are viewed as either “men” or “women” in as far as duties are concerned. A females’ roles remain associated with caring for people and they are not expected to

show interest or engage in activities that are perceived as “dirty” “heavy” and requiring more physical energy and therefore left for males is demonstrated by the results. Females students shied away from subjects perceived as masculine as reported by Hersh (2000). Most of the female students felt as if they were weak in mathematics and sciences as was reported by (Betz, 2005, Betz & Hackett, 1997, Ismail, 2003).

Examining the distribution of students by gender in the personality types the number of female students in an investigative field was slightly higher than the realistic field. These results are consistent with International data in EUROSTAT, (2004) which shows that in Europe and other industrialized countries, the number of women in engineering and other science fields has been increasing steadily, but still falls far below the males (Bix, 2004) Betz & Hackett, 1981, Fitzgerald, Fussinger and Betz, 1995).

Gender therefore remains fundamentally correlated to vocational choice, (Almiskry, Bakar, and Mohamed 2009, Pike, 2006). This found a significant relationship between gender and personality ($X=34.962$, $df 5$, $p = 0.000$) that indicates a significant relationship between gender and degree programs. This finding is supported by (Smart, Feldman and Ethington, 2000, Ranson, 2003, Hersh, 2000) who found that scientific fields attract more males than females. These results imply that gender continues to play a key role in the choice of mathematics and science based subjects with majority of females avoiding these fields.

Gender socialization is reported to significantly influence subject selection (Hersh, 2000, Betz, 2005, Ranson, 2003, Ismail, 2003, Hersh, 2000, Bix, 2004). Gender differences in selection of career activities has been reported to emerge early in life. Cultural beliefs are considered to be a contributing factor with females preferring feminine responsibilities and males assuming roles perceived masculine. EUROSTAT, (2004), Ismail, (2003) and Hersh, (2000) all state that gender disparities in realistic and investigative fields associated with males and social fields associated with females is still evident. Research further suggests that even though there has been an increase in the number of females in the realistic and investigative fields, the numbers are still small. The disparities in enrolment of females in science related fields continue to be supported in earlier studies by (Schwartz, 1992, Frances, 1996, and Eccles, 1999) who state that the choice of careers and academic fields continue to reflect the gender dichotomy between males and females. The above results were further investigated in an interview to determine what the students felt about gender distribution.

The results revealed that gender and personality type ($X = 34.962$, $df = 5$, $p = .000$) are significantly correlated. These results imply the gender of the students at Kenyatta University is important in personality classification according to the Holland's theory (Smart, Feldman & Ethington, 2000, Pike, 2006). Studies have reported that there more males in realistic and investigative personality types and more females in social types. However, a weak correlation between gender and personality types has been reported in artistic, enterprising and conventional

types using the SDS 4th edition by Rosen, Holmberg and Holland, (1994). Women have been reported to score low on realistic scale and high scores on social scales, while men are likely to have high scores on realistic fields and low scores on social fields.

Discussions

This study revealed that gender played a significant role in choice of degree program at Kenyatta University. The overall the ratio of male to female admitted at Kenyatta University was close to 1:1, implying that more females are accessing university education. However, the study revealed gender disparities were evident in the choice of academic disciplines with males dominating the physical sciences and females the social sciences. Similarly, in classification of personality types there were more males in realistic and investigative types while the females were more in the social fields. The study also concluded that gender differences between male and female student who are accessing university education has significantly reduced implying that more female students are accessing university education. Gender however remains an important factor in the choice of different academic disciplines ($X = 51.807$, $df = 5$, $p = .000$). These findings show that male students continue to dominate the science fields while female students dominate social sciences study. Gender was also found to strongly correlated to different personality types ($X = 34.962$, $df = 5$, $p = .000$) with more males classified as realistic and investigative and more females social types.

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