Attributions of Students' Choice of Academic Majors: Evidence from Lebanon.

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Abstract

Purpose This study employed the attribution taxonomy of individualism, structuralism, uncertainty, and fatalism to examine the attributions of choice of major among a sample of Lebanese high school students (N = 648). The study controlled for gender, parents' education, and students' intended majors as possible predictors of their attributions.

Methodology A VARIMAX principal component factor analysis generated four factor-dimensions with students' uncertainty about choosing their majors appearing as the first factor followed by individualism and hard work as the second.

Findings Analyses gave attention to fathers' influence wielded over their sons' and daughters' choice of majors. Students from highly educated fathers attributed the choice of their majors to individualistic reasons whereas those from fathers with lower education levels gave structuralistic and fatalistic attributions.

Implications The results of the study should be helpful to career counselors and educators in schools and higher educational institutions.

Key words: Attribution; Career choice; Uncertainty; Individualism; Career guidance; Students.

Introduction

Understanding the factors that circumscribe student choice of academic majors continues to attract the attention of researchers, career counselors and educators concerned with assuring the success, satisfaction, achievement, and retention of diverse clientele in higher educational institutions. This is not surprising given the role of academic major as a powerful determinant of students' career aspirations, occupational opportunities, rewards (Pascarella & Terenzini, 1991) and satisfaction (Pritchard, Potter, & Saccucci, 2004).

Additionally, prior to entry to an institution of higher education, the appropriate choice of a particular major has important implications for students' success in their studies and eventually in their subsequent careers (Abouchedid & Nasser, 2000). For instance, the suitable choice of a major helps reduce students' repeated and extended changes of their field of specialty (Moss & Frieze, 1993), as result of their inability to commit themselves to specific career goals (Feldman, 2003).

Therefore, career counselors in high schools are expected to guide high school students in their choice of majors quite realistically before entering college. In so doing, schools and institutions of higher education may expand their knowledge of the factors that wield influence on students' choice of majors such as the role of parents, socialization, gender roles, life experiences and students' beliefs.

From this broader context, the present study is set to examine factors that circumscribe high school students' choice of majors prior to their entry to a private higher educational institution in Lebanon.

In fact, the distinct paucity of career choice studies in Lebanon calls for more systematic research into the factors that explain students' choice of majors, particularly in light of the what Blakemore & Low (1983, p. 157) described as "occupational crowding" into areas that are incompatible with graduates' areas of specialty.

This study seeks to explore what are the major causal attributions; internal or external, that presently influence high school students applying to a private higher educational institution in Lebanon in order to contribute to a health career choice successfully.

Students' choice of majors and higher education in Lebanon

The multiplicity of private institutions, which pattern after the American credit-system of higher education, the French, or the Arabic one characterizes Lebanon's higher educational system. This complex mixture of systems reflects the values and cultural orientation of several distinct social groups that make up the pluralistic social fabric of Lebanon. Some of these groups seek to acquire American-type education while others attend French style higher educational institutions which articulate their cultural traditions resulting from their long-standing cultural relations with France (Abouchedid, 1997). At present, Lebanon experiences the rising culture of 'corporate education' in which private universities are increasing in number in order to accommodate for the growing number of high school graduates creeping upwards to higher education.

Since private university revenues are mainly based on students' enrollment, many university admission offices in Lebanon pursue vigorous recruitment practices such as visiting schools, organizing orientation programs for high school students, sponsoring exhibitions, and increasing financial aid allocations to needy students, ostensibly with the goal of recruiting large numbers of high school graduates. Surely, recruitment and retention of students have become a main concern in private fee-paying universities in Lebanon on the assumption that if they do not recruit and retain 'enough'

students, the business will be ruined. The result has been the adoption of lenient admission standards to accommodate practically most of the applicants with little career guidance and advising services that help these applicants choose their majors appropriately based on their preferences, abilities, and labor market needs.

To substantiate, recent figures showed that about 56 percent of university graduates in Lebanon undertake certain career paths that mismatch with their college majors (Abdul-Reda & Abouchedid, 2003).From our experience, during the last three decades or so, many undecided Lebanese school graduates enrolled in the Law major on a temporary basis until their career paths were crystallized and they shifted to the more appropriate major.

At present, the majority of students are crowded in business administration majors instead of Law major which has become unpopular due to the high rates of unemployed lawyers in Lebanon. In fact, graduates' derailment from appropriate career paths is attributed, partly at least, to the lack of school and university plans that provide high school students with sound occupational information, guidance and awareness of their majors and availability of employment in the labor market (El-Amine, 2003).

With the near absence of policies and plans in Lebanese schools and universities that help students make career decisions compatible with their abilities and preferences, these students are likely to face barriers that may deter their optimal career development. As a result, these students seek advice from their parents while others rely on anecdotal advice about their prospective major from peers who have already enrolled in these same majors. In a related vein, Nasser and Abouchedid (2003) argued that parents exert influence on their sons

and daughters to choose certain majors that maybe incommensurate with their learning abilities, preferences and labor market needs.

It is suggested that career choices are shaped through the continuous interaction of social and cultural contexts (Minor et al., 1998). Therefore, their potential influence on individuals' core beliefs about family, society and gender roles must be given attention in order to understand the influence culture and society have on student choice of majors, particularly in light of the prevalence of gender stereotypes and patriarchal behavior.

Although gender stereotypes that influence student choice of majors in higher educational contexts in Western countries are diminishing (Archer &Freedman, 1989; Greenfield, 1996; Baker & Leary, 1995), Arab societies are still incrusted in patriarchal behavior that pronounces gender stereotypes in society including educational institutions. In fact, despite the recent trend towards modernization in parts of the Arab world (Schvaneveldt et. al., 2005), Arab society is replete with examples of gender stereotypes that prescribe differential gender roles for both men and women in society (Nadera & Baker, 1997; Sharabi, 1988; Barakat, 1984; Shalhoub-Kevorkian, 2000).

In this context, Abouchedid and Nasser (2000) found that Lebanese college students enroll in majors based on culturally inherited stereotypical perceptions of traditionally-demarcated 'masculine' and 'feminine' majors. For instance, both girls and boys rated engineering and hard sciences as 'masculine' majors while they considered humanities and social sciences majors as most 'feminine' majors. In addition, young Arab females who adhere to collectivist social behavior that is prevalent in the Arab world (Barakat, 1984) pursue scholastic majors such as early childhood

education and home economics while males are encouraged to enroll in medicine, engineering and hard sciences majors.

This claim is evident in the present study where 181(74.8%) of those who applied to science majors were males as opposed to 61(25.2%), and 34(35.4%) of applicants in the humanities were males as opposed to 62(64.6%) females. These figures are not atypical across higher educational institutions in Lebanon. Further, studies conducted in Western contexts suggest that parents, particularly mothers, play a significant role in their sons' and daughters choice of majors (Tickamyer & Blee, 1990; Simpson, 2003).

In patriarchal societies like Lebanon (Sharabi, 1988), fathers encourage, if not force their sons to enroll in certain university majors that suit their own profession in order to prepare to them take over the business after retirement; hence perpetuating a patri-lineal family structure (Abouchedid, 2002), where certain professions are transmitted from fathers to their sons within a patriarchal family context.

Given the prevalence of patriarchy in Arab culture (Sharabi, 1998) together with collectivist social behavior (Barakat, 1984; Abouchedid & Nasser, 2001) that wield considerable influence over individuals' choices, additional systematic research involving high school students from Arab states is warranted, particularly in light of the exclusive focus of studies on European and North American contexts. Besides, existing research has exclusively focused on college students and adult subjects already enrolled in higher educational institutions (e.g., McBroom, 1985; Powell & Luzzo, 1995), while rarely studying high school samples before entry to college; hence overlooking an important phase of students' career

development path. With an explanatory survey, I investigated Lebanese high school students' attributions of choice of academic majors since attributions influence subsequent behavior and goal expectations (Crittenden & Wiley, 1980).

<h2 style="text-align:center">The theoretical framework</h2>

It is clear from the literature that students' choice of academic majors represents the first step in their career development path (Tracey & Hopkins, 2001). Studies in the domain of careers, which is defined as the choices made previously and subsequently that influence occupation or job (Minor e. al., 1998), have focused on three developmental stages of student choice of careers. These are: (i) career choices in high school (Powell & Luzzo, 1998); (ii) career option during college education (e.g., Feldman & Whitcomb, 2005); and (iii) occupation after graduation (Nasser & Abouchedid, 2005; Abouchedid, 2003). Within this career-development path continuum, little research has sought to examine high school students' choice of academic majors as part of their early career development path.

In general, research on student choice of majors has employed either psychological or sociological constructs in order to understand how students choose their majors. Sociological constructs recognize the influence of the social context on career decisions such as political and social trends (Barling et al., 1998), socialization, gender roles, life experiences (Abouchedid & Nasser, 2000) and the role of institutional practices that encourage the enrollment of certain groups in specific majors (Pritchard et. al., 2004).

On the other hand, studies that employ psychological constructs incorporate cognitive dimensions such as career maturity and decision-making skills (Crites, 1971), i.e., the ability of students to make informed age-appropriate choice regarding their careers

(Savickas, 1984; Luzzo, 1995). Savickas (1990) showed that students who possess high levels of career maturity are more likely to display understanding of the career decision-making and possess high levels of self-reliance in choosing their future vocation. In turn, career maturity increases with age (Healy et. al., 1987) and is more likely to show among students in higher grades than those in lower grades (Post-Kammer, 1987).

More so, career maturity has been linked to students' achievement as measured by their General Point Average (GPA); those with high GPAs are more likely to possess a higher level of career maturity than those with lower GPAs (Westbrook & Sanford, 1991). Regarding ethnicity/race, studies conducted in the U.S. have consistently reported that people of color have lower levels of career maturity compared with European-Americans (e.g., Powell & Luzzo, 1999; Westbrrok & Sanford, 1992).

On the other hand, psychological studies have focused on intra-personal variables such as locus of control (Khan & Alvi, 1983), gender role identification, perception of self (O'Neil et.al. 2004), individual interests and perceived abilities (Galotti, 1999; Simpson, 2001) as determinants for explaining students' choice of careers. More recently, there was a renewed interest in attribution style (e.g., Luzzo et.al, 1996; Powell & Luzzo, 1998) that can be used as a measure to understand student choice of major. Broadly, in studies of causal attributions, people attribute behavior in a particular situation to internal causes, which arise either from the person's personality, or to external ones, which arise from circumstances outside the person's immediate control (Feagin, 1972).

Borrowing from attribution theory, a plethora of empirical research has emerged over the last four decades spanning over people's

attributions of poverty (Feagin, 1972; Kluegel & Smith, 1986; Abouchedid & Nasser, 2001), the causes of peace (Nasser & Abouhcedid, 2002), attributions of career decision-making (Trice et. al, 1989) and satisfaction (e.g., McCormick & Solman, 1992). These studies have routinely yielded three distinct conceptual dimensions for classifying attributions. These are: individualistic, in which people see themselves responsible for their own decisions; stracturalistic or situational in which people attribute the causality of outcomes to external factors such as society, culture and institutions; and fatalistic attributions where people attribute the occurrence of certain events to fate, chance and fortune.

Lately, Vermeulen and Minor (1998) proposed a refined attribution taxonomy that can be used to classify attributions in career studies. These are: (1) social and familial context (decisions are influenced by external intervention such as network of contacts and family influences); (2) fatalistic; (3) uncertainty (individuals are uncertain about their decisions); (4) individualistic; and (5) situational institutionally determined strictures.

From this broader framework, the present investigation suggests that attributions of student choice of majors potentially help understand the belief system of students in their choice of majors and the extent to which social processes shape the formation of such beliefs. For instance, in the U.S. as well as in many Western European countries, people tend to attribute the causality of events to individualistic reasons due to the dominant ideology of individualism which stresses self-assertiveness and individual responsibility (Feagin, 1975; Kluegel & Smith, 1986).

However, in non-Western contexts, available studies (e.g., Abouchedid & Nasser, 2001; Morcol, 1997) have shown that people

attribute the causality of outcomes to structural reasons such as laying responsibility of outcomes to external factors which they believe have no influence over its occurrence. Kluegel and Smith (1986) suggested that attributions are determined by dominant ideology of society and effects of life experiences of different social groups such as gender, educational attainment level, and age groups. This exploratory study employs attribution taxonomy of individualism, structuralism, uncertainty, and fatalism and the effects of gender, parents' education, and students' intended majors as determinants for explaining Lebanese high school students' attributions of their enrollment in academic majors.

Hypotheses

In light of the above, the present study examines two hypotheses:

H_1. Given the influence of structuralism on Lebanon's collectivist culture (Sharabi, 1988), students will attribute the choice of their majors to structural reasons (i.e., family influences and institutions) more than to individual or fatalistic ones.

H_2. In light of previous studies (e.g., Feldman & Whitcomb, 2005), gender and parents' education will predict differences in student attributions of choice of major since differences on these variables are reflective in different life experiences and patterns of socialization (Berryman, 1983).

Method

Sample

A sample of high school students (N = 648) taking their entrance exams at a Lebanese private university participated in the study in June 2006. The mean age was 18.2, which is the typical mean age of first year university students in Lebanon. The fact that the majority of Lebanese parents tend to send their sons to private fee-paying

schools and their daughters to the non-fee-paying public university, the sample constituted of 401 (62%) males and 247 (38%) females. Within majors, the number of males compared to females applying to engineering was startling; 122 (90%) males as compared to 12 (9%) females applied to engineering. In addition, females were under-represented in scientific majors such as computer science and mathematics. Turning to parents' education, the majority of students reported that they came from parents with high formal educational attainment levels.

Questionnaire

The questionnaire was composed of two sections. The first section requested students report their gender, age, parents' education, and major. The second section had 21 items concerning the reasons that students believe have influenced the choice of their majors along a 5-point Likert scale that ranged from (1) strongly disagree to (2) strongly agree and (3) as the neutral point. The questionnaire items were derived from interviews conducted by the author with students outside the present sample who took their entrance exams at the same university in December 2005, i.e., 6 months before the administration of the present questionnaire.

The interview schedule requested students to state the factors they thought were likely to influence the choice of their majors. Interview data yielded a wide-range of attitudes towards choice of majors. For example, many students reported that their choice of major was made at random since they lacked concrete information about the labor market needs and about the major itself. Other students mentioned that their parents required them to enroll in certain majors that they disliked.

Moreover, a number of students expressed fatalistic views of choosing majors, such as "…frankly I selected my major by chance". Based on interview data, a group of colleagues developed the interviews into a questionnaire on student choice of majors. An example of statements that tapped the individualistic dimension that focused on the student's control over the decision-making process concerning choice of major was "Choosing the right major is my decision only".

Further, statements that focused on family influence included items such as "My parents forced me to apply to my current major". Uncertainty statements included items like "I am not sure whether I have applied to the right major that fits in well with my academic abilities and interests" and fatalistic statements had items like "To be honest, I selected my major by chance". Before administering the questionnaire, colleagues from the Admissions Office and Office of Tests and Measurements at the university reviewed all questionnaire items to verify its content validity.

Procedures

The questionnaire was administered to high school students taking their entrance exams in a private higher educational institution in Lebanon that patterns after the American credit- system of education and employs English as the main medium of instruction. The questionnaire was administered in June 2006 in a mood of confidentiality by staff from the Admissions Office and the Office of Tests and Measurement. After collecting the completed questionnaires, a number of students' reported that the survey was timely and significant to their understanding of the choice of majors and subsequent careers.

Analyses of Results

Descriptive statistics

The first analysis of the data documented students' beliefs about the choice of their majors. The majority of students reported their felt-need to acquire more specific information about their majors and believed in their personal responsibility of choosing their majors while many others agreed with their inability to plan their future in an unstable political modicum as is the case of Lebanon (See Table 1).

Internal Consistency

As there has been a considerable number of items in the questionnaire and in order to examine the factor structure of the 21 items, a VARIMAX principal component factor analysis with units in the diagonal, an eigen cut- off value of 1.0 was executed. Results yielded five factor dimensions which explained 52% of the variance in the data (See Table 2). Items loading ≥.4 were considered interpretable items on the particular factor loading. Due to the low communalities of the fifth factor, it was eliminated from the analyses but not from descriptive statistics.

Table 1: Frequencies, Percentages and standard Deviations of Attribution Items (Percentages in Italics)

(SD = Strongly Agree; D = Disagree; N = Neutral; A = Agree; SA = Strongly Agree)

Items	SD	D	N	A	SA	std
I am not sure whether I have applied to the right major that fits in well with my academic abilities and interests.	257 *40.4*	145 *22.8*	87 *13.7*	109 *17.1*	38 *6*	1.3

Statement						
I felt that I needed to talk more with professional people about my major before applying.	75 11.7	109 17	143 22.2	207 32.2	109 17	1.25
I feel uneasy about making the right decision for applying to my major.	209 32.7	148 23.2	151 23.6	99 15.5	32 5	1.22
I felt that I needed more information about my major.	81 12.6	119 18.5	116 18.1	244 38	82 12.8	1.24
I am not sure whether my major will be needed in the job market after I graduate.	182 28.4	157 24.5	129 20.1	121 18.9	52 8.1	1.29
I have little knowledge about the advantages anddisadvantages of my selected major.	83 13	146 22.9	172 27	183 28.7	54 8.5	1.17
I think I need more material to read about my major.	75 11.8	109 17.1	178 28	215 33.8	59 9.3	1.15
Choosing a major is my complete responsibility.	14 2.2	15 2.4	37 5.9	131 20.8	434 68.8	.88
I am sure I will succeed in	12	7	29	85	502	.77

my major if I work hard.	1.9	1.1	4.6	13.4	79.1	
I am certain that I will have a successful career if I work hard.	7 / 1.1	14 / 2.2	42 / 6.6	97 / 15.3	475 / 74.8	.79
I was really able to make a good choice in selecting my major.	10 / 1.6	21 / 3.3	101 / 15.9	228 / 35.9	275 / 43.3	.91
Choosing the right major is my decision only.	12 / 1.9	36 / 5.7	56 / 8.8	141 / 22.3	388 / 61.3	.98
I believe in my ability to succeed in whatever major I choose.	33 / 5.2	78 / 12.4	131 / 20.8	205 / 32.5	184 / 29.2	1.16
My parents obliged me to apply to my current major.	510 / 81	47 / 7.5	43 / 6.8	18 / 2.9	12 / 1.9	.87
My school advised me to apply to my current major.	322 / 51.2	85 / 13.5	131 / 20.8	68 / 10.8	23 / 3.7	1.21
My friends enrolled in it so I did the same and applied to it.	437 / 70.1	73 / 11.7	73 / 11.7	28 / 4.5	12 / 1.9	.99
To be honest, I selected my	493	49	48	25	15	.96

major by chance.	78.3	7.8	7.6	4	2.4	
Overall, no body can plan for his/her future in this country; it is better to live in it on a day-by-day basis.	104 16.6	98 15.6	159 25.3	142 22.6	125 19.9	1.35
No matter what major I apply to, at the end whatever will be will be.	216 34.5	156 24.9	126 20.1	81 12.9	47 7.5	1.27
No matter what major I apply to, success in that major is a matter of luck and good fortune.	180 28.7	169 26.9	134 21.3	99 15.8	46 7.3	1.25
No matter what you do in this country, the future is in the hands of external influences that we have no control over them.	110 *17.6*	116 18.6	206 33	113 18.1	80 12.8	1.25

Table 2. Factor Analysis Results

Items	Factors					٦h
	١	٢	٣	٤	٥	
I am not sure whether I have applied to the right major that fits in well with my academic abilities and interests.	.47					.36

Item						
I felt that I needed to talk more with professional people about my major before applying.	.73					.54
I feel uneasy about making the right decision for applying to my major.	.61					.53
I felt that I needed more information about my major.	.79					.63
I am not sure whether my major will be needed in the job market after I graduate.					.54	.42
I have little knowledge about the advantages and disadvantages of my selected major.	.55					.35
I think I need more material to read about my major.	.66					.48
Choosing a major is my complete responsibility.		.63				.53
I am sure I will succeed in my major if I work hard.		.50			-.42	.54
I am certain that I will have a successful career if I work hard.		.64				.60
I was really able to make a good choice in selecting my major.		.51				.54
Choosing the right major is my		.67				.56

decision only.					
I believe in my ability to succeed in whatever major I choose.		.63				.48
My parents forced me to apply to my current major.			.68			.57
My school advised me to apply to my current major.			.65			.55
My friends enrolled in it so I did the same and applied to it.			.67			.50
To be honest, I selected my major by chance.			.62			.51
Overall, no body can plan for his/her future in this country; it is better to live in it on a day-by-day basis.				.71		.61
No matter what major I apply to, at the end whatever will be will be.				.70		.53
No matter what major I apply to, success in that major is a matter of luck and good fortune.				.53		.47
No matter what you do in this country, the future is in the hands of external influences that we have no control over them.				.73		.56

Percent of Variance Explained	21	12	8	5.6	4.7	

The first factor loaded on items tapping student uncertainty regarding the choice of their majors such as "I am not sure whether I have applied to the right major that fits in well with my academic abilities and interests" and "I felt I needed more information about my major". This factor explained 21% of the variance in the data and was perceived as the "uncertainty" dimension. The second factor explained 12% of the variance and had loadings on items that tapped individual decision-making and ability such as "Choosing the right major is my decision only", and "I believe in my ability to succeed in whatever major I choose". This factor was called "individualistic/ability" dimension. The third factor loaded high on items that dealt with structural and familial contexts; for example, "My parents forced me to apply to my current major" and "My school advised me to apply to my current major". This factor was titled the "situational" dimension. The fourth factor loaded on chance and luck items such as "No matter what major I apply to, success in that major is a matter of luck and good fortune". This factor was labeled the "fatalistic" dimension. The fifth factor loaded on two items and was removed from the analysis due to low communality.

In order to ensure the reliability of the dimensions resulting from factor analysis, Cronbach alpha was computed for each factor-dimension. The first factor "uncertainty" had Cronbach .74; the second "individualistic/ability" .76; the third situational/structural" .74 and the fourth "fatalistic" .70. In addition, a total arithmetic mean score was computed for each dimension extracted from the principal component analysis by adding the items loading high on a particular

factor and dividing them by the number of items on that particular factor.

Regression Analysis

For testing the two hypotheses of the study, a stepwise multiple regression analysis was run between the independent variables of gender, fathers' and mothers' education and students' intended majors on each of the four dimensions produced by factor analysis. An initial test for multicollinearity between the independent variables ensured no problems between variables. In the multiple regression analysis, fathers' educational attainment level was the sole variable entered into the model with a beta coefficient (β) = -.10. The results indicated that fathers' educational attainment level predicted students' uncertainty with ($F(1,595)$ = 7.18; $p < .05$; students from fathers with lower educational attainment levels were significantly uncertain about choosing their majors more than those from highly educated fathers.

The total variance explained for this equation was 11%. In the second analysis, the gender variable was entered into the first model of the regression equation followed by fathers' educational attainment level in the second model. The first model explained 15% of the variance and 17% of the variance was accounted for by gender and fathers' education in the second model. Students, particularly females from highly educated fathers were significantly ($F(1,596)$ = 14.55; $p < 0.01$ the most individualistic in their attributions of choice of major. These females believed in ability and hard work as key to their academic success and assumed personal responsibility for choosing their majors.

The third analysis had fathers' education entered into the first model followed by gender in the second model. Males from less

educated fathers were more likely to attribute the choice of their majors to family context influences with ($F(1,591) = 14.29$; $p < 0.01$. The fourth analysis showed that fathers' education level predicted significantly students' attributions of choice of major to fatalistic reasons such as luck and fortune with ($F(1,600) = 5.71$; $p < .05$; students from fathers with lower levels of education were the most fatalistic.

Discussion

Prima facie evidence from descriptive statistics showed that, at the regional private university where this study was conducted, high school students expressed their need to obtain more major-specific information that can be broadly defined as learning goals, skill requirements and availability of jobs in the labor market after graduation. This finding underlines the lack of school and university plans in Lebanon that would provide high school students with occupational information related to their majors and subsequent careers (El-Amine, 2003). Despite this, a majority of students reported high levels of individualism and belief in ability as key for their success in their majors; hence the decision to assume responsibility of their choices even in the near absence of career guidance and information relevant to their majors.

Furthermore, the present investigation yielded four dimensions extracted from principal component factor analysis that organized students' attributions of choice of academic majors. The first factor reproduced the uncertainty dimension conceptualized earlier by Vermeulen's and Minor (1998), indicating the universality of students' uncertainty when applying to a university major as documented in previous studies (e.g., Cohen & Hanno, 1993).

This result partly rejected the first hypothesis which expected structural attributions in light of Lebanon's pervasive social and

familial context that interfere with people's choices (Barakat, 1987). Students' uncertainty reflected their lack of knowledge about their intended majors due to the near absence of career guidance services and relevant information concerning majors in both Lebanese schools and universities. However, the step-wise multiple regression gave attention to the structural role of the family, mainly fathers' influence, particularly over their sons' and daughters majors. Fathers appeared to be 'proxy career counselors' whose guidance or influence bridges the gap of limited school and university career guidance plans.

This is not to say that parents should be distant from their sons' and daughters' career options but rather career counselors in schools and universities should be vested with the responsibility of helping these students explore their majors and careers before applying, particularly in light of the regression analyses which showed fathers' negative influences, particularly over their sons' choices. To substantiate, analyses showed that fathers with lower educational attainment levels wielded a significant influence on their sons' attributions of choice of major; male students attributed the choice of their majors to family context influences more than their female counterparts did.

Curiously, while previous studies in the West showed that mothers exert influence over their children's choices of majors and vocational choices (Simpson, 2003; Menaghan & Parcel, 1991), the present data did not yield evidence of mothers' influence. Immediately discernible is that mothers in patriarchal societies wield less influence over main family decisions which are usually undertaken by fathers who pronounce the powerful influence of socio-cultural patriarchal practices in Arab society (Sharabi, 1988).

In support of this, a recent comprehensive cross-sectional survey on gender role attitudes among senior college students in Lebanon showed that the majority of college students strongly agreed with men being more capable than women in taking wise decisions concerning the family (El-Ameen & Faour, 1998). Additionally, in patriarchal societies, as is the case of Lebanon (Sharabi, 1988), fathers encourage, if not force their sons to enroll in certain university majors that suit their own profession in order to prepare them to take over the business after retirement; hence to perpetuate patri-lineal family structures (Abouchedid, 2002), where certain occupations are transmitted from fathers to their sons. Alternatively, fathers with lower educational attainment levels who occupy less privileged jobs in society, encourage their sons to aim for high earning professions in order to re-compensate for their less privileged jobs. Thus, part of students' attributions reverberates the role of patri-lineal behavior in the formation of beliefs among youngsters, particularly those concerned with career decisions.

The second factor, preconceptualized as the individualistic dimension, showed students' responsibility in choosing their majors as well as their faith in hard work as an essential requisite for success in university education. This result is surprising given the dominant ideology of structuralism in Lebanon that affects the formation of structural attributions among people (Abouchedid & Nasser, 2001). Fathers' education seems to affect the attributions of their sons and daughters. In particular, students from highly educated fathers were the most individualistic in their attributions of choice of majors than those from less educated fathers, and believed less in situational and fatalistic factors than those from fathers with lower educational attainment levels.

It seems that individualism and the ideology of hard work permeate the behavioral structure of Lebanese youth, particularly females from highly educated fathers, probably because of their increasing exposure to information communication technology, education and Western life style (Schvaneveldt et. al., 2005), which are consolidated by their educated fathers. Further, judging by their responses, structuralism and fatalism were evident in the attributions of high school Lebanese students although with lesser influence on their choice of majors compared to uncertainty and individualism.

Analysis showed that fathers' education level predicted significantly students' attributions of choice of major to fatalistic reasons such as luck and fortune; students from fathers with lower educational attainment levels were most fatalistic. In addition, students' prospective majors did not predict attributions of choice of majors, probably because these majors are not their final ones as shown in the shift of majors petitions at the university where the study took place, where about 31% of applicants change their majors in their second semester.

<p align="center" style="color:blue">Implications</p>

The results of the present study should be helpful to career counselors and educators in schools and higher educational institutions in Lebanon. Two noteworthy results can help schools and universities frame their career counseling plans. First, students' uncertainty about choosing their majors is due, partly at least, to the lack of plans and policies that guide prospective students through their higher education, particularly during the first phase of their career developmental path.

Therefore, schools and universities in Lebanon should benefit from this finding by recognizing the need to provide career guidance plans and strategies to help students reduce their uncertainty and confusion when applying to a major. Second, students' attributions

have implications for their choice of majors. Career counselors should recognize the importance of understanding students' positive attributions such as individualistic/ability since, as has been shown in previous studies (Furnham et.al., 1992), positive attributions might lead to success and satisfaction, so success can enhance and maintain a positive attribution style. As for negative attributions such as fatalism and unquestionable acquiesce to external influences, schools and universities should guide their students into success through helping them choose appropriate majors since success and performance alter negative attributions into positive ones (Spector, 1982).

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Suggestions for future research

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Future research on careers should continue to evaluate the role of culture, ideology and society on students' choice of majors and subsequent careers, particularly in under-researched countries such as Lebanon. Family employment history and parental income can be included in future research on attributions of career choice among students from different backgrounds, since people with different status variables such as family structure and socioeconomic status (Hunt, 1980) may be associated with different value systems (Converse, 1964), and hence exhibit different attributions. Finally, future research should also look into the possible stereotypes in society that deter the optimal career development of students such as gendered behavior and patriarchal practices.

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