

South Asian Canadian Young Men and Women's Interest Development in Science:
Perception of Contextual Influences¹

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Abstract

The purpose of this descriptive case study was to examine the contextual and cultural influences on interest development in science for 24 Canadian South Asian young adults. Within this study, aspects pertaining to socialization with respect to self-efficacy and outcome expectations of engaging in the sciences, are consistent with existing formulations on South Asian families. Additionally, the study provides information as to the relationship between South Asian young adults' cultural identification to contend with decision-making and perceptions of efficacy (individual and collective efficacy). Finally, this study broadens our understanding of how South Asians develop an interest in the sciences and the support of parents and siblings in helping participants prepare for their future. Implications for counselling practice and future research are discussed.

Introduction

The National Career Development Association (NCDA) (NCDA, 2007), American Psychological Association (2003), and the Canadian Counselling and Psychotherapy Association (Schulz, Sheppard, Lehr, & Shepard, 2006) recognizes the importance of practitioners working effectively with minorities in the realm of career counselling. Research that informs career counselling with diverse clients is particularly important and needed because of an increased presence of Asian and South Asian

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students entering the sciences in post secondary programs and in the workforce (Bureau of Labor Statistics, 2001). A critical research area identified by NCDA, as a priority deserving of attention in relation to Asian and South Asians career development relates to cultural conflicts between first-generation immigrant parents and their children, including differences over educational and career preferences (Hwang, 2006; Inman et. al., 2007). In connection to the exploration of culture conflict and differences in career preferences, three main facets emerge in the research literature as deserving attention. The first facet identified is the relationship between perceived stereotypes held by various individuals involved in the socialization process of South Asian students that success may be expected only in certain limited occupations that require a focus on math and science and the effect on the life-career plans and career identity (Vespia, Stone & Kanz, 2001; Cheryan & Bodenhausen, 2000). The second facet identified includes the relationship between parental expectations, cultural values and practices on the career selection of many Asian, South Asian, and culturally diverse people. The third facet identified is in relation to cultural identity and connection to career development. The current study examines various contexts that influence preferences for South Asian Canadian youth to enter the sciences with the assumption that individuals from minority groups develop within cultural, familial, and educational contexts. This study addresses this important need for a culture-specific inquiry into various contexts that influence the career development among Canadian South Asian children of immigrants.

At this time, the South Asian population represents North America's third largest non-European ethnic group (Statistics Canada, 2006; U.S. Bureau of the Census, 2006). While immigrants from India comprise a large proportion of North America's immigrant

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population, South Asian immigrants continue to remain underrepresented in the research literature (Mani, 2008; Toohey, Kishor, & Beynon, 1998; Whiston & Quimbly, 2009; Winslow, 2008). Since parents of Asian and South Asian children represent voluntary minorities who share a similar history of motivations for choosing to immigrate² and perspective as to what constitutes educational success for their children³, researchers have grouped Asian and South Asian children of immigrants together. There has slowly been more recognition that South Asian students may have their own cultural issues that may affect their life-career development (Toohey, Kishor, & Beynon, 1998). Recently, there is also a smaller, though increasing, research base that addresses the career development of South Asian children of immigrants (Abouguendia & Noel, 2001; Bloxom, Bernes et.al., 2008; Handa, 2003; Naidoo, 2003; Rumbaut, 1994).

Contextual Influences for South Asian Children of Immigrants

Educational Experiences of South Asian Students

There has slowly been more recognition that South Asian students may have their own cultural issues that may affect adjustment in the academic domain and affect their life-career development (Segal, 1991). South Asian Americans were highly represented in the math and sciences in colleges and universities (Tseng, Chao & Padmawidjaja, 2007). Tang, Fouad, and Smith (1999) suggested that due to the studies conducted that reflect this trend, South Asian American interests and aspirations have been stereotyped and segregated into those technical areas by the public. They felt that such beliefs held by the public could lead to establishing occupational stereotypes for South Asian students.

² Ogbu (1991).

³ Min & Kim (2000).

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Tseng, Chao & Padmawidjaja (2007) further argued that stereotyping was an external barrier to vocational exploration for South Asian students and that it could become an internal barrier if South Asian students were to internalize the stereotyped message. Since success may be expected and accepted of South Asians only in certain limited occupations that require a focus on math and science by various individuals who are involved in the socialization process of South Asian students, it may have an effect on the life-career plans for South Asian children of immigrants (Vespia, Stone & Kanz, 2001; Cheryan & Bodenhausen, 2000). It has been noted that South Asian students may feel pressured to live up to the career stereotypes of their group, and be affected negatively for not meeting the high expectations held by individuals who represent the mainstream society, individuals within their own South Asian community, and family unit who have internalized the stereotype (Vespia, Stone & Kanz, 2001).

Family Influences on the Career Development of Asian and South Asian Youth

Research within the United States, Canada, and Britain has explored the role that immigrant parents play in the educational lives of their children. Research suggests that parents have a strong influence on the career interests of their children (Brown, 2004; Chope, 2005; Chope & Consoli, 2006; Ghuman, 1997; Vollebergh, Iedema & Raaijmakers, 2001). Studies on immigrant families suggest that while children tend to prefer values and norms associated with mainstream culture, parents tend to retain values and norms consistent with their heritage culture, causing cultural conflicts to emerge between immigrant parents and their children (Baptiste, 1993; Hwang, 2006; Rudy & Grusec, 2006). Studies further suggest that South Asian children of immigrants select

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careers that are not related to their personal career interests. For example, many Asian students may be interested in artistic careers but may choose a career in the sciences because of parental guidance or pressure. This is consistent with results that applied Social Cognitive Career theory (SCCT) (Lent, Brown and Hackett, 1994) to explore the relative importance of interests and parental influence in the career choices of Asian American students. The results showed that, contrary to the predictions of the SCCT and most theories of career choice, Asian students own interests were unrelated to career choice, with high parental involvement predicting more science and technological related career choice. Consequently, South Asian students may view the career-decision making process very differently from their mainstream peers. Researchers have noted that Asian and South Asian youth view career decision making within a collectivist framework and would integrate the wishes of their family in their career decision-making process, causing potential culture conflict (Ghuman, 1997; Rajiva, 2006; Inman, Howard, Braumont & Walker, 2007; Lahiri, 2003; Mani, 2008; Roysircar, 2004; Strickland & Shumow, 2008).

Researchers describe culture conflict for children of immigrants as contending with the tensions that youth experience, reinforced around Eastern values in the home and Western values in the dominant society (Ghuman, 1997; Rajiva, 2006; Inman, Howard, Braumont & Walker, 2007; Lahiri, 2003; Roysircar, 2004; Strickland & Shumow, 2008). Implicit in the idea of culture conflict as it relates to career development is that definitions of what constitutes meaningful employment and how decisions are processed can differ between parents and children causing complication, strain and tension in how families function (Shariff, 2009; Wong & Pizzamiglio, 2008). In most literature on career

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counselling for Asian and South Asian youth, the family is depicted in terms of the confining or inhibiting influences exerted on a person's career identity and process of exploration (Chope, 2005). Gupta and Tracey (2005) illustrated that South Asian immigrant parents endorsed many "dharma" or duty bound values for serving the family that were reflected in family rules regarding prestige and acceptable careers emphasizing occupations they perceived to provide financial security, verses encouraging their children to discover and follow ones passion. Additionally, Ghuman (1997) looked specifically at Canadian South Asian children of immigrants and noted that boys and girls equally completed high school, and subsequently, parents encouraged them to plan for professional careers in the sciences in order to establish prestige and financial security. Additionally, the degree of culture conflict experienced by children of immigrants was reflective of the level of alienation experienced within the family, discomfort, and uneasiness experienced with career choice (Ghuman, 1997; Hanada, 2003). Studies further suggest that immigrant youth who adopt an integrative bicultural framework, maintaining aspects of their heritage culture while simultaneously adopting aspects of mainstream culture, tend to exhibit optimal psychological outcomes with career choice (Berry, Phinney, Sam & Vedder, 2006; Phinney, 2006). As noted by other researchers, given that South Asian youth living in North America straddle two distinct and opposing cultures, it is likely that they experience more difficulty achieving and maintaining healthy psychological adjustment in the career decision-making process than their Western European peers (Aycan & Kanungo, 1998; Hanada, 2003; Roysircar, Carey & Koroma, 2010; Shariff, 2009). Further studies need to identify culture specific factors,

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such as individualism-collectivism worldview orientations, and the impact on interest development in science for South Asian youth.

Cultural Identity as a Developmental Task for Young Adults

Adolescence and young adulthood represents a critical stage of development when youth actively seek to discover their identity (Arnett, 2004). As do members of other minorities, South Asian adolescents in Canada have the task of negotiating two ethnic identities: their South Asian identity and their Canadian identity (Das Gupta, 1997; Handa, 2003; Naidoo, 2003). Sam (2000) stipulated that for ethnic minorities, developing a sense of cultural identity constitutes an additional developmental task as they make educational and career decisions. Currently, Min and Kim (2000) suggest that children of immigrants are less likely to experience the same systemic barriers as their parents who are immigrants due to being more comfortable in the dominant culture and may find it easier to integrate socially into mainstream society and succeed in the job market. In contrast, findings show that South Asian children of immigrants may experience higher levels of insecurity and self-doubt, regarding their ethnic identity and life-career development in comparison to their parents who were immigrants (Abouguendia & Noels 2001; Rajiva, 2006). Aspects related to belonging in Canadian society for immigrant parents rested primarily on issues related to citizenship, language barriers, and working in positions that were not reflective of their foreign education. However, children of immigrants defined their struggle as not being “caught between two cultures” but having difficulty finding ways to *belong* to both social worlds (Rajiva, 2006: 169). Rajiva (2006) demonstrates in her research that despite second generation South Asian

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participants (children of immigrants) sharing commonalities of experience, citizenship, birthplace, language skills, interest, or national pride with the dominant majority, second-generation minorities are still not recognized as Canadians by members of the dominant society which affects feelings of belonging. For immigrant parents, they arrive in Canada as adults and their primary experience of adolescent identity formation was engaged in their national context in which they felt they “belonged” (Rajiva, 2006: 171). However, for second generation youth it has been suggested that they experience identity confusion due to growing up having a constant awareness of one’s own difference that results from being connected to various contexts in dominant society in which they learn to see themselves as different (Rajiva, 2006).

At first glance, the assumption that developing a bicultural ethnic identity is a smooth process for second-generation children of immigrants is challenged in feminist collections such as *Our Feet Walk the Sky* (Women of South East Asian Descent Collective, 1993). Recently, Lahiri’s (2003) novel *The Namesake*, is part of a growing group of contemporary ethnic American writers whose novels, short fiction, and memoirs suggest that South Asian children of immigrants are more concerned with understanding their dual identity status as it manifests itself in navigating their career life-development in North America (Friedman, 2008; Mani, 2006). It becomes apparent upon closer inspection of the feminist and contemporary collection of writing regarding men and women that being able to walk in two different cultures is a difficult process because two distinct, readily identifiable cultural worlds do not exist, and the cultural worlds are not internally uniform (Bennett, 2004; Henze & Vanett, 1993; Malhi, Boon & Rogers, 2009). Researchers focus on the malleable and dynamic nature of ethnic identity and view the

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process as multidimensional, relational, and influenced by various social contexts (Lent, Brown and Hackett, 1994; Phinney, 2006).

Lent's Social Cognitive Career Theory: Development of a Sense of Self-Efficacy during Young Adulthood

Drawn directly from Bandura's (1986) work, Lent, Brown and Hackett's (1994; 2000) Social Cognitive Career Theory (SCCT) explores how self-efficacy beliefs, outcome expectations, and personal goals help to regulate individual career behavior. The goal of SCCT was to explicate the mechanisms through which career and academic interests develop, career relevant choices are made and enacted, and performance outcomes are achieved. Self-efficacy refers to people's judgments of their capabilities to organize and execute courses of actions required to obtain particular outcome performances. Outcome expectations are personal beliefs about a probable outcome of performing particular behaviors. Choice goals help people to organize and guide future behavior. Goals are expressed as career plans, decisions, aspirations, and expressed choices and will vary in terms of commitment and follow-through for individuals, depending on how close the ideas are to actual implementation. In conceptualizing contextual or environmental influences, Lent, Brown and Hackett (1994) conceptualized the individual taking an active role in appraising and making meaning out of what is immediately available in his or her environment. They developed propositions that explore how the individual's perception of the opportunity structure moderates the relations of interest to goals and to the actions that individuals take. The SCCT centers on self-efficacy theory and the cognitive mechanisms that mediate how career decisions are

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made. This qualitative study will explore South Asian children of immigrants' perception of contextual influences that shape interest development and choice goals when selecting a career in the sciences, which will be discussed further in the results section. The researcher was interested in learning from the South Asian Canadian young adults what factors influence their decision to choose a science program at the post-secondary level and sought to answer the following research questions:

1. How does self-efficacy influence South Asian Canadian young adults' vocational interest development in science?
2. What are the present and future choice goals for South Asian Canadian young adults aiming to complete a degree in the sciences?
3. How does viewing role models in relevant educational or career activities contribute to self-efficacy beliefs in selecting a career in science?

Methodology

Qualitative Method Selected: Descriptive Case Study Approach

Yin (2003) developed a qualitative descriptive case study approach, which was selected for this study, to examine South Asian children of immigrants' perception of contextual influences that shape interest development and choice goals when selecting a career in the sciences. A descriptive case study requires the researcher to begin with a theory in the literature that has established propositions. The social cognitive career theory (SCCT) had established a set of propositions (Lent, Brown & Hackett, 1994) and served as the conceptual theoretical framework. The descriptive theoretic patterns of the study were cross-compared to the propositions embedded within SCCT. The purpose of this methodology is to see if the patterns that emerge within the data set fit the SCCT theoretical propositions under consideration, and to explore the usefulness of the theory to understand the career life-planning process of an ethnic minority group (Yin, 2003).

Selection of Participants

The study went through a formal ethics review at post-secondary institutions within Manitoba. Twelve South Asian Canadian young women and twelve South Asian Canadian young men who were children of immigrants, from a large metropolitan area in Manitoba, constituted the sample for this study. A criterion case selection strategy was used in the selection of the participants and refers to choosing cases because of their similarity to central characteristics of interest to the researcher (LeCompte & Schensul, 1999). The criteria established in the selection of participants included the following:

1. The participants self-identified as being Indo-Canadian and were Canadian born citizens.
2. Each participant completed their kindergarten to grade 12 schooling in Canada, which identified the individual as being a second- generation Indo-Canadian (Zhou, 1997). The parents immigrated from South Asia (India, Pakistan, Bangladesh, Sri Lanka, or of South Asian origins, from East/South Africa, Trinidad, Fiji, and Britain) and made Canada their home.
3. The participants resided in Manitoba and fifteen participants were pursuing undergraduate programs in science and nine participants were enrolled in professional programs such as pharmacy, dentistry, and medicine.
4. Participants were between nineteen and twenty-five years of age, which is considered emerging adulthood (Arnett, 2004).

Training Research Assistants

The research team was multi-disciplinary and consisted of three female research assistants who were trained to be independent coders of the data. All three assistants were trained by the primary researcher and were exposed to reading material on a range of qualitative research methods, and in particular, the descriptive case study approach. Topics covered with all assistants included: ethics and standards of qualitative research

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with minority groups, qualitative data analysis techniques and how to be an independent coder of data, issues related to entering the field, and data analysis strategies such as the creation of concept maps. After the first reading of each transcript, the research assistant would create a concept map. A concept map encouraged the research assistants to start with a nucleus idea of the participants experiences on the centre of the page, and radiating outward from the centre, key experiences within the transcript that influenced the career development of the participant would be documented (Amundson, 2002). The creation of a concept map for each transcript served as a mid-point of analysis for the research assistants to explore the participants career decision-making process from the participants perspective, and to recognize when their own interpretations of the participants experiences would complement or diverge in the analysis of the data (Mani, 2006). The researcher would meet with the assistants on a regular basis to allow time to debrief how they felt after reading a transcript, to review concept maps, and review subsequent coding of transcripts.

Data Analysis

Data analysis and coding of the interviews were analyzed according to the systematic steps of the case study method (Yin, 2003), whereby the participant's interviews were divided into meaning units of analysis based on the predefined concepts found within the Social Cognitive Career Theory (SCCT) (Lent, Brown, & Hackett, 2000) which were: a) contextual affordance; b) structure of opportunity; c) learning experiences; d) self-efficacy beliefs; e) outcome expectations; f) interest development; g) choice goals; and h) choice actions. The research assistants independently completed a

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line-by-line analysis of each transcript, which involved categorizing all interview statements into particular units of analysis and the creation of a concept map. In the next phase, the researcher did a cross comparison of these independently coded interview statements that were sorted into units of analysis to assess percentage of agreement. Percentage of agreement ranged from 80% to 89% for each unit of analysis within each transcript, which is considered a high degree of congruency between independent raters of the data (Hill, Thompson, Hess & Ladany, 2005). The final phase of analysis consisted of a cross-case analysis by the primary researcher examining the data within a particular unit of analysis across participants, examining the concept maps, and representing the patterns found across cases in a condensed description encapsulating essential key statements based on the frequency and intensity of key statements found within each transcript (Ryan & Bernard, 2003). The participants requested that the key statements selected from their transcripts would be used by more than one participant in order to protect their identity, which appear in the results section in quotations.

Ethical Considerations: Representation of Interview Data

Multiple discussions ensued between the participants and the researcher involving negotiation of how interview data would appear within a public forum. The researcher tried to represent the experiences of the young women and men in a balanced manner that maintained their need for privacy and attempted to highlight the variations of patterns that existed between participants. The researcher distilled the representations of the participants' thoughts and ideas to protect their confidentiality, and their personal requests to not use numerous specific quotes to represent their experiences were

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respected. The process of distilling the data into flow charts and then writing a depiction of the flow chart maintained consistency of the findings and prevented identification of an individual. However, portrayal of the richness and texture of their experience was limited. In the end, it was negotiated between the participants and the researcher that the researcher could use generalized quotes that were used by the majority of the young women and men to illustrate essential ideas (Mani, 2006).

Validity and Reliability Procedures

Validity of the data is based on Yin's (2003) three criteria. First, *internal validity* was achieved through triangulation of different sources of data, having a selective sample, and having the participants check the accuracy of their interview statements. Second, *reliability* was attained through consistent data analysis procedures, comparison of concept maps of each interview, and by establishing two inter rater reliability checks per participant interview. Third, *external validity* was established through analytical generalization of the results of multiple cases to theory (Yin, 2003).

Results and Discussion

Three sets of influences contribute to interest formation: (a) contextual background and proximal influences; (b) viewing role models; and (c) present and future choice goals. In the following section, the researcher will examine these constructs in relation to young adult South Asian children of immigrants' career interest formation in the sciences and potential implications for counselling.

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Contextual Background and Proximal Influences: Connection to Interest Development

Contextual affordance consists of the participants indirect perception of social forces and determines if they have a positive, neutral, or a negative influence over the individual (Lent, Brown and Hackett, 2000). Those aspects that they defined as social forces that influenced their career development, are discussed below.

The first social force identified was the educational environment. As they progressed from elementary school, junior high, senior high, and to university, the participants obtained a clearer conception of themselves in relation to their peers. Ten participants reported being socially excluded and victimized by their peers based on their ethnicity during their elementary school years. Teachers at the elementary school level were seen as “emotionally supportive but as ineffective change agents” within the system. They also did not feel that their parents understood their struggles in coping with rejection by their peers due to their ethnicity. During the elementary years, “isolation” became a common theme in the narrative of these participants. During middle school their attempts to “fit in” to their peer group, by shedding particular cultural traits such as values connected to the importance of family ties, obligation, and importance of saving face, caused tension between parents, grandparents, and the youth. At different stages of their education, these young adults eventually made friends through various organized sports, which represented an “equal level playing field”. The participants also agreed that by knowing other Indo-Canadian peers at different stages of their development enabled them to understand more about their cultural identity and establish a sense of “belonging” and “self-acceptance” within the educational environment.

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During middle school and high school, the teachers' role within the educational setting was seen as a catalyst for exposure to new learning experiences for the participants to new career fields and represented a strong counterbalancing force in their lives. Central messages from teachers included "enjoy the journey", "take your time", "keep yourself open to new experiences", "follow your passion", and "try new things" which were diametrically opposed to messages found within the family unit which focused on the avoidance of "wasting time", importance of "completing what you start", and "work hard now and the reward will follow". At times, participants felt that the social messages were at odds to one another, but felt capable of engaging in cultural frame switching to meet their individual needs at different times of their career decision-making process. In a similar vein, Benet-Martinez, Lee & Leu (2006) also found that the cognitive ability of participants to engage in cultural frame switching reflects the development of bicultural identity. Seventeen participants mentioned that they viewed teachers as helping them identify their strengths in various academic endeavors and helping them capitalize on their maneuverability within the educational environment and exploration of different fields. The primary barrier that they internally experienced and which teachers would challenge, was their outcome expectations that lead them to avoid certain career fields within the humanities. Since the youth gravitated towards investing more time in the math and sciences, they developed higher levels of self-efficacy beliefs that they could achieve their goals and persisted in the face of obstacles. Educational and career options were restricted by the youth themselves due to socialized messages rather than inadequate ability or potential in other subject areas.

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Self-efficacy and outcome expectations of the participants were also linked to the socialization and opportunity structure within the family unit. It is within the family unit that the young men and women acquired self-efficacy beliefs and outcome expectations about male-typed and female-typed activities. As a result, the young adults developed interests that were culturally defined as gender appropriate and viewed engagement within the sciences as the “valued career track”. Fathers were instrumentally supportive and would converse with their sons and daughters about the financial aspects of education and career plans. The young women felt that their fathers were a strong influence and encouraged them to enter the sciences because the field was “stable” and “prestigious” and that their fathers held the same level of expectations for their sons or other daughters in the family unit, regardless of sibling position. For the young men, fathers would stress what it meant to be a “provider to the family” and “obligations that they would need to assume” in their future role. Mothers were emotionally supportive, as they would offer encouragement, provide comfort by ensuring that their son’s or daughter’s health needs were met, and would remind them of “their obligations to the family”. They would also provide female participants with knowledge as to how to approach interpersonal difficulties in relation with peers and encouragement to both male and female participants when they would question their ability to gain admission into challenging professional programs. Parents viewed independence and adulthood as “a state of mind” that incorporated the ability for their children to make decisions by including the needs of the family. The participants also thought that living at home while completing their undergraduate degree afforded them different “freedoms” such as staying connected to their siblings, helping family members, being able to work part-time

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and have savings for admission into a professional degree in sciences and possible need for relocation. Being able to demonstrate efficient use of time and being able to set clear boundaries with peers, thinking through options, and being able to prioritize were seen by family members as “markers of being independent minded”. Parents also emphasized with both females and males the importance of education and how post secondary schooling would contribute to being able to “stand on their own two feet” and emphasized the value of “being educated” as a manner to establish themselves within society, which the participants also valued. The South Asian community was also a socializing force as it held certain norms in common with parents.

Children in the family were seen as an extension of the parents and could bring “shame” or “pride” to the family unit. Seven participants had parents that had limited educational and economic opportunity upon arrival to Canada. For these children of immigrants, they would be the first generation within their family to attain a post-secondary education. These youth experienced increased pressure from their parents to succeed in the sciences and experienced guilt with not being able to “fulfill their parent’s dreams”. Twelve participants had parents with professional backgrounds who were unable to work directly in their field of expertise upon arrival to Canada. The less economic mobility the parents experienced in Canadian society and not being able to work in their domain of expertise, the more concerned parents were for the “security and stability” of their children and did not encourage exploration of nontraditional careers in the sciences. For the remaining five participants, their parents were foreign-trained professionals, and were eventually able to work in their scientific field upon arrival in

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Canada. For these youth if they expressed a desire to explore nontraditional careers in the sciences, parents were concerned but more open to considering various options.

Ten young men during post secondary schooling engaged in work experience in the family unit, which in turn acted as a socializing force to enact out their personal values. They worked for their parents business or other part-time employment to support their post-secondary education throughout the academic year. Even though their work experiences were not directly related to their scientific field, the attitude towards work based on “self-discipline and delayed gratification” was modeled to them by their parents, which they in turn applied to the attainment of their academic goals. In the case of the young women, the majority worked part-time in areas related to their field of interest within the university environment during the summer months to support their post-secondary education. The challenge communicated by the young adults was the limited opportunities present at the university level to gain paid experience within their field.

Implications for Counselling

The focus on self-efficacy appraisals within counselling sessions allows South Asian children young adults to consider their ability to mediate the conflicting needs of family closeness and personal individuality when considering career interests. Additionally, exploring South Asian children of immigrants’ perception of being able to negotiate the double-bind messages received in various contexts allows the counsellor to help them develop a more coherent bicultural identity (Berry, 2006; Berry and Phinney et. al., 2006). Providing psycho education to children of immigrants illustrating the connection between how career interests are constructed by culture and how career is

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interpreted differently across cultural contexts might be helpful. The discussion could draw youth to consider their connection to career interests and help illuminate their experience of living between two distinct cultures. This in turn could help counteract common difficulties associated with contending with culture conflict and decrease potential mental health concerns that could arise such as anxiety, depression or low self-esteem and help children of immigrants experience a sense of shared understanding and belonging (Whiston & Quimby, 2009).

For parents, psycho educational groups could be encouraged educating parents as to the various career decision-making models that exist within an Eastern and Western framework. Counsellors could encourage South Asian immigrant parents to consider various worldviews to help increase understanding of their children. Engaging parents initially in this way may orient them to factors that enhance their relationships with their children, which in turn would encourage more discussion regarding career possibilities. Additionally, psycho education about the positive impact of discussing emotions and meanings behind career selection could address the lack of comfort immigrant parents may experience when conversing with their children (Bernal, Jiménez-Chafey & Domenech Rodríguez, 2009). Counsellors can provide research information about adolescents' perception of warmth and acceptance for career choice and linkage to mental health and well-being. Because parents tend to report significantly more parental warmth and acceptance than their children, it may be particularly useful to help parents distinguish between their perception and their child's perception of the parent-child relationship (Aquilino, 1999; Tein, Roosa & Michaels, 1994; Shariff, 2009).

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Role Models: Connection to interest development

Lent (2005) also proposed that being exposed to role models would have an impact on one's interest development. In regards to career and education, parents shared their own career and education stories, thus reminding them that they wanted their child to "have a better future" to take advantage of the opportunities available in society to ensure their happiness and success. By parents providing themselves as a template of what the participant should try to avoid, they negated their personal strengths and attributes that they applied to managing barriers, and did not present themselves as a positive role model. It is important to recognize that despite parents use or misuse of themselves as a role model, all participants perceived their parents as positive role models as they observed how their parents coped in the face of difficulty which contributed to their development of personal assets such as "work habits", "determination", "self-discipline", and "development of cultural identity". Parents' pro-educational behaviour shaped educational and vocational attitudes of the participants. Collective self-efficacy beliefs (Lindley, 2006), or shared confidence that exists within the family pertaining to the career development of each member, became an important influence on the career development of the participants. Additionally, twelve participants also defined role models by referring to their older sister or brother who was the first member in the family to enter a professional field at the post-secondary level. They would value the academic advice and the emotional support given by their siblings as to how to counter perceived environmental barriers such as a competitive educational climate. Most of the hard decisions that these participants had to make regarding their educational pursuits were in consultation with their older siblings. These participants reported "looking up to" a

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sibling and aspiring to be like him or her and valued the confidence and encouragement that the sibling had in their abilities. Ten participants who were the eldest in their family felt they needed to be a role model to their younger siblings and “set an example” by providing academic advice and emotional support. In all cases, siblings helped to maintain the participants’ vision, develop realistic expectations, and provide the opportunity to review the effectiveness of decisions made at different periods of their education. The remaining two male participants, who were only children, learned through observation of relatives (cousins) who were senior to them and enrolled in professional science programs. Schultheiss, Palma, Predragovich & Glasscock (2002) also found that sibling social support during career decision is due to sharing a similarity in perspectives and values and, in turn, promotes mutual understanding and influences efficacy in career decision-making.

Implications for Counselling

Exposure to role models based within the family (siblings and parents) have an impact on sense of self-efficacy in contending with stressful situations and pressures experienced with career and educational tasks. This study affirms the role of others in providing both emotional and instrumental assistance in the career decision-making process, which is in direct contrast to traditional career theories that view making decisions in consultation with others as dependent and implying a lack of adaptability or independence. An understanding and integration of the role of parents and siblings and influence on efficacy beliefs will assist career counsellors in working effectively with South Asian children of immigrants. The results of this study suggest that career counsellors may benefit from a relational view that takes into account the use of others in

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the decisional process. The primary source of change in SCCT is the individual.

However, it is not exclusively internal change; it also extends to assisting individuals to identify various supports to help manage environmental obstacles, thereby providing a potential for counsellors to design and deliver interventions that are meaningful for individuals from diverse groups (Arthur, 2005; Borgen, 2005; Tugade & Fredrickson, 2004). By collaborating with parents and youth with career psycho educational programming in a culturally sensitive manner could increase satisfaction with the career decision-making process for all parties (Blustein, McWhirter & Perry, 2005). Career counsellors could create interventions that could include both parents and young adults. The purpose would be to generate dialogue about the different conceptions of career, their hopes and fears, outline the individual and collective understanding of what constitutes the good life, and the manner in which the vision of the family can then be translated into action (Chou & Leonard, 2006).

Choice Goals: Connection to Interest Development

According to SCCT, career interests influence the planning for career choice goals and actions (Lent, Brown and Hackett, 1994). Lent (2005) has established that the more favorable the environmental conditions the individuals relation of interest to choice goals are expected to be strong. Whether interests change or solidify over time depends on whether people are exposed to interesting learning experiences that enable them to expand their horizons and being reinforced to develop self-efficacy and positive outcomes in new domains of experience (Hodkinson, Biesta & James, 2008). Educational and occupational choices are often, but not always linked directly to people's interests.

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For the participants of this study, cultural considerations sometimes required them to engage in a compromise process to accommodate various personal interests within their primary career selection. In such cases, choices are determined by considering ones options, messages received from ones support system, and self-efficacy beliefs and outcome expectations. Fifteen participants had communicated that they were academically strong in the sciences and arts while in high school. These participants were interested in entering the Faculty of Arts during university, but eliminated the option as they were unsure of the career possibilities available upon completion of the program. They questioned whether taking a student loan to complete an arts degree would be a “worthwhile endeavor” and were “doubtful” whether their parents would be willing to support their decision for an uncertain future career goal. The decision that participants made were sensitive to their families “preferences” but they were at “peace” with their decision since they all felt confident that they could find ways to integrate various aspects of their personal interests within their chosen career in science and ultimately they “wanted to be in the sciences”. For example, twelve participants who had artistic ability and originally wished to explore the arts viewed dentistry, computer engineering, and optometry as being a good “mix of the arts and science” as it not only required a scientific background but also “an artistic eye for detail, creative thought, and use of fine motor skills”. Eighteen participants also mentioned that careers in the sciences were a good “mix of meaningful relationships with patients” as trust would need to be established within the professional role. Additionally, two participants established a minor in world religion in which they were able to combine their interest in understanding cultural beliefs of health on an international level and explore the

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implications it may have in their chosen scientific profession. Seven participants also felt that by establishing a minor in sport psychology was a manner of complementing their interest in sports and desire for conceptualizing science in a holistic manner. The participants viewed the compromise *process* in itself as an enactment of their personal values and felt confident with their ability to have various personal interests complemented in their chosen career in the sciences. The contextual influence of the family moderated the participants' interest and choice goal transformation process. Additionally, sixteen participants felt that dealing with "personal hardships" (loss of a parent or close relative) and the "vulnerabilities of others" within their family unit (helping a parent or relative adjust to a change of lifestyle due to health related issues and parental job loss), increased their sense of self-efficacy of being able to cope with new responsibilities and life-transitions. They felt that this knowledge base would help them deal more effectively with resolving real life issues and confronting the vulnerabilities of others in their chosen profession and reinforced their choice goal to remain in the sciences.

The participants anticipated extrinsic outcomes in selecting science as a choice goal which included: "earning the respect of others" within their family unit and within society, that the profession within the sciences would provide them with a sense of "economic stability" to sustain a future family life, and that it would enable them to engage in work that capitalized on their strengths. Their ability within the sciences, supported by reviewing academic test scores and attaining various rewards, work experience in the field, contributed to raising self-efficacy beliefs, which became the mediating link of reinforcing their choice goals and interests. Intrinsic outcome

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expectations that young women communicated for engagement in the sciences was that a career in the sciences could be an opportunity to “develop self-knowledge” by recognizing their own unique strengths and talents and “personally grow” by developing and enacting their personal values. The young women also desired unity with others though establishing a “sense of belonging” within their profession. For the young men, establishing a career in the sciences was a manner to establish self-expression through “creating and achieving” and an opportunity to serve others by “contributing to society” by influencing people based on their abilities. These findings suggest that the choice goal of establishing a purpose to a career was an ongoing reflective process for the young adults that integrated both individual “self” development and collective “other” orientation.

The perception held by all participants was that there were a limited number of career options to consider in the sciences and that each option (such as dentistry, pharmacy, optometry and medicine) was highly competitive and difficult to gain admission. Nineteen out of twenty four participants had their first preference of a program that they wished to pursue (medicine, dentistry, pharmacy, or optometry), but also ensured that they had “back up plans” in case their first choice did not come through, enabling them to increase their chances of gaining admission into a professional program. They also thought that if they did not get their first choice, they felt capable of making the best out of the opportunity “fate” provided. These participants demonstrated harmonious passion in their approach in which they accepted engaging in the sciences as important to them without any contingencies attached to it (Vallerand, 2008). In the other five cases, participants only focused on attaining admission into medicine and they decided to “take

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their chances” and let “fate” determine the result. These participants found that by concentrating on one goal they were able to establish more “focus” and maintain their level of self-confidence in relation to their studies. These participants demonstrated obsessive passion in the pursuit of their career goals demonstrating a rigid persistence toward the activity (Vallerand, 2008). In both scenarios, participants demonstrated an empowering perception of “fate” as they felt confident they were in the right field and could exercise the free will to deal with determining their specific career path.

Implications for Counselling

Counsellors at the post-secondary and secondary level could benefit from engaging with South Asian youth by exploring the range of possibilities in nontraditional science careers and reflecting on perceived supports and barriers that influence career decision-making. A discussion could then ensue between the client and counsellor for accuracy of skill and outcome perceptions thereby maximizing the range of possible choices. Another strategy that counsellors could engage in with clients would be to engage in a decisional balance sheet to identify potential barriers (Lent, 2005). Clients are asked to consider the negative consequences that might prevent them from pursuing an option, estimate the chances that the barrier will be encountered, and develop strategies for preventing or managing the potential barriers. Finally, counsellors need to explore with clients what it means to choose a career consistent with or discrepant from their parents’ wishes. The focus would be on how South Asian children of immigrants contend with differing emotions and explore if their career course fits their personal values and interests. Asking clients if they have considered the consequences of career choice in

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their family, potential compromises they would be willing to make, and identifying aspects that they would not be willing to give up would help clients to determine workable solutions that are culturally sensitive and that would not alienate them from the family. Additionally, understanding the worldview of the client including perception of fate and enactment of personal values within different contexts in relation to self-efficacy beliefs may be important to identify.

Future Choice Goal: Consideration of Multiple Life-Career Roles

Research data has shown that for men and women consideration of multi-relational synchronization, the coordination of various relationships and roles assumed in relation to careers, increases with age (Orange, 2003). An examination of the interviews conducted with the South Asian participants revealed that all of them expressed plans to be in a dual-career marriage, and parent. The young adults were taking on a more liberated orientation towards family and careers and wanted both. In all cases, they developed outcome expectations of their future and discussed how they hoped they could find the balance between work, marriage, future-parenting roles, but were not specific in their plans. For example, twenty two participants preferred the lifestyle afforded to dentists, pharmacists, or optometrists due to the flexible hours, length of completion of the academic program, opportunities for private practice, and limited on call hours, which they thought could complement balancing the responsibilities affiliated with a future family life and being actively involved in the lives of their children. Five participants were deeply committed to pursuing medicine but were concerned about the work hours needed and that they would become an “absentee father/mother”. They were unsure as to how they would address the issue of balance but felt confident that with time they would

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discover strategies to address life-career balance of future life roles along with the aid of their marriage partner, immediate and extended family. The participants were attempting to integrate work, marriage, and family in their career plans and were contemplating the difficulties that they would anticipate. However, the conflicts expressed in the struggle to integrate work and family was defined differently between the young men and women. The primary difference was that women were more cognizant of trying to determine workable alternatives as to how to balance marriage, family, and career by determining what aspects they would wish to compromise and create new alternatives to determine how much self-investment would need to be placed into various roles. The young women believed that multiple roles could be stressful and time consuming, but still saw it as potentially beneficial. Benefits included thinking that when more than one role is important, stress in one domain can be decreased by satisfaction in another. Additionally, they viewed their future career role as an additional source of social support. They also hoped to find marriage partners who would support them in their career and family aspirations and would equally contribute to family life. However, they had reservations as to the extent that they could “have it all” and seemed willing to sacrifice some measure of career success in order to have a more balanced family life. The young women were also very aware of also considering the complex task of timing marriage and having children along with the task of trying to coordinate entering the field of work and completion of their studies. Alternatively, the young men expressed a lot of uncertainty about the future difficulties that they would encounter. They felt that they would need to converse with their future spouse to consider different future scenarios and how they would face it together. They anticipated that they would have to integrate their career trajectories with

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those of a future spouse but had not given serious consideration to the timing of marriage and having children. In terms of their consideration of family roles, the young men were primarily interested in adopting the role of being a “provider” in the life of their future, immediate, and extended family. In order to be a “provider” they realized that they would need to evaluate their commitments to their work over time to ensure financial security of the family and make adjustments as necessary to enable their wife to have the option to decrease work over time. For the young men, the future value for work was to contribute to family life and to fulfill their career aspirations.

Implications for Counselling

The form and structure of self-efficacy appraisals are interconnected to the individual’s sense of identity and consists of an integration of one’s goals, values, and beliefs that are formed over the course of one’s life span in relation to different life contexts. The numbers of contexts (peers, family, work, and school) that an individual takes into consideration, the ability to look at different contexts of one’s life realistically, and seeing interrelationships between contexts helps an individual solidify their orientation towards their career development and create present and future choice goals. The counsellor could help South Asian youth organize and integrate diverse perspectives of multiple life roles that they perceive for themselves across and within various domains. The function that exploring self-efficacy and identity serves South Asian youth would be to help youth translate their goals, values, and belief systems in various contexts (Cook, O’Brien & Heppner, 2004). A focus on self-efficacy appraisals of being able to negotiate interdependence- independence of family relationships and impact it has on their

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perception of educational and occupational opportunities provides the counsellor with important clues as to how contextual factors affect the career interests of South Asian young adults (Bandura, 2002). Exploring self-complexity may be an important intervention that would cultivate resilience and serve as a buffer of stress, or possibly serve as a marker of growth and adaptation to help foster well being (Rafaeli & Hiller, 2010).

Strengths, Limitations and Directions for Future Research

This study allows us a glimpse into the self-efficacy beliefs and thought process that South Asian young adults contend with when considering a career in science. The results suggest that shifting back and forth between different cultural frames of reference and value systems constitutes the lived reality of South Asian children of immigrants. Depending on one's class, gender, and ethnicity it can assume very different meanings in terms of how South Asian Canadians deal with the pressure of selecting from competing social norms in different contexts of their lives to inform career interests (Das Gupta, 1997; Handa, 2003; Hedge, 1998; Henze & Vanett, 1993; Friedman, 2008). Theoretically, the study expands on the construct of self-efficacy found within the SCCT, and confirms the notion that career choice is influenced by individual's perception of various social and familial contexts. Additionally, collective self-efficacy beliefs (Lindley, 2006), or shared confidence that exists within the family pertaining to the career development of each member, became an important influence on the career development of the participants. The results suggest that discussion of how social and familial contexts influence career choice need to be explored with South Asian young

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adults so that careers are not eliminated based on lack of information or stereotypes of particular fields. The strength of this study is that it provides knowledge of how South Asian young adults process and understand their present and anticipate their future career development. Furthermore, when considering the results of this study, relational support and use of role models emerged as an important facet considered by participants to inform their life-career planning. This study highlights the need for further inquiry regarding if role models solidify predetermined career plans or if they can also serve to prematurely foreclose consideration of career options. Due to the small sample size, the current study needs to be considered in light of some potential limitations. The sampling procedure produced a specific group of South Asian young adults who had strong levels of self-efficacy in the sciences. It is unknown if similar experiences are held by individuals who vary in their sense of self-efficacy appraisals and enrolled in the sciences. Notwithstanding these limitations, the present research represents a useful step toward enriching an emerging research area about how various contextual influences shape South Asian children of immigrants' career development.

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