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**RESEARCH ON OCCUPATIONAL ASPIRATIONS OF  
STUDENTS WITH HEARING IMPAIRMENT:  
A TEST OF SOCIAL COGNITIVE CAREER THEORY**

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## **Declaration of Originality**

**I, Yong Lei (Student number 80024896) declare that this dissertation entitled “research on occupational aspirations of students with hearing impairment: a test of social cognitive career theory” and submitted as partial requirement for Ph.D. postgradual study program of Special Education is my original work and that all the sources in any form (e.g. ideas, figures, texts, tables, etc.) that I have used or quoted have been indicated and acknowledged in the text as well as in the list of references.**

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**Signature**

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**Date**

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## TABLE OF CONTENTS

CHAPTER I INTRODUCTION .....	1
Introduction to the problem.....	1
Statement of the problem .....	8
Purpose of the study .....	9
Research questions and hypotheses.....	10
Significance of the study .....	11
Definition of Terms .....	13
Limitations .....	14
Organization of the Study .....	15
CHAPTER II LITERATURE REVIEW .....	17
Social Cognitive Theory (SCT).....	17
Self-efficacy .....	17
Outcome expectation.....	21
Summary .....	23
Holland’s theory of career choice.....	24
Summary .....	28
Gottfredson’s theory of circumscription and compromise .....	28
Summary .....	30
Social Cognitive Career Theory (SCCT) .....	31
Summary .....	35
Person factors and occupational aspiration .....	36
Gender and age.....	36
Barriers of hearing loss .....	39
Academic ability .....	41
Summary .....	42
Contextual factors and occupational aspiration .....	43
Family .....	43
School education .....	48
Attitudinal and environmental barriers .....	49
Summary .....	51
Occupational aspirations of adolescents with disabilities .....	52
Definitions of occupational aspiration .....	52
Definitions of occupational expectation.....	53
Definitions of work values .....	54
Studies on occupational aspirations of adolescents with disabilities .....	55
Summary .....	59
CHAPTER III METHODOLOGY .....	60
Research Questions and Hypotheses.....	60
Research Methodology.....	63

Sampling procedure .....	66
Instrumentation .....	67
Data Analysis .....	70
Pilot study .....	73
Summary .....	76
CHAPTER IV RESULTS .....	77
Descriptive Statistics.....	77
Results of research questions and hypotheses.....	82
Research question 1: Do students with hearing impairment have occupational aspirations? .....	82
Research question 2: What kinds of occupational aspirations do students with hearing impairment have?.....	83
Research question 3: Is there a difference of occupational aspirations of Czech and Chinese student? .....	85
Research question 4: Are there differences in factors which can contribute to the difference in the outcome of occupational aspirations ? .....	86
Research question 5: Are there significant correlations between variables and occupational aspirations? .....	90
Research question 6: Are there any variables serving as mediators between independent variables and occupational aspiration?.....	93
Summary .....	96
CHAPTER V DISCUSSION.....	98
Discussion of the results.....	98
The similar characteristics of occupational aspirations between Czech and Chinese students.....	98
Discrepancies in the outcome of occupational aspirations between Chinese and Czech group .....	101
Significant differences in factors which can contribute to the difference in the outcome of occupational aspirations.....	103
Intersection of occupational aspiration and SCCT.....	104
Correlations between independent variables and occupational aspirations.....	105
Implications.....	109
Limitations and future research.....	111
Conclusion .....	113
REFERENCES .....	115
APPENDIX A: QUEATIONNAIRE IN ENGLISH .....	134
APPENDIX B: QUEATIONNAIRE IN CZECH .....	138

## LIST OF TABLES AND FIGURES

Table 1 Research Questions, Hypotheses, Variables of Interest, Data Analysis.....	71
Table 2 Demographic Description of the Pilot Study Sample (N = 40).....	74
Table 3 Pilot Study Instrument Descriptive Statistics (N = 40) .....	75
Table 4 Pilot Study Instrument Reliability Coefficients (N = 40).....	75
Table 5 Demographic Description of Main Study Sample (N = 174).....	78
Table 6 Hearing-loss Related Information of Main Study Sample (N = 174).....	79
Table 7 Main Study Instrument Descriptive Statistics for Two Group (N = 174).....	81
Table 8 Main Study Instrument Reliability Coefficients (N = 40).....	81
Table 9 Descriptive Statistics of Occupational Aspirations .....	82
Table 10 Descriptive Statistics of Occupational Aspirations .....	83
Table 11 Frequencies for Occupational Aspirations.....	86
Table 12 Means and Standard Deviations of Three Scales Total Scores by Two Group.....	88
Table 13 Work Experience and Plan of Students with Hearing Impairment .....	88
Table 14 The Way of Seeking Work of Students with Hearing Impairment .....	89
Table 15 Correlation Analysis between Variables .....	91
Table 16 Regression Analyses .....	93
Figure 1 Mediating Model of CDSE-SF between POB and Occupational Aspiration .....	95
Figure 2 Mediating Model of CDSE-SF between PFS and Occupational Aspiration.....	96

# CHAPTER I

## INTRODUCTION

Teenagers' occupational aspirations are a critical ingredient for achievement in occupational outcomes and play an important role in the transition from school to employment. Despite an abundance of researches focus on analyzing adolescents' occupational aspirations, and examining these relationships among person factors (e.g. age, gender, academic ability, work experience, etc.), contextual factors (e.g. family support, social support, contextual barriers, etc.) and occupational aspirations; most of the studies are focusing on people without disabilities. Only an extremely limited number of studies involve people with disabilities, and no study pays attention to the occupational aspiration of students with hearing impairment, especially comparing the discrepancy of occupational aspirations between two different social cultural contexts. On the other hand, even though the SCCT model was widely applied to career interest, preference, goal, and choice, thus a lot of empirical studies in vocational psychology have been completed over the past two decades; however it has not been used to understand the development of occupational aspiration. Therefore, more studies are needed to explore the occupational aspiration of students with hearing impairment, in particular, between two different social cultural contexts.

### Introduction to the problem

The World Health Organization (WHO) estimated that about 10% of the world population encountered some physical or mental disability (WHO, 2005). Among the general population, the labor force participation rate for individuals with disabilities was disappointingly low, from 28% to 31%, compared to a rate of 79% among those without disabilities (National Organization on Disability, NOD, 1999). A research

found that as few as 8% of people with significant disabilities were employed, only a small percentage of them were actually employed (LaPlante et al., 1996). Among these employed people with disabilities, most of them were primarily employed in part-time and low-status jobs (Braddock and Bachelder, 1994). Many people with disabilities would like to work but cannot find congruent employment (NOD, 2004). Individuals with disabilities usually experienced less successfully than peers without disabilities in transition from school to employment (Rusch, 2008). Several factors that contribute to these negative transition outcomes include inadequate opportunities to explore careers and increase job related self-knowledge (Enright, Conyers, & Syzmanski, 1996); lack of awareness concerning how career self-efficacy impact career outcomes (Ochs & Roessler, 2004); societal attitudes and environmental barriers (Gray, 2002; DeCaro et al., 2001); lower self-esteem (Wagner et al., 2005); unaddressed familial and cultural expectations (Mpofu & Wilson, 2004); insufficient funding to support state vocational rehabilitation services (Lamb, 2007); and reduced familiarity with the exigencies of the workplace, impaired judgment about attainable career goals, and delayed or impaired career maturity (Rojewski, 1996).

Teenagers' occupational aspirations are a critical ingredient for achievement in occupational outcomes and play an important role in the transition from school to employment. Occupational aspirations express career-related goals or choices that provide important motivational momentum for career-related behaviors and future educational and career success (Rojewski, 2005). They are typically characterized as developing from wishful views of the future to mature evaluations considered in the context of abilities, interests, values and opportunities (Gottfredson, 2002). They can prompt or impede educational and career planning, guide learning, help organize life choices, and facilitate teenagers' preparation for adult life (Rojewski et al., 2012). High school is an important period when teenagers begin to make significant decisions about their future educational and career paths as well as to identify their aspirations. Therefore, it is imperative that these youth develop the self-efficacy and readiness to make adaptive career choice and set appropriate occupational aspirations.



Setting occupational aspirations is an important developmental task for adolescents. However, teenagers with hearing impairment may face numerous barriers when they consider the occupational aspirations (e.g. hearing loss, environmental barriers and societal attitudes, under-expectation from parents and teachers, inadequate career exploration experience, fewer working role models, and deficient vocational abilities, etc.). These barriers impact their outcome of occupational aspirations, which contribute to lower aspirations, even no aspirations. Some studies provided the evidences: the proportion of youngsters with disabilities who aspired to semiskilled and unskilled jobs was six times the proportion of non-disabled young people with those aspirations (Walker, 1982); teenagers with learning disabilities were more likely to be indecisive about future occupational alternatives (Rojewski, 1996); the occupational aspirations of adolescents with high-incidence disabilities were consistently lower in prestige than the aspirations of their peers without disabilities (Rojewski et al., 2012); approximately 60% of the deaf students were considered to be un aware of their vocational aptitudes and interests, while 61% were considered to be deficient in occupational knowledge (Schroedel, 1991, 1992).

Adolescents' career decision-making self-efficacy beliefs are key components in this decision-making process (Betz & Hackett, 1983; Luzzo, 1993a; Taylor & Popma, 1990). Nonetheless, many hearing impaired teenagers lack the self-efficacy to make career-related choice, and thus the career decision-making process is not actively pursued to a satisfying end. Bandura's (1977, 1986) concept of self-efficacy is "one of the most theoretically, heuristically, and practically useful concepts formulated in modern psychology" (Betz, Klein, & Taylor, 1996, p.47). Perceived self-efficacy refers to beliefs in one's capacities to organize and execute action required to manage prospective situations. These beliefs influence how people think, feel, motivate themselves (Bandura, 1994), and act. Bandura explained (1997, p.37): "Perceived self-efficacy is concerned not with the number of skills that you have, but with what you believe you can do with what you have under a variety of circumstances". Lent et al. (1994) underscored that "self-efficacy cannot be considered as a passive, static trait

but rather is seen as dynamic set of self-beliefs that are specific to particular performance domains and that interact complexly with other person, behavior, and contextual factors". According to Social Cognitive Theory, self-efficacy is achieved through one's personal motivation and through one's beliefs concerning his/her capability or competence in performing domain-specific tasks (Bandura, 1997; Betz & Hackett, 1983; Lent et al., 1994). Motivation and beliefs impact one's perceptions of his/her abilities together. A number of researches have suggested that greater self-efficacy in such domains as academic performance (Lent, Brown, & Larkin, 1986), and career interests and goal-setting (Bandura, et al., 2001) is related to increases in desired outcomes such as higher grades, greater career interests and increased goal-setting activity (Bandura et al., 2001; Lent et al., 1994; Smith & Fouad, 1999). As self-efficacy expectations, outcome expectations are not trait-like, but rather are dynamic and domain specific (Lent & Brown, 2006). Bandura (1986) suggested that outcome expectations are subject to environmental influences, which may be modified through cognitive and experiential techniques in counseling, and ultimately impact an individual's decision-making process. He also postulated that self-efficacy was distinct from outcome expectancies, or the expectations individuals have of the result of behavior. While self-efficacy is generally connected with an individual's view of his or her own capabilities, outcome expectations are focused on the perceived consequences of a particular action (Bandura, 1997). In other words, while self-efficacy is concerned with the question "Can I do this?" outcome expectations involve the question "If I do this, what will happen?" (Lent, Brown, & Hackett, 2000, p.38)

Developmentally, career decision-making self-efficacy is important concepts for understanding hearing impaired adolescents' occupational aspirations as well as assessing their progress toward achieving viable career choice goals. Bandura's (1986, 1997) social cognitive theory was applied to career development and formed a lot of empirical studies in vocational psychology over the past three decades. The first one who introduced the concept of self-efficacy to the study of vocational behavior was

Betz and Hackett (1981). Social Cognitive Career Theory (SCCT; Lent et al., 1994, 2000) was derived from Bandura's (1986) social cognitive theory and postulated that the dynamic relationships among social cognitive variables (e.g., self-efficacy, outcome expectations, goals) and their relationship with personal and environmental influences (e.g., gender, ethnicity, family, social supports) play an important role in developing vocational interests, making vocational choices, and achieving career success (Brown & Lent, 2005). SCCT is viewed as one of the most researched theories in vocational psychology and has received considerable empirical support for its propositions (Swanson & Gore, 2000; Lent & Brown, 2006). According to SCCT, one cognitive variable is crucial for career interests and goals. Prior studies supported self-efficacy as important contributor to the process of career development for youth (Lent & Brown, 2006; Swanson & Gore, 2000), and specifically link levels of self-efficacy related to career decision making to career-related behavior (e.g., "for social cognitive career theorists, self-efficacy is a critical factor that mediates whether interests, goals, and actions develop in a particular domain"; Gushue et al., 2006).

Career decision-making self-efficacy refers specifically to people's beliefs regarding their ability to successfully accomplish tasks related to the career decision-making process (Betz & Hackett, 1983). According to SCCT, Lent et al. (2000) expanded on Bandura's theory by considering a broader social-cognitive context in the development of individual interests. Moreover, contextual influences to career choice, such as barriers and supports have been identified within the SCCT model as they interact with cognitive variables to influence career development outcomes (Lent et al., 2000). In this way, SCCT considers the interaction of environmental variables, personal variables, self-efficacy, outcome expectations, performance attainments, choices, goals, and interests in a complex and dynamic fashion.

Social Cognitive Career Theory offers a comprehensive framework to understand the development of career interest, career choice, and performance that is grounded in self-efficacy theory. In the past decade, SCCT has yielded a large number of

researches, including some studies conducted with international samples (e.g., Arulmani et al., 2003; Hampton, 2005; Patton et al., 2004). Briefly, the SCCT models describe the process by which self-efficacy beliefs influence career interests, which in turn moderate career intentions. Intentions lead to activity selection, which ultimately leads to performance attainment. Furthermore, person inputs (e.g., gender, age) and background contextual factors (e.g., support systems, barriers) influence opportunities or experiences, which in turn influence self-efficacy, while contextual factors may also affect choice goals and actions.

Early social factors and personal preferences related to gender influence adolescent's career aspirations and choices (Lapan & Jingeleski, 1992; Stockard & McGee, 1990). The predominant finding was that boys aspire and expect to pursue male-dominated occupations and girls aspire and expect to pursue female-dominated occupations (e.g., Griffin & Holder, 1987; Sellers et al., 1999). In general, boys report more diverse occupational aspirations (Adams & Hicken, 1984; Franken, 1983; Vondracek & Kirchner, 1974). Some studies confirmed this finding, but only for certain ages (Miller & Stanford, 1987; Sandberg et al., 1991), some studies found no sex differences (Archer, 1984; Bobo et al., 1998; Trice & King, 1991), and still others found the opposite trend (Trice & Rush, 1995).

Academic ability also is an important factor in the development of occupational aspirations and expectations for the future. Many researchers have posited that educational aspirations and academic achievement are central to an understanding of career development and choice (Arbona, 2000; Mau & Bikos, 2000; Rojewski, 1999). In fact, Mau and Bikos (2000) declared that academic achievement was perhaps the single best predictor of occupational aspirations. However, the educational achievement and literacy levels of deaf and hard of hearing children have generally been reported as being considerably below those of their hearing peers (Power, 1998; Welsh, 1993).

Families have a critical impact on the successful transition from school to adult life for young adults with disabilities (Everson & Moon, 1987). In fact, parental

participation is considered to be one of the most important elements of transition programs (Sales et al., 1991; Schultz, 1986) that lead to positive outcomes for young adults with disabilities (Gardner et al., 1988). McNair and Rusch (1991) reported that, in the absence of special funding or special programs, parental involvement was the primary determinant of success in transition programs. Most theory and research regard the family as the primary context of vocational development. The families, and particularly parental figures, appear to be a much stronger influence on a child's vocational development than their peer network or the school (Schulenberg et al., 1984). Vondracek et al. (1986) considered family to be a crucial contextual variable influencing the development of adolescents and their careers. Family systems theory also emphasizes family rules and myths that serve to influence children's career decision-making and the values (Bratcher, 1982).

School education provides critical skills and opportunities for career development. In the absence of a supportive home environment, a positive school environment appears to be effective in offsetting the impact of a non-supportive family background (Gilbert et al., 1993). The study of Dryfoos (1995) demonstrated the powerful effect of school support in overcoming its lack in the family. It was those adolescents most in need who show the greatest potential to benefit from social support in schools (DuBois et al., 1994).

In SCCT, Lent et al. (2000) defined that barriers generally referred to negative contextual influences, with the understanding that contextual barriers were often functionally related to, yet conceptually distinct from, detrimental person factors (e.g., adverse learning conditions can diminish self-efficacy). Stereotypes were used in combination with category membership as a basis for generating expectancies about persons with disabilities (Higgins & Bargh, 1987). When categorized a person as an individual with disabilities, the derived expectancies about the concept from stereotype-based assumptions made about disabled people as a group. As a result of these expectations, the disabled person may encounter a number of treatment-related problems, including a decreased likelihood of occupational expectation. In a review of

disability discrimination in education, Gray (2002) reported that stereotyping of some young disabled people by teachers remained a problem, as did under-expectation of their academic abilities. Disability also interacts with other forms of disadvantage (Lakey et al., 2001). The Black and disabled young people interviewed by Bignall and Butt (2000), who had similar aspirations to their non-disabled counterparts but had in some cases experienced double discrimination in pursuing their goals, on account of their ethnicity and disability.

### Statement of the problem

Teenagers' occupational aspirations are a critical ingredient for achievement in occupational outcomes and play an important role in the transition from school to employment. However, teenagers with hearing impairment may face numerous barriers when they consider the occupational aspirations. These barriers impact their outcome of occupational aspirations, which contribute to lower aspirations, even no aspirations. Despite an abundance of researches focus on analyzing adolescents' occupational aspirations, and examining these relationships among person factors (e.g. age, gender, academic ability, work experience, etc.), contextual factors (e.g. family support, social support, contextual barriers, etc.) and occupational aspirations; most of the studies are focusing on people without disabilities. Only an extremely limited number of studies involve people with disabilities, and no study pays attention to the occupational aspiration of students with hearing impairment, especially comparing the discrepancy of occupational aspirations between two different social cultural contexts. On the other hand, even though the SCCT model was widely applied to career interest, preference, goal, and choice, thus a lot of empirical studies in vocational psychology have been completed over the past two decades; however it has not been used to understand the development of occupational aspiration. At a theoretical level, Lent, Brown, and Hackett (1994) proposed key roles for career-related self-efficacy in determining aspirations; however, few studies have directly tested this relationship. Therefore, more studies are needed to explore the occupational aspiration of students

with hearing impairment, in particular between two different social cultural contexts. Do students with hearing impairment have occupational aspirations? What kinds of occupational aspirations do students with hearing impairment have? Are there any significant differences of occupational aspirations between two different social contexts? The SCCT model has been widely applied to career interest, preference, goal, and choice. Does it also apply to a theoretical framework for occupational aspiration? The present study is supposed to generate new insights that the SCCT model can be used to examine these relationships among occupational aspirations of students with hearing impairment, person and contextual factors that interact with career decision-making self-efficacy from two different social contexts, Czech and China.

### Purpose of the study

This study focuses on the population of students with hearing impairment. The purpose of this survey study is to compare the discrepancies of occupational aspirations between Czech and Chinese students, and to examine the relationships among occupational aspirations, person factors and contextual factors that interact with career decision-making self-efficacy from two different social contexts, Czech and China, based on the SCCT model. A non-experimental, survey design was employed to explore these relationships: person factors (age, gender, hearing loss, work experience, academic achievement, work plan) and occupational aspirations; perceived family support and occupational aspirations; perception of barriers and occupational aspirations; career decision-making self-efficacy and occupational aspirations. The following aims guided this study:

- (1) Recognizing the overall situation of occupational aspirations of students with hearing impairment from China and Czech.
- (2) Comparing the similarities and differences of occupational aspirations between Chinese group and Czech group.
- (3) Analyzing the discrepancies of occupational aspirations between two groups of

students based on Holland's theory of vocational choice, Gottfredson's theory of circumscription and compromise.

(4) Examining these relationships: person factors (age, gender, hearing loss, work experience, academic achievement, work plan) and occupational aspirations; perceived family support and occupational aspirations; perception of barriers and occupational aspirations; career decision-making self-efficacy and occupational aspirations.

(5) Examining the mediator effect of self-efficacy between perceived family support and occupational aspirations.

(6) Examining the mediator effect of self-efficacy between perception of barriers and occupational aspirations.

(7) Proposing some recommendations to relevant person.

## Research questions and hypotheses

The following research questions are raised this study:

1. Do students with hearing impairment have occupational aspirations?
2. What occupational aspirations do students with hearing impairment have?
3. Are there any significant differences of occupational aspirations between Czech and Chinese students?
4. Are there differences in variables which can contribute to the outcome of occupational aspirations ?
5. Are there significant correlations between variables and occupational aspirations?
6. Are there any variables serving as mediators between independent variables and occupational aspiration?

These questions served as precursors to the following hypotheses:

H<sub>1</sub>: There will be a significant difference in the occupational aspirations of students with hearing impairment between Czech and Chinese group.



H<sub>2A</sub>: There will be significant differences in the total scores of three scales (CDSE-SF, POB and PSF) of students with hearing impairment between Czech and Chinese group.

H<sub>2B</sub>: There will be a significant difference in the work experience of students with hearing impairment between Czech and Chinese group.

H<sub>2C</sub>: There will be a significant difference in the work plan of students with hearing impairment between Czech and Chinese group.

H<sub>2D</sub>: There is a significant difference in the way of job-hunting of students with hearing impairment between Czech and Chinese group.

H<sub>3A</sub>: There will be a positive correlation between career decision-making self-efficacy and occupational aspirations.

H<sub>3B</sub>: There will be a negative correlation between perception of barriers and occupational aspirations.

H<sub>3C</sub>: There will be a positive correlation between perceived family support and occupational aspirations.

H<sub>3D</sub>: There will be a positive correlation between academic achievement and occupational aspirations.

H<sub>3E</sub>: There will be a positive correlation between gender and occupational aspirations.

H<sub>4A</sub>: Career decision-making self-efficacy will be mediator between perception of barriers and occupational aspirations.

H<sub>4B</sub>: Career decision-making self-efficacy will be mediator between perceived family support and occupational aspirations.

### Significance of the study

Teenagers' occupational aspirations are a critical ingredient for achievement in occupational outcomes and play an important role in the transition from school to employment. They can prompt or impede educational and career planning, guide

learning, help organize life choices, and facilitate teenagers' preparation for adult life (Rojewski et al., 2012). High school is an important period when teenagers begin to make significant decisions about their future educational and career paths as well as to identify their aspirations. Therefore, it is imperative that these youth develop the self-efficacy and readiness to make adaptive career choice and set appropriate occupational aspirations. Setting occupational aspirations is an important developmental task for adolescents. Adolescents need to develop an extended future orientation in which they are able to think, dream, and plan for their futures (Blakemore & Choudhury, 2006). Cantor (1990) has proposed that as adolescents transition into adulthood, they become more focused on their desires and aspirations for the future and show increased selectivity in goal-directed behavior. During this period, adolescents also engage in exploratory behaviors that may aid in elaborating their sense of identity, providing information about the self that affects future plans (Eccles et al., 2003).

Occupational aspirations express career-related goals or choices that provide important motivational momentum for career-related behaviors and future educational and career success (Rojewski, 2005). However, teenagers with hearing impairment may face numerous barriers when they consider the occupational aspirations (e.g. hearing loss, environmental barriers and societal attitudes, under-expectation from parents and teachers, inadequate career exploration experience, fewer working role models, and deficient vocational abilities, etc.). These barriers impact their outcome of occupational aspirations, which may contribute to lower aspirations, even no aspirations. Nonetheless, no studies pay attention to occupational aspiration of students with hearing impairment. Hence, exploring what and how occupational aspiration students with hearing impairment have is necessary.

Adolescents' career decision-making self-efficacy beliefs are key components in this decision-making process (Betz & Hackett, 1983; Luzzo, 1993a; Taylor & Popma, 1990). Career decision-making self-efficacy refers specifically to people's beliefs regarding their ability to successfully accomplish tasks related to the career

decision-making process (Betz & Hackett, 1983). The beliefs of career decision-making self-efficacy are important concepts for understanding hearing impaired adolescents' occupational aspirations as well as assessing their progress toward achieving viable career choice goals. However, many hearing impaired teenagers lack the self-efficacy to make career-related choice, and thus the career decision process is not actively pursued to a satisfying end. SCCT offers a comprehensive framework to understand the development of career interest, career choice, and performance that is grounded in self-efficacy theory. The present study yielded new insights that the SCCT model was used to examine these relationships among occupational aspirations of teenagers with hearing impairment, person factors, and contextual factors that interact with career decision-making self-efficacy from two different social contexts, Czech and China.

### Definition of Terms

The following terms were used operationally in this study:

*Occupational aspiration*: Expresses career-related goals or choices that provide important motivational momentum for career-related behaviors and future educational and career success (Rojewski, 2005).

*Hearing impairment*: A broad term used to describe the loss of hearing in one or both ears. There are different levels of hearing impairment. The level of impairment can be mild, moderate and severe or profound. Hard of hearing is a broad category that includes people with mild to moderate hearing losses. Deafness refers to the complete loss of ability to hear from one or both ears (WHO, 2006).

*Self-efficacy*: Beliefs in one's capacities to organize and execute action required to manage prospective situations (Bandura, 1995).

*Career decision-making self-efficacy*: Specifically refers to people's beliefs regarding their ability to successfully accomplish tasks related to the career decision-making process (Betz & Hackett, 1983).

*Outcome expectation*: An individual's judgment of the likely consequence of a behavior, and is postulated as helping to determine one's choice of activities and environments, as well as one's effort expenditure, persistence, thought patterns, and emotional reactions when confronted by obstacles (Bandura, 1986).

*Social Cognitive Career Theory (SCCT)*: A theoretical framework, developed by Lent et al. (1994) which provides a theoretical model that links self-efficacy, outcome expectation, and occupational aspiration, all of which are postulated to be influenced by person and contextual factors.

*Circumscription and Compromise*: Circumscription is the process by which individuals limit their occupational aspirations to a zone of acceptable alternatives. Compromise is the process by which individuals exchange their aspirations for more realistic occupational choices from within the zone of acceptable alternatives (Gottfredson, 1996).

## Limitations

The first limitation is the unbalanced sample used in the analysis. All the 174 participants in the final analysis, only 67 (only 20 female students) are from Czech. The small sample size in the Czech group cannot provide much variance in the final measure.

The second limitation is language barrier. There exists an obvious challenge that how to assure the translation and analysis adapt the cultural context when translate English into Czech, because this researcher do not know Czech.

The second limitation is language barrier. There exists an obvious challenge that accuracy of translation and analysis adapted the cultural context when assistor translates English into Czech, because this researcher does not know Czech.

The fourth limitation is as any non-experimental study, it cannot establish causality between any of the variables.

The fifth limitation is that the questionnaire package might take long time

because it includes 57 items (25 in CDSE-SF, 13 in POB, 5 in PSF, 10 in demographic form, and 4 open-ended questions).

Finally, a related limitation may be linked to the differential reading abilities of the current sample. Similarly, while every effort was made to ensure that the measurements chosen were appropriate in terms of the estimated reading levels of the members of the current sample, some participants may have had difficulty comprehending all of the survey questions.

### Organization of the Study

This study is organized into five chapters. Chapter 1 offers a brief introduction to the literature and problem on the need for research on occupational aspirations of students with hearing impairment. The statement of the problem, purpose of the study, research questions and hypotheses, significance of the study, definition of terms, and organization of the study are also described.

Chapter 2 provides a complete review of related literature. The chapter starts with an introduction of theoretical basement including Bandura's (1977, 1986, 1994) social cognitive theory; Gottfredson's (1981) theory of circumscription and compromise; Holland's (1985) theory of vocational choice. In addition to describing SSCT, the theoretical framework that connects occupational aspiration, this chapter defines, reviews, and discusses the influence of relevant variables on occupational aspiration including gender and age, academic ability, barriers regarding hearing loss, family, school, and attitudinal and environmental barriers. Subsequently, the definitions of occupational aspiration and relevant terms are discussed. In addition, a review of occupational aspirations of adolescents with disabilities is conducted.

Chapter 3 presents the methodology employed in this study. Methods of determining the sample size and characteristics of the sample are reviewed. The study design is presented, and each of the questions and hypotheses is discussed along with the appropriate statistical analysis used to test each questions and hypothesis. Survey instrument development, data collection procedures, and data analysis techniques are

discussed. A pilot study is conducted to examine the readability and reliability for instruments used in this study, and to identify any issues with items written on the Occupational Aspirations Questionnaire.

Chapter 4 presents the results of the study and provides a detailed analysis of the data collected. This chapter includes the overall findings of this study.

Finally, Chapter 5 discusses the findings from the study, presents implications of the study and recommendations for practice, and indicates limitations of the study and suggestions for future research. This chapter also draws the conclusion.

## CHAPTER II

### LITERATURE REVIEW

This chapter provides a complete review of related literature. The chapter starts with an introduction of theoretical framework including Bandura's social cognitive theory; Gottfredson's theory of circumscription and compromise; Holland's theory of vocational choice. In addition to describing SSCT, the theoretical framework that connects occupational aspirations, this chapter individually reviews, and discusses the influence of relevant variables on occupational aspiration including gender and age, academic ability, barriers regarding hearing loss, family, school, and attitudinal and environmental barriers. Subsequently, definitions of occupational aspiration and relevant terms are discussed. In addition, a review of occupational aspirations of adolescents with disabilities was conducted.

#### Social Cognitive Theory (SCT)

Social Cognitive Theory provides a crucial framework for understanding how cognitive and environmental factors affect human learning. SCT provides a framework essential to understanding the particular cognitive processes governing human behavior, in which two key terms (self-efficacy and outcome expectation) exert important effect on the occupational aspirations.

#### *Self-efficacy*

Bandura's (1977, 1986) concept of self-efficacy is "one of the most theoretically, heuristically, and practically useful concepts formulated in modern psychology" (Betz, Klein, & Taylor, 1996, p.47). Perceived self-efficacy refers to beliefs in one's capacities to organize and execute action required to manage prospective situations.

These beliefs influenced how people think, feel, motivate themselves (Bandura, 1994), and act. Bandura explained (1997, p.37): “Perceived self-efficacy is concerned not with the number of skills that you have, but with what you believe you can do with what you have under a variety of circumstances”. The definition of self-efficacy was adjusted by Bandura over time.

1. Self-efficacy refers to beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments. (1977, p. 3)
2. Self-efficacy is defined as people’s judgments of their capabilities to organize and execute courses of action required to attain designated types of performances. (1986, p. 391)
3. Self-efficacy is defined as people’s beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. (1994, p. 71)

Lent (2005) defined self-efficacy as “a dynamic set of beliefs that are linked to particular performance domains and activities”. Lent et al. (1994) underscored that “self-efficacy cannot be considered as a passive, static trait but rather is seen as dynamic set of self-beliefs that are specific to particular performance domains and that interact complexly with other person, behavior, and contextual factors”. According to SCT, self-efficacy is achieved through one’s personal motivation and through one’s beliefs concerning his/her capability or competence in performing domain-specific tasks (Bandura, 1997; Betz & Hackett, 1983; Lent et al., 1994). Motivation and beliefs together impact one’s perceptions of his/her abilities. A number of researches have suggested that greater self-efficacy in such domains as academic performance (Lent, Brown, & Larkin, 1986), interests in academic subjects, including math, English, and science (Smith & Fouad, 1999), and career interests and goal-setting (Bandura et al., 2001) is related to increases in desired outcomes such as higher grades, greater interests in core academic subjects, and greater career interests and increased goal-setting activity (Bandura et al., 2001; Lent et al., 1994, Smith & Fouad, 1999).



According to SCT, people's beliefs concerning their efficacy can be influenced by four main factors: a) performance accomplishments/mastery experiences; b) vicarious learning and modeling/vicarious experiences; c) verbal persuasion/social persuasion; and d) lower levels of emotional arousal/physiological and emotional states (Bandura, 1977; 1995). Betz and Hackett (2006) proposed that self-efficacy is influenced by four factors: a) performance accomplishments, namely the direct experience of success at performing the behavior; b) vicarious experiences, namely observing others do the behavior; c) verbal persuasion, namely other's encouragement; and d) physiological responses, namely arousal or emotional responses. Lent and Brown (2006) developed Bandura's theory and outlined several ways in which the operation of self-efficacy beliefs were: a) content or task-specific self-efficacy, that is appraisals of the ability to execute a given task; b) coping efficacy, that is appraisals of the ability to overcome or address obstacles; c) process efficacy, that is appraisals of the ability to manage a series or progression of tasks required to complete a given process; and (d) self-regulatory efficacy, that is appraisals of the ability to persist in growth-oriented behaviors in the face of negative circumstances.

In terms of Bandura's (1995) theory, the most effective way of creating a strong sense of efficacy is through mastery experience. Therefore successes build a robust belief in one's personal efficacy. A second influential way of developing self-efficacy is through vicarious learning, provided by social models. Seeing people similar to themselves succeed by perseverant effort raises observers' beliefs that they, too, possess the capacities to master comparable activities (Bandura, 1986; 1995). Bandura (1995) asserted that the impact of modeling on self-efficacy beliefs is strongly influenced by perceived similarity to the models. The greater the assumed similarity, the more persuasive are the models' successes and failures. Bandura noted that observing others demonstrating perseverant attitudes (e.g., when they persist and cope with specific, identified obstacles) can be more beneficial to the development of self-efficacy beliefs than observing others demonstrating particular skills. This does not negate, however, that among adolescents, role models tend to be those in their

environments with whom they have social bonds, such as peers or parents, and that role models are not consciously sought out (Conkel Ziebell, 2010). A third way of strengthening self-efficacy is social persuasion. To the extent that persuasive boosts in perceived self-efficacy lead people to try hard enough to succeed, self-affirming beliefs promote development of skills and a sense of personal efficacy (Bandura, 1995). However, just as positive persuasion may empower others; negative persuasion can serve to weaken self-efficacy beliefs (Conkel Ziebell, 2010). People also develop efficacy beliefs, in part, through physiological and emotional states (Bandura, 1995). For instance, stress reactions, tension, anxiety, or physical symptoms such as fatigue aches, are often interpreted as signs of poor performance (Ewart, 1992). In addition, mood also affects perceived judgments of self-efficacy. Positive mood can enhance perceived self-efficacy; negative mood can reduce perceived self-efficacy (Kavanagh & Bower, 1985). Although each of the above processes serves to influence the development of self-efficacy can best be predicted not by self-efficacy beliefs alone, but by the combined effects of self-efficacy, outcome expectations, and personal goals (Bandura, 1997).

In accordance with SCT, efficacy beliefs regulate human functioning through four major processes: cognitive, motivational, affective, and selection (Bandura, 1995). These processes operate in concert, rather than in isolation, in the ongoing regulation of human functioning (Bandura, 1995). Cognitive processes involve: personal goal setting is influenced by self-appraisal of capacities. Bandura (1997) mentions that self-efficacy beliefs strongly influence the types of scenarios that people entertain: “Indeed, when people are faced with the tasks of managing difficult environmental demands under taxing circumstances, those who are beset by self-doubts about their efficacy become more and more erratic in their analytic thinking, lower their aspirations and the quality of their performance deteriorates”. The stronger the perceived self-efficacy, the higher the goal challenges people set for themselves, and the firmer is their commitment to them (Locke & Latham, 1990). Motivational processes involve forming beliefs about what one can do, anticipating

likely outcomes of prospective actions, and setting goals and planning courses of actions to realize valued futures. Bandura (1997, p. 75) notes that outcome expectancies are also partly regulated by beliefs of self-efficacy. He mentions, “People act on their belief about what they can do, as well as on their beliefs about the likely outcomes of performance”. Affective processes involve people’s ability to cope with anxiety, stress, depression, etc. that they experience in threatening and difficult situations. Selection processes focus on people’s ability to select environments that cultivate certain potentials and life-styles, while avoiding activities and environments that they believe exceed their coping capacities. When cognitive, motivational, affective, and selection processes are positive, a stronger sense of efficacy is more likely to persist in the face of perceived and actual barriers than those with weaker efficacy beliefs (Bandura, 1995).

#### *Outcome expectation*

In terms of SCT, Bandura (1997) suggested that people may have high self-efficacy, but these self-efficacy beliefs are mediated by outcome expectations, which determine whether people attempt a given behavior, the amount of effort one will put toward a given behavior or goal, and how long one will persist in the face of obstacles. Bandura (1986) defined an outcome expectation as an individual’s judgment of the likely consequence of a behavior. Outcome expectations are the results or desired outcomes of intentional actions in which individuals choose to engage (Bandura, 2001). Bandura (1986) stated that outcome expectations are derived from observing situations and events in the individual’s environment as well as actual outcomes resulting from actions the individual has taken. It seems that individuals learn from and are motivated by outcomes expected of certain actions. Bandura noted that the more value or importance an individual placed on the outcome expectation, the greater the likelihood the individual would engage in the behavior (Bandura, 1977).

Like self-efficacy expectations, outcome expectations are not trait-like, but rather

are dynamic and domain specific (Lent & Brown, 2006). Bandura (1986) maintained that it is important to make a distinction between the consequence of the action and the action itself, noting that individuals make choices based on their beliefs about possible outcomes. Bandura linked outcome expectations to beliefs about self-efficacy, arguing that individuals perceive outcomes to be positively correlated with the individuals' assessments of their abilities to perform in specific arenas. Bandura (1986) suggested that "outcome expectations are subject to environmental influences, may be modified through cognitive and experiential techniques in counseling, and ultimately impact an individual's decision-making process". He also postulated that self-efficacy is distinct from outcome expectancies, or the expectations individuals have of the result of behavior. While self-efficacy is generally concerned with an individual's view of his or her own capabilities, outcome expectations are focused on the perceived consequences of a particular action (Bandura, 1997). In other words, while self-efficacy is concerned with the question "Can I do this?" outcome expectations involve the question "If I do this, what will happen?" (Lent, Brown, & Hackett, 2000, p.38)

Bandura (1997) described three forms of outcome expectations, noting that positive outcomes in each area may be incentives whereas negative outcomes may be disincentives to continue that behavior. The first form includes physical outcomes that follow behavior, including the pleasant physical sensations that follow, or pain and physical discomfort that accompany a crash while skiing. Social reactions are the second form of outcomes expected from behavior. Positive social reactions include approval, recognition, monetary reward, and power; negative social reactions include disapproval, feeling shamed, social rejection and being deprived of privileges or having penalties imposed. The third form of outcomes is self-evaluations, both positive and negative, that accompany actions. Self-evaluation may take the form of self-satisfaction (e.g., "I did well!") or self-criticism (e.g., "I can't believe I screwed that up!"). Bandura (1977, 1986) suggested that our notions of outcomes come from a number of sources. One source is through symbolically thinking about what could

happen given a course of action, such as might happen when an individual is approached with a choice to spend time with family or friends. The individual uses symbolic thinking to imagine possible consequences and adjust his or her behavior accordingly (Bandura, 1977). A second source is through vicarious experiences and modeling behaviors that produce valued outcomes, for example, watching another individual receive praise for completing a task. A third source is by the actual incentive value of the outcome or consequence (positive or negative) of the action (i.e., putting effort into a job where one is well compensated and recognized for one's efforts, as opposed to putting effort into a job where the compensation is poor and there is little recognition; Bandura, 1977). Relative to the construct of self-efficacy, Fouad and Gillen (2006) conceptualized outcome expectations in terms of if - then statements (i.e., if one engages in a particular task, then one can expect particular results).

Throughout the description of SCT, Bandura emphasized the transactional relationships among a) internal, personal factors, b) behaviors, and c) environmental factors through the triadic reciprocal model. According to Bandura (1997), the triadic reciprocal model was defined as a bi-directional model which posited that personal characteristics (e.g., cognitive processes, emotions), contextual variables, and behaviors interact and jointly impacted one's perceived self-efficacy. In accordance with SCT, these elements influence each other in a reciprocal manner, where given variables may have different weights at different times (Lent et al., 1994). Therefore, according to SCT, behavior can be predicted by one's perceived self-efficacy, rather than solely from actual accomplishments (1997).

### *Summary*

Bandura's theory underscores the importance of personal, contextual, and environmental factors in understanding adolescents' perceptions regarding their abilities and confidence to perform the actions necessary in making specific career decisions. Prior studies suggested that SCT was predictive of career development

trajectories and career choice goals in adolescents (Bandura, 1997; Lent et al., 1986). Aspirations are viewed as a complex of attitudes, centered on an affectively regarded goal (Merton, 1949). Occupational aspirations are expressed career-related goals or choices that provide important motivational momentum for career-related behaviors and future educational and career success (Rojewski, 2005). Therefore self-efficacy and outcome expectation may play an important mediator role between the person and contextual variables, and occupational aspirations.

### Holland's theory of career choice

In the past several decades, the theory by Holland (1985, 1997) has guided career interest assessment in the world. The theory by Holland offers a general description of six personality types and corresponding environments to an empirical framework consisting of three components: persons, their environments, and the interactions between persons and their environments (Holland, 1997). Holland postulated that vocational interest is an expression of one's personality, and that vocational interests could be conceptualized into six typologies, which are Realistic (R), Investigative (I), Artistic (A), Social (S), Enterprising (E), and Conventional (C). If a person's degree of resemblance to the six vocational personality and interest types could be assessed, then it is possible to generate a three-letter code (e.g., RIA, RIS, ASC) to denote and summarize one's career interest. The first letter of the code is a person's primary interest type, which would likely play a major role in career choice. The second and third letters are secondary interest themes, and they would likely play a lesser but still significant role in the career choice process.

Realistic types prefer activities that involve manipulating machines and tools. They tend to dislike educational and social activities. Realistic types also value material rewards and perceive themselves to be practical, conservative, and persistent. They avoid activities involving persuasion and sales. Investigative-type individuals value the acquisition of knowledge and scholarly achievements, and they perceive

themselves to be critical, intelligent, and skeptical, but lacking interpersonal skills. Artistic types prefer literary, musical, and artistic activities. They tend to avoid activities requiring them to conform to established rules. Artistic types value aesthetic qualities and creativity. They see themselves as innovative, open, sensitive, and emotional. They also see themselves as lacking clerical and office skills. Artistic types are frequently perceived by others as creative, disorganized, and unconventional. Social types prefer helping others through personal interaction, and they tend to avoid mechanical and technical tasks. They value social service and helping others. Social types see themselves as empathetic, helpful, and understanding, but not mechanically inclined. They are seen by others as agreeable, nurturing, and extroverted. Enterprising individuals prefer to persuade and direct others to attain organizational and personal goals. They avoid scientific and intellectual topics. Enterprising types value political and economic achievements, and they see themselves as self-confident, sociable, and possessing leadership ability. They are seen by others as energetic and outgoing. Individuals who are Conventional types prefer to attain organizational and personal goals by establishing and maintaining orderly routines. They avoid ambiguous or unstructured activities. They value material or financial accomplishments and see themselves as conforming, orderly, and methodical. Others see them as careful and conforming.

Parallel to the classification of vocational interest types, Holland (1985, 1997) postulated that vocational environments could be arranged into similar typologies. Realistic environments are characterized by concrete, practical activities involving machines and tools. The environment rewards members who accumulate money, power, and tangible possessions. In contrast, Investigative environments are characterized by analytical and intellectual activities, and members are rewarded for displaying skepticism, persistence, and problem solving. Artistic environments are characterized by creativity and a lack of structure. Members are rewarded for artistic, literary, and musical accomplishments. Social environments are characterized by working with others and reward individuals for sociability and humanitarianism.

Enterprising environments are focused on leadership that is oriented toward attaining personal and organizational goals. Members are rewarded for displays of leadership and self-confidence. Conventional environments emphasize attaining personal and organizational goals through predictable and specific standards. These environments reward members for conformity and dependability. In the career choice and development process, people search for environments that would allow them to exercise their skills and abilities, and to express their attitudes and values. In any given vocational environment, there is a tendency to shape its composition so that its characteristics are like the dominant persons in there, and those who are dissimilar to the dominant types are likely to feel unfulfilled and dissatisfied.

The concept of “congruence” is used by Holland to denote the status of person-environment interaction. A high degree of match between a person’s personality and interest types and the dominant work environmental types (that is, high degree of congruence) is likely to result in vocational satisfaction and stability, and a low degree of match (that is, low congruence) is likely to result in vocational dissatisfaction and instability.

The six Holland interest typologies are arranged in a hexagon in the order of RIASEC and the relationship between the types in terms of similarities and differences are portrayed by the distance between corresponding types in the hexagon. The concept of consistency is used as “a measure of the internal harmony or coherence of an individual’s type scores” (Spokane & Cruza-Guet, 2005, p.24). Accordingly, types that are linked to each other in the hexagon have the highest degree of similarity in terms of their personality characteristics and vocational orientations, types that are opposite in the hexagon have the least degree of similarity, and types that are separated by one interval have a moderate degree of similarity. A simple way to determine the consistency of an interest code is to look at the distance between the first two letters of the code in the Holland hexagon.

In addition to congruence and consistency, another major concept in Holland’s theory is differentiation. Differentiation refers to whether high interest and low



interest types are clearly distinguishable in a person's interest profile. An interest profile that is low in differentiation resembles a relatively flat line in which high and low interest types are not distinctive. In contrast, a differentiated interest profile has clearly high and low scores, suggesting that the crystallization of interest might have occurred, and readiness for career choice specification and implementation.

Holland's theory has an enormous impact on career interest assessment and research (Spokane, Meir, & Catalano, 2000). In past 40 years since Holland's theory was proposed, an abundance of research studies have been conducted to examine Holland's propositions and the validity of interest instruments that were based on his theory, including some studies using international samples. A major area of investigation among cross-cultural studies was whether Holland's proposed structure of vocational interests was valid across cultures (e.g., Rounds & Tracey, 1996). For example, Tak (2004) administered the strong interest inventory to Korean college students, and findings from multi-dimensional scaling and test of randomization suggested a good fit with Holland's circular model of interest, even though the shape of interest arrangement was not clearly hexagonal. In another study by Sverko and Babarovic (2006), a Croatian version of Holland's Self-Directed Search (SDS) was conducted to 15–19 years old Croatian adolescents. The general findings using randomization tests and factor-analytic techniques were supportive of Holland's circular model, despite the degree of fit was higher for older age groups. However, findings from some other international studies suggested that the six interest types tended to cluster in forms that reflect idiosyncratic cultural values and occupational/educational perceptions within a cultural context (e.g., Law et al., 2001; Leung & Hou, 2005). For example, Leung and Hou (2005) administered the SDS to Chinese high school students in Hong Kong and findings from exploratory and confirmatory factor analyses suggested that there were six first-order factors clustered into three groups, which were RI, AS, and SEC. Leung and Hou (2005) suggested that the clustering might reflect characteristics of high school curriculum in Hong Kong, as well as the centrality of social relationships in Chinese culture. In summary, there

was mixed support for Holland's structure of vocational interests across cultures. The clustering of the types was affected by specific cultural values and perceptions.

### *Summary*

Holland's theory of occupational choice has been widely implied in the world. Holland's theory provides a theoretical base and an analytical approach to this study. Occupational aspirations may be evaluated via one question "What kind of job would you like to have when you finish your education". Responses can be classified according to Holland's (1997) RIASEC coding system, which has been tested in China and found to be consistent with the structure identified in the West (Long, Adams, & Tracey, 2004), and be assessed on level of occupational prestige, via the Dictionary of Holland Occupational Codes (Gottfredson & Holland, 1996).

### Gottfredson's theory of circumscription and compromise

Gottfredson (1981, 1996, and 2002) assumes that career choice is a process requiring a high level of cognitive proficiency. Gottfredson (1981, 1996) outlines two processes in the development of occupational aspirations: circumscription and compromise. Circumscription is the process by which individuals limit their occupational aspirations to a zone of acceptable alternatives. Compromise is the process by which individuals exchange their aspirations for more realistic occupational choices from within the zone of acceptable alternatives. Two types of compromise are identified by Gottfredson (1996): anticipatory and experiential. Anticipatory compromises are made when an individual perceives that a most desired occupation is not an accessible or realistic choice. In comparison, experiential compromises occur when an individual modifies aspirations in response to experiences obtained when attempting to gain employment. Since anticipatory compromises are responses to perceptions of inaccessibility, not actual experiences in the labor market, they can occur earlier in the developmental process. Anticipatory

compromises made by adolescents are of potential concern for teachers and counselors because unnecessary or excessive compromises may restrict the range of future options considered by an individual (Gottfredson, 1996).

In recent revisions of her theory, Gottfredson's (2002, 2005) elaborated on the dynamic interplay between genetic makeup and the environment. Genetic characteristics play a crucial role in shaping the basic characteristics of a person, such as interests, skills, and values, while their expression is moderated by the environment that one is exposed to. Despite genetic makeup and environment play a crucial role in shaping the person, Gottfredson insists that the person is still an active agent who could influence or mould their own environment. Hence, career development is viewed as a self-creation process in which individuals looked for avenues or niches to express their genetic proclivities within the boundaries of their own cultural environment.

Compared to the established notion that choice is a process of selection, Gottfredson's (1981, 1996, and 2002) theorized that career choice and development could be viewed as a process of elimination or circumscription in which a person progressively eliminates certain occupational alternatives from further consideration. Circumscription is guided by salient aspects of self-concept emerging at different developmental stages. Gottfredson indicated that the career aspirations of children were influenced more by the public (e.g., gender, social class) than private aspects of their self-concept (e.g., skills, interests). A developmental model was proposed consisting of four stages of circumscription. The first stage is "orientation to size and power", and the child perceives occupations as roles taken up by adults. The second stage is "orientation to sex-roles", and in this stage sex-role norms and attitudes emerge as defining aspect of a child's self-concept. The child evaluates occupations according to whether they are appropriate to one's sex, and eliminates from further consideration alternatives that are perceived to be gender inappropriate (i.e., the wrong sex-type). The third stage is "orientation to social valuation" as social class and status become salient to a child's developing self-concept. Accordingly, the emerging

adolescent eliminates from further consideration occupations that are too low (e.g., occupations with unacceptable prestige levels) or too high (e.g., high prestige occupations beyond one's efficacy level) in prestige. The fourth stage is "orientation to the internal, unique self", in which internal and private aspects of the adolescent's self-concept, such as personality, interests, skills, and values, become prominent. The young adolescent considers occupations from the remaining pool of acceptable occupations according to their suitability or degree of match with one's internal self.

Compromise is another career development process. In accordance with external realities and constraints such as changes in the structure of the labor market, economic depression, unfair hiring practices, and family obligations, individuals have to accommodate their occupational preferences so that their eventual choices are achievable in the real world. Compromise is a complex process in which compatibility with one's interest is often compromised first so as to maintain a greater degree of correspondence with one's preference for prestige and sex-type. Research into the compromise process has focused mostly on which aspects of occupational aspirations an individual will compromise to maintain a desired level of another aspect. Most of this research involves simulations of the compromise process (Gottfredson, 1996). In a simulated compromise participants are asked to rank or pick occupations from lists (Hesketh, Durant, & Pryor, 1990; Holt, 1989; Leung, 1993; Leung & Plake, 1990; Taylor & Pryor, 1985). Results obtained in these studies have not consistently supported the relative importance of different aspects in the compromise process outlined by Gottfredson (1981). For example, Leung and Plake (1990) reported that prestige level was not compromised to maintain gender traditionality by college students. Gottfredson (1996) has revised her theory to account for these findings by reformulating the compromise principle of conditional priorities.

### *Summary*

Gottfredson's theory offers a framework in which the influence of prestige and sex-type could be understood in diverse cultural contexts. Gender stereotype is also a

part of many cultures (e.g., Asian cultures), and individuals are encouraged to pursue occupations that are perceived to be compatible to their gender (Leung, 2002). Gottfredson's theory also provides an analytical path to explain the outcome of occupational aspirations of teenagers in different social cultural context.

### Social Cognitive Career Theory (SCCT)

Bandura's (1986, 1997) social cognitive theory was applied to career development and formed a lot of empirical studies in vocational psychology over the past three decades. The first one who introduced the concept of self-efficacy to the study of vocational behavior is Betz and Hackett (1981). Social Cognitive Career Theory (SCCT; Lent et al., 1994, 2000) was derived from Bandura's (1986) social cognitive theory and postulated that the dynamic relationships among social cognitive variables (e.g., self-efficacy, outcome expectations, goals) and their relationship with personal and environmental influences (e.g., gender, ethnicity, family, social supports) play an important role in developing vocational interests, making vocational choices, and achieving career success (Brown & Lent, 2005). SCCT is viewed as one of the most researched theories in vocational psychology and has received considerable empirical support for its propositions (Swanson & Gore, 2000; Lent & Brown, 2006). According to SCCT, two cognitive variables are crucial for career interests and goals. Prior studies support self-efficacy and outcome expectations as important contributors to the process of career development for youth (Lent & Brown, 2006; Swanson & Gore, 2000), and specifically link levels of self-efficacy related to career decision making to career-related behavior (e.g., "for social cognitive career theorists, self-efficacy is a critical factor that mediates whether interests, goals, and actions develop in a particular domain"; Gushue et al., 2006).

Career decision-making self-efficacy refers specifically to people's beliefs regarding their ability to successfully accomplish tasks related to the career decision-making process (Betz & Hackett, 1983). According to SCCT, Lent et al. (1994, 2000) expanded on Bandura's theory by considering a broader social-cognitive

context in the development of individual interests. Moreover, contextual influences to career choice, such as barriers and supports have been identified within the SCCT model as they interact with cognitive variables to influence career development outcomes (Lent et al., 2000). In this way, SCCT considers the interaction of environmental variables, personal variables, self-efficacy, outcome expectations, performance attainments, choices, goals, and interests in a complex and dynamic fashion.

The model of triadic reciprocity, which is developed from SCT, is also utilized within SCCT in order to provide a framework for the relationships among people, their behaviors, and the environment (Brown & Lent, 1996). In SCCT, the concept of triadic reciprocity is further expanded to describe three distinct, yet overlapping models: the Interest model, the Performance model, and the Choice model (Lent et al., 1994).

The Interest model depicts the path through which career interests develop. According to this model, career interests are derived from experiential and cognitive variables that work to influence career choice behaviors as well as skill development. Self-efficacy, goal construction, and outcome expectations interact to foster and focus career interests. In accordance with Bandura's theory, the Interest model proposes that interests are likely to develop when people see themselves as capable (i.e., self-efficacious) and see the tasks they are or will be performing as valuable (i.e., positive outcome expectations; Lent et al., 1994). The Interest model highlights the relationships among interests, self-efficacy, and outcome expectations, and their collective effects on the development and sustainment of personal goals. Personal goals are increased through engagement in particular activities, with the result that young people experience an increase or decrease of their self-efficacy and outcome expectations as they experience success or failure. This feedback loop is seen as ongoing and constantly recycling, particularly during adolescence, as young people defines their interests, self-efficacy, outcome expectations, and personal goals.

SCCT also examines the factors that affect academic performance, as well as

career performance and attainment. In the Performance Model, SCCT theorists again examine the relationships among self-efficacy, outcome expectations, and personal goals; however, a fourth element is added, namely, young people's levels of ability. Specifically, this model posits that self-efficacy and outcome expectations are, in part, influenced by people's perceptions of their abilities and past performances (Lent et al., 1994). Young people's self-efficacy and outcome expectations then influence the performance attainments they set (e.g., whether an adolescent seek to earn a high score in a challenging academic course). Finally, in accordance with SCCT, it should be noted that people's personal and contextual factors influence the perceptions of their abilities, self-efficacy, outcome expectations, and goal-setting, and these factors in turn influence their learning experiences.

The Choice model is also related to the construct of career decision-making self-efficacy in adolescents. This sophisticated and complex model accounts for the numerous factors that influence career choices over time, including self-efficacy, outcome expectations, interests, learning experiences, and past performance accomplishments. In the Choice model, personal, contextual, and environmental factors are seen as predicting the formation of career interests (Lent et al., 1994). For instance, gender and ethnicity are viewed as primary factors in one's socially constructed worldview and highly influential in the career development process. In adolescents, these contextual factors may foster, or conversely inhibit, their self-efficacy, outcome expectations, and goal construction in regard to specific career interests. In addition, contextual factors may enhance or detract from young people's access to the opportunity structure in which many career goals are formed (Lent et al., 2000). The Choice model does not assume that adolescents' career choices are primarily an outcome of their career interests, or an expression of their person-environment fit or self-actualization efforts. Instead, in the Choice model, SCCT theorists highlight the many real-world instances in which adolescents are not free to pursue their principal career interests (Brown & Lent, 2005).

In a static world, individuals would make career choices based solely on their

career interests. However, people's choices are dynamic and involve personal, contextual, and environmental factors that interact with interests to influence their career decision-making processes. To address these dynamic constructs, the concepts of person inputs and contextual affordances (Vondracek et al., 1986) are presented within SCCT (Lent et al., 1994, 2000). Person inputs can be defined as individual factors (e.g., gender, ethnicity, interests, values, abilities) that people bring to the career development process. Contextual affordances refer to those environmental factors that either support (e.g., supports such as access to resources, role models) or impede (e.g., barriers such as single parent families, poverty) young people's career development processes. In particular, these constructs highlight the perceived internal or external resources that people feel are available to them.

According to Lent et al. (1994, 2000), contextual affordances can be divided into two categories: distal and proximal factors. Distal factors are background influences, (e.g., culture, gender role socialization, skill development opportunities, and available learning models) that influence people's self-efficacy, outcome expectations and interests. Proximal factors exert their influence during the critical or active phases of young people's choice process (e.g., in certain cultures, adolescents' career decisions may be influenced by family supports; Lent et al., 1994). Proximal influences may include social, familial, emotional, or financial support for the chosen occupation, job availability, and socio-cultural barriers, such as discrimination.

As noted above, Lent and colleagues' (1994) SCCT model can be used to understand the personal, social, and contextual factors involved in career and educational development. The application of the model to adolescents' career decision-making self efficacy fits well as it provides a useful framework for understanding adolescent career development and decision-making from socio-cultural and cognitive contexts, where individual and contextual factors such as gender, ethnicity, socioeconomic status, self-efficacy, outcome expectations, personal goals, environmental supports, and opportunity structure are examined.

SCCT offers a comprehensive framework to understand the development of



career interest, career choice, and performance that is grounded in self-efficacy theory. In the past decade, SCCT has generated a large number of research studies, including some studies conducted with international samples (e.g., Arulmani et al., 2003; Hampton, 2005; Patton et al., 2004). For example, a study by Nota et al. (2007) used a SCCT framework to examine the career development of Italian youths attending a university preparation program in Padua Province. The authors found a positive relationship between the career search self-efficacy of participants and family support, and a negative relationship between career search self-efficacy and career indecision. For male students, the relationship between family support and career indecision was partially mediated by career search self-efficacy. These findings were consistent with the general SCCT career choice models, and illustrated the importance of social support to career decision.

At a theoretical level, Lent, Brown, and Hackett (1994) proposed key roles for career-related self-efficacy and outcome expectations in determining aspirations. However, few studies have directly tested these relationships. In one Australian study (Patton & Creed, 2007), adolescents who aspired to and expected high status occupations had higher career decision-making self-efficacy and less career indecision, whereas students whose aspirations and expectations were discrepant were less confident about making a career-related decision, more career indecisive, and had lower levels of career maturity. In another Chinese study, Creed et al. (2009) used Holland codes, and found that males aspired to investigative and enterprising types, but expected realistic and enterprising ones; females aspired to enterprising and conventional types, but expected conventional and social ones.

### *Summary*

SCCT provides the theoretical base and hypothesis model for this study. This study focuses on SCCT components of person factors and contextual variables, and the person-cognitive variable of self-efficacy. Given SCCT's propositions, the hypothesized relationships are that person and contextual variables predict

occupational aspirations. It is also hypothesized that self-efficacy would be a mediator between perceived family support and occupational aspirations, and be a mediator between perception of barriers and occupational aspirations.

## Person factors and occupational aspiration

### *Gender and age*

Early social factors and personal preferences related to gender influence adolescent's career aspirations and choices (Lapan & Jingeleski, 1992; Stockard & McGee, 1990). The predominant finding is that boys aspire and expect to pursue male-dominated occupations and girls aspire and expect to pursue female-dominated occupations (e.g., Griffin & Holder, 1987; Sellers et al., 1999). Children as young as 4 years of age report occupational preferences along sex-based distinctions (Trice & Rush, 1995). Adolescent's occupational aspirations become more focused on prestigious occupations with increasing age both in Caucasian and minority samples (Cook et al., 1996). Eighth-grade children possess a functional awareness of prestige- and sex-based occupational distinctions that guide their aspirations (Lapan & Jingeleski, 1992). Controlling for math achievement, eighth-grade boys reported greater expectations in science careers. Increased assertiveness, a variable on which boys and girls did not differ, predicted an interest in occupations that the students rated as more masculine (e.g., Realistic occupations). Girls scored significantly higher than boys, predicted an interest in occupations that the students tended to rate as feminine and as less prestigious (e.g., Social and Conventional occupations). The nature of work associated with children's aspirations varies by gender and age.

Using longitudinal data, Helwig (1998a) examined children's career aspirations in 2nd, 4th, and 6th grade, classified by emphasis on data, people, and things. Across all three grade-levels, boys' aspirations emphasized things, whereas girls' aspirations emphasized people. Additionally, 4th- and 6th-grade girls' aspirations involved more complex data functions than did boys. With increasing age, children aspired

increasingly to occupations which are focused on things and people. Helwig concluded that children develop with age an affinity for socially valued professions. Perceived importance of an occupation, income level, and sex of 4th-grade children were used in a multivariate regression model to predict children's willingness to pursue a particular profession (Stockard & McGee, 1990). First- and 2nd-grade children were asked to provide an aspiration and then an expectation, suggesting that the order of the questions could assess the child's relative confidence in their aspiration (Looft, 1971). Of the 33 boys in the study, approximately 70% changed their response across the two questions, whereas 42% of the 33 girls changed their response. Looft concluded that boys were less confident in their ability to fulfill their career aspirations. Replicating Looft's study over a decade later to explore for potential historical changes, Adams and Hicken (1984) found the reverse relationship, with boys demonstrating more consistency between their aspirations and expectations. Moreover, girls had broadened their career aspirations toward more prestigious careers relative to Looft's (1971) sample and those girls who aspired to professional occupations were more likely to lower their expectations than were boys who aspired to similar occupations. Adams and Hicken (1984) concluded that the career aspirations of girls from younger cohorts were more prestigious than those from older cohorts and that this change has led to younger female cohorts experiencing more uncertainty about their ability to fulfill their higher career aspirations.

Research on gender differences in occupational aspirations has produced mixed results. Even so, a consistent theme in the literature is the pervasive effect of sex-role stereotyping on the occupational and educational attainment of females. As a result, it is generally acknowledged that career development, choice, and attainment is more complex for females (Gottfredson, 1996). Female adolescents report occupational aspirations equal to or greater than their male peers. Male adolescents are more likely to aspire to moderate-prestige aspirations, and female adolescents are more likely to aspire to either high- or low-prestige aspirations (Rojewski & Kim, 2003). In contrast, some studies have indicated that girls are much more likely to restrict their range of

potential occupations earlier in life than boys, resulting in lowered occupational and educational aspirations (Dunne, Elliott, & Carlsen, 1981). When posed with the aspiration question (“what do you want to be when you grow up?”) and expectation question (“what job do you expect to have when you grow up?”), adolescent girls tended to shift their expectation toward more female-dominated occupations. Boys did not exhibit the same trend toward more male-dominated occupations.

In addition to classifying adolescents as either discrepant or non-discrepant, it is also possible to classify discrepant adolescents into groups based upon the direction of the discrepancy (Davey & Stoppard, 1993). Discrepant adolescents could have expectations that are either more masculine or more feminine than their aspirations. According to compromise theory, an individual with more masculine expectations than aspirations would be expected to change aspirations towards more masculine occupations, whereas an individual with more feminine expectations would be expected to change aspirations to more feminine occupations. Similar predictions can be made about prestige changes by classifying discrepant adolescents as having either expectation lower in SES or higher in SES than their aspirations.

In general, boys report more diverse occupational aspirations (Adams & Hicken, 1984; Franken, 1983; Looft, 1971; Vondracek & Kirchner, 1974). Some studies confirm this finding, but only for certain ages (Miller & Stanford, 1987; Sandberg et al., 1991), some found no sex differences (Archer, 1984; Bobo et al., 1998; Trice & King, 1991), and still others found the opposite trend (Trice & Rush, 1995). It is likely that differences in historical time account somewhat for these mixed findings. Boys tend to have more rigid sex-based preferences than do girls when asked to select their preferred occupations from a prescribed list of gender-stereotypical and neutral professions (Awender & Wearne, 1990) or when simply asked to report their preference in an open-ended format (Franken, 1983; Nelson, 1978; Sandberg et al., 1991). Spare and Dahmen (1984) asked children to report their actual career aspiration and their career aspiration if they were the opposite sex. Both boys and girls ascribed a less rigid sex-specific occupational mandate to girls. Other research,

employing similar methods, supports these findings (Nelson, 1978; Zuckerman & Sayre, 1982) even across children of different races (Bobo, et al., 1998). Demographic variables such as parents' educational and employment status, child's age and grade level, and the number and ages of the child's siblings, however, do not predict whether a child reported a preference for a sex-typed profession (Zuckerman & Sayre, 1982). The tendency of girls to aspire to more cross-sex occupations than their male peers may be explained by the observation that stereotypically masculine occupations tend to yield more income and prestige than do professions typically associated with women. In a study examining the impact of crossing the gender barrier, Adams and Hicken (1984) found that girls who maintained stereotypically female career aspirations and boys who expressed aspirations counter to male stereotypes tended to aspire to lower status professions than their same-sex peers exhibiting the opposite sex-based choice. There appears to be a clear occupational status benefit that may be driving girls to embrace and boys to resist an egalitarian perspective of the occupational world. Gorrell and Shaw (1988) found that sex predicted preadolescent and adolescent children's self-efficacy beliefs about their perceived ability to learn and perform male- and female-dominated occupations.

#### *Barriers of hearing loss*

Gottfredson (2002) and Lent et al. (1994) describes career barriers as the primary reason for individuals compromising their career goals; that is, moderating aspirations to expectations. Although career maturity levels and career decision-making abilities are of crucial importance to young deaf and hard of hearing people, there is evidence that adolescents with hearing impairment have a lower level of career maturity, involving reduced career awareness and lower career decision-making competencies, than normally hearing adolescents (Furlonger, 1998; J. Schroedel, 1991).

Significant hearing impairment may impact on children's career development in several ways. First, the career-related information casually picked up by normally-hearing children through listening to others talking and to television and

radio may be missed by deaf or hard of hearing children who have less auditory access to this kind of incidental learning (Furlonger, 1998). Second, some parents may be more protective of their deaf or hard of hearing child than they would be of a normally hearing child (Gregory, 1998; Luterman, 1999), and consequently may limit their child's age-appropriate opportunities to explore the world and his or her own capabilities (King, 1992). Third, adolescents with hearing loss may have less experience of part-time employment during their secondary school years than their normally hearing peers. The types of after-school and holiday jobs obtained by many secondary school students, such as serving customers in shops or restaurants or cooking in busy fast-food outlets, because they involve receiving rapidly expressed oral requests and instructions, can pose particular difficulties for adolescents who are deaf or hard of hearing. It has been asserted that such work experience has a beneficial effect on adolescents' development, fostering responsibility, independence, changed self-concepts, and a greater awareness of interests (Mortimer et al., 1994), as well as positively affecting certain work values, although not necessarily resulting in reduced career indecision (Skorikov & Vondracek, 1997). For these reasons, it seems that deaf and hard of hearing adolescents may have less career maturity than their normally hearing peers.

Schroedel (1991, 1992) investigated career decisions and career decision-making skills of students in grades 10-12 at residential and day schools for the deaf. Students were interviewed about the career development activities they had undertaken, and school counselors and teachers evaluated eight attributes of the career decision-making skills of each student. These evaluations indicated that approximately 60% of the students were considered to be aware of their vocational aptitudes and interests, while 61% were considered to be deficient in occupational knowledge. Students who had participated in career development activities were considered to be more careers aware and motivated. However, these results derived from the opinions of the students' teachers and counselors. No established measures were administered to the students, and interviews of the students elicited information

about career awareness activities and other influences on their career aspirations, and not about their specific career aspirations or their career decision-making processes.

### *Academic ability*

Academic ability also is an important factor in the development of occupational aspiration and expectation for the future. Creed et al. (2007) found a relationship between reading ability and both the aspirations of the children and the aspirations their parents had for them, with increased reading ability associated with higher child and parental aspirations, and general ability related only to parental aspirations.

Many researchers have posited that educational aspirations and academic achievement are central to an understanding of career development and choice (Arbona, 2000; Mau & Bikos, 2000; Rojewski, 1999; Rottinghaus, Lindley, & Green, 2002). In fact, Mau and Bikos (2000) declared that academic achievement was perhaps the single best predictor of occupational aspirations. The influence of academic achievement on career behavior is best viewed as a complex set of interactions where strong academic achievement encourages high educational goals, which encourage engagement in opportunities to acquire advanced education. Additional education and doing well over a long period allow for greater occupational possibilities in adulthood. By contrast, lower achievement may dampen educational goals, which may preclude involvement in certain academic activities and limit future occupationally-related opportunities and experiences (Arbona, 2000; Wang & Ma, 2001). Several studies support the connections between academic achievement and occupational aspirations. Rojewski and Yang (1997) reported that academic achievement had a modest but positive influence on aspirations that was strongest in Grade 8 but decreased over time.

The educational achievement and literacy levels of deaf and hard of hearing children have generally been reported as being considerably below those of their hearing peers. Studies measuring reading comprehension levels report average reading ages many years below chronological age (Power, 1998; Welsh, 1993).

Nevertheless, several researchers suggest that many children with severe and profound hearing loss achieve higher functional literacy levels than has previously been thought (Moore, 2001; Toscano et al., 2002). Standardized reading tests often underestimate students' comprehension, which is shown to be greater when assessment techniques emphasizing context and a search for meaning are employed (Moore, 2001; Power, 1998). Studies have confirmed that high literacy levels do exist among deaf and hard of hearing students. Studies of students with severe and profound hearing loss in mainstream oral programs by Geers and Moog (1989) and Lewis (1996) found considerably higher levels than previously reported for deaf and hard of hearing students, and reveal the potential of students with severe and profound hearing losses to achieve age-appropriate literacy levels. So, although low literacy and educational achievement levels contribute to the transition difficulties of many deaf and hard of hearing school-leavers, these conditions may now pose less of a barrier to career achievement for this population than they did in the past (Punch et al., 2004). Therefore the academic achievement of adolescents with hearing impairment can be examined as well as the relationship with occupational aspirations can also be addressed.

### *Summary*

In accordance with above reviews, gender, age, barriers of hearing loss and academic achievement have certain correlations with occupational aspirations. The predominant finding is that boys aspire and expect to pursue male-dominated occupations and girls aspire and expect to pursue female-dominated occupations (e.g., Griffin & Holder, 1987; Sellers et al., 1999). Adolescent's occupational aspirations become more focused on prestigious occupations with increasing age both in Caucasian and minority samples (Cook et al., 1996). Barriers regarding hearing loss are correlated with occupational aspiration. Evidences reveal that adolescents with hearing impairment have a lower level of career maturity, involving reduced career awareness and lower career decision-making competencies, than normally hearing



adolescents (Furlonger, 1998; Schroedel, 1991). Academic achievement positively predicts occupational aspirations (Mau & Bikos, 2000; Rojewski & Yang, 1997). Mau and Bikos (2000) even declared that academic achievement was perhaps the single best predictor of occupational aspirations.

## Contextual factors and occupational aspiration

Sociological models of career choice provide an opportunity to investigate how socio-cultural variables might influence an individual's career choice (Lapan & Jingeleski, 1992). Social support is considered one aspect of the content of social relationships and describes a functioning or process component of the relationship (House, et al., 1988). Barerra (1986) outlined three types of social support: perceived support (subjective experience of support from others), enacted support (support actually received from others), and embeddedness (ties to a social network). In contrast, Tardy (1985) differentiated between five dimensions of social support and fit these into a hierarchical model. From the top down, these dimensions are as follows: direction (received or provided), disposition (available or enacted), description/evaluation (described or evaluated), content, and network (the source: family, close friends, neighbors, co-workers, community, or professionals). House (1981) classified four dimensions: emotional (provision of trust, empathy, and love), instrumental (helping behaviors), informational (advice), and appraisal (evaluative feedback) support.

### *Family*

Families have a critical impact on the successful transition from school to adult life for young adults with disabilities (Everson & Moon, 1987). In fact, parent participation is considered to be one of the most important elements of transition programs (Sales et al., 1991; Schultz, 1986) that lead to positive outcomes for young adults with disabilities (Gardner et al., & Jacobson, 1988). McNair and Rusch (1991)

reported that, in the absence of special funding or special programs, parental involvement is the primary determinant of success in transition programs. Most theory and research regard the family as the primary context of vocational development. The family seems to be a much stronger influence on a child's vocational development than their peer network or the school (Schulenberg et al., 1984). Vondracek et al. (1986) considered family to be a crucial contextual variable influencing the development of adolescents and their careers. Family systems theory also emphasizes family rules and myths that serve to influence children's career decision-making and the values (Bratcher, 1982).

In comprehensive review of the literature, Whiston and Keller (2004) found that adolescent career development was influenced by two interdependent family contextual factors: a) family structural variables (e.g., parents' education and occupation, socioeconomic status), and b) family process variables (e.g., family relationships, parental aspirations, family support and advocacy; Ferguson et al., 1988; Newman, 2004; Young & Friesen, 1992). Family structural variables play a role in influencing career development (Whiston & Keller, 2004). Family socioeconomic status (SES) seems to be an especially strong predictor of later access to career opportunities and options (Blustein et al., 2002); and SES is well documented to have a powerful influence on occupational and educational attainment (Schulenberg et al., 1984; Trusty, 2004). Youth from higher status backgrounds often aspire to higher status or more prestigious occupations (Fouad & Brown, 2000) and have higher occupational expectations (Rojewski & Kim, 2003). Youth from lower SES backgrounds tend to have lower occupational and educational aspirations (Rojewski, 1997; Solorzano, 1992). Growing up in a low SES family is also associated with higher levels of perceived barriers to educational and career attainment, lower levels of career-related self-efficacy, and lowered expectations for educational attainment (McWhirter, et al., 1998).

Young et al. (1991) found that parents used five channels to influence children's career development: open communication between parents and children, the

development of responsibility of young people, the active involvement of parents in the lives of children, the encouragement of autonomy, and providing specific direction and guidance to children. The influence of parents as role models for educational and occupational attainment may be especially salient for young adults with disabilities. In a study that examined perspectives of family involvement in transition planning, many of the students with disabilities expressed career interests that were similar to those of a close family member. These initial career interests typically were not based on formal conversations or interactions with the family, but simply on the presence of “informal role models” (Morningstar, 1997). Parents also serve as consultants to their children (Otto, 1996; Sebald, 1986) when children and adolescents handle future-oriented problems related to education and career choices. Through these different channels, parents communicate their expectations toward their children’s vocational choices. Furthermore, family members are role models for young people in the sense that they describe their working lives and how they observe other employees. They can have a strong impact on the way children perceive working adults and the expectations they may have on their own future (Wright, 1997).

Parental employment patterns also play a role for young women with learning disabilities entering the workforce, influencing both occupational goals and expectations (Lindstrom et al., 2004). This qualitative study documented the importance of family and childhood experiences in providing an initial exposure to the world of work. Young women with working parents were likely to develop positive work habits and also to be introduced to a variety of potential career options (Lindstrom et al., 2004).

Ali et al. (2005) found that for low SES high school students, sibling support for educational and vocational plans highly influenced the career decision-making self-efficacy of these inner-city adolescents. The authors concluded that sibling support may have a greater impact than parental support on the development of self-efficacy beliefs in low SES students. This is consistent with qualitative research conducted with college students indicating siblings can serve as a primary source of

support for vocational decisions by providing career information, role modeling, and emotional support for career decision-making (Schultheiss et al., 2001).

Overall, family process variables appear to play a more important role in career development than family structural variables (e.g., parents' education and occupation, single parent status) or family background (i.e., social class or SES) (Whiston & Keller, 2004). When parents are perceived as supportive, adolescents are more likely to report higher expectations for their futures and more advanced educational plans (McWhirter et al., 1998), greater career certainty (Constantine et al., 2005), higher career aspirations (Flores & O'Brien, 2002), and greater career-related and educational self-efficacy (Gushue & Whitson, 2006; Raymund et al., 2012).

Turner and Lapan (2002) found perceived parental support to be a significant predictor of the career self-efficacy of adolescents in the general population. There is also evidence that family expectations influence the vocational goals, self-efficacy, and achievement of young adults with disabilities. In one study of 20 families, most parents expressed a desire for their child with a disability to live outside of the home, work in the community, and earn at least minimum wage; yet in each case, significantly fewer imagined that these outcomes would actually occur (McNair & Rusch, 1991). Lindstrom and Benz (2002) examined employment outcomes for young women with learning disabilities and reported that high parental expectations were linked to later attainment of career goals. In addition, a recent study examining the involvement of families in the educational development of secondary school age students with disabilities (Newman, 2004) found that a majority of youth with disabilities have parents who expect them to succeed in entering adult roles after high school. For instance, most parents expected their children to graduate from high school with a regular diploma, enter paid employment, achieve financial independence, and live independently; however, less than two thirds of parents expected that their child would transition into postsecondary education or training. Post-school expectations were also generally lower for youth with disabilities from lower income households (Newman, 2004).

Family interactions are another key component of family process. Four main areas of parental support have been found to influence the vocational behaviors of youths (Turner, et al., 2003): a) instrumental assistance (parents' support for youths' career-related skill development), b) vicarious learning (parents' provision of career-related modeling behavior), c) verbal encouragement (parents' praise and encouragement associated with educational and career development), and d) emotional support (support of the affect experienced by adolescents in relationship to their educational and career development). Young et al. (1988) examined the specific behaviors and activities occurring within the family context that impact career decision making. When asked about the events or behaviors they used to assist in their adolescents' career development, a sample of 207 parents reported that the most critical interpersonal interactions they provided were helping and protecting, affirming and understanding, and watching and managing (Young et al., 1988). Additional evidence points to the importance of intentional career-related activities undertaken by parents. Blustein et al. (2002) found that youth from high-SES backgrounds were particularly helped by parental encouragement of career exploration, guidance in career planning, and the provision of relevant job leads. In families with a child with a disability, however, this type of intentional career-related planning is often not present.

Although current literature has confirmed the importance of family structure and process variables in influencing occupational aspiration, the exact nature and extent of family influences have yet to be determined and fully described (Blustein et al., 2000; Whiston & Keller, 2004). There is a need to capture the perceptions of youths and parents regarding which family factors are most influential and how these factors contribute to occupational aspiration. In addition, there are relatively few studies that focus on the influence of family variables on occupational aspiration for youth with disabilities.

### *School education*

In the absence of a supportive home environment, a positive school environment appears to be effective in offsetting the impact of a non-supportive family background (Gilbert et al., 1993). Preliminary outcome data from Full Service Schools (Dryfoos, 1995) demonstrated the powerful effect of school support in overcoming its lack in the family. It is those adolescents most in need who show the greatest potential to benefit from social support in schools (DuBois et al., 1994).

School education provides critical skills and opportunities for career development. Special education interventions related to career development include instruction in a wide range of topics related to participation in adult roles (Szymanski, 1994). Functional curriculum, a cornerstone of special education, “prepares students for adult living and includes independent living, leisure, health and grooming, social skills, communication skills, vocational preparation and skill training, as well as community involvement through age appropriate content (Boyer & Keams, 1988, p. 13)”. Michaels (1994) recommended expanding curricular attention to include task approach and problem solving skills, self-efficacy skills (e.g., self-monitoring), and social skills as critical fundamental skills for all students.

The broad interventions of assessment and individual career planning are key strategies in the rehabilitation process (Rubin & Roessler, 1995). In addition, mentoring (Powers et al., 1995), work experience (Wenkman, 1994), and a psycho-educational program, which focused on work identity, interpersonal relationships, and self-concept (Ericson & Riordan, 1993), have been effectively used with youths with various types of severe disabilities. Consumer choice is an important component of interventions and one that can easily be compromised with people with developmental disabilities (Hagner & Salomone, 1989). West and Parent (1992) have highlighted the importance of the consumer’s role in choosing an occupation, agency and training staff, training and support methods, and whether to remain in a particular job. In order to facilitate the ability of people with developmental disabilities to make informed choices in their own career development, Hagner and Salomone (1989) have

recommended consideration of a) guided job experiences, b) decision-making training, c) technical assistance within the decision-making process, and d) longitudinal career services.

How teacher support interacts with parents and peer support is less clear from the available literature. Teacher support has been found to be directly beneficial to the achievement expectations of adolescents (Cheung, 1995), and there is evidence that the school environment takes on increasing importance through adolescence (Jurkovic & Ulrici, 1985). There are data suggesting that at least in extreme cases, the role of teacher support can be compensatory. In addition, teacher support has been positively related to both the career decision-making self-efficacy and goal intentions among African American inner-city adolescents (Gushue & Whitson, 2006). Similar results were found in a study conducted by Metheny et al. (2008), where higher levels of perceived teacher support were related to higher levels of career decision-making self-efficacy, vocational outcome expectations and goal intentions in inner-city public high school seniors.

#### *Attitudinal and environmental barriers*

Swanson and Woitke (1997) defined barriers as “events or conditions, either within the person or in his or her environment, that make career progress difficult” (p. 434). In SCCT, Lent et al. (1994) defined that “barriers generally refers to negative contextual influences, with the understanding that contextual barriers are often functionally related to, yet conceptually distinct from, detrimental person factors” (e.g., adverse learning conditions can diminish self-efficacy). Stereotypes were used in combination with category membership as a basis for generating expectancies about persons with disabilities (Higgins & Bargh, 1987). When categorized a person as individuals with disabilities, the derived expectancies about the concept from stereotype-based assumptions made about disabled people as a group. As a result of these expectations, the disabled person may encounter a number of treatment-related problems, including a decreased likelihood of occupational expectation. In a review of

disability discrimination in education, Gray (2002) reported that stereotyping of some young disabled people by teachers remained a problem, as did under-expectation of their academic abilities. Disability also interacts with other forms of disadvantage (Lakey, et al., 2001). The Black and disabled young people interviewed by Bignall and Butt (2000) who had similar aspirations to their non-disabled counterparts but had in some cases experienced double discrimination in pursuing their goals, on account of their ethnicity and their disability.

Environmental barriers constitute physical or structural impediments, and as such have the potential to cause an impairment to become a disability, in the terms of the World Health Organization's (1980) definitions. For people with hearing impairment, such barriers include the requirement that workers use telephones, background noise in the workplace, and auditory rather than visual alerting signals (DeCaro, et al., 2001; Laroche, et al., 2000). Jobs in the growing service sector usually require considerable amounts of verbal interaction with customers or clients; this interaction is certainly possible but can be problematic for deaf and hard of hearing people (Schildroth et al., 1991).

Studies in several countries of parents' and teachers' attitudes toward advising deaf youth to train for different occupations found that parents and teachers would give more encouraging advice to hearing people across a range of occupations than they would to equally qualified deaf people. The difficulties of interpersonal communication and safety issues were reasons given for the less-than-encouraging advice to deaf persons, with occupations dealing primarily with data and things rather than people deemed by advisors to be the most suitable for deaf people (DeCaro, et al., 2001; Parasnis, et al., 1996). Although these studies pertain to youth who received schooling for the deaf and who were largely signing, the problem of limited expectations appears to affect hard of hearing youth also. In a Canadian study of hard of hearing youth, 20% of the respondents reported that their parents' suggested career options were limited by concerns about their son's or daughter's hearing loss (Warick, 1994). It is a matter for concern if parent, teacher, or counselor expectations exclude



certain career options from exploration by students with hearing impairment. It may seem sensible to encourage these young people to pursue careers which require a minimum of verbal, particularly vocal, interaction with people and a maximum of work with data or things (punch, et al., 2004).

Kenny et al. (2003) emphasized that perceived barriers of ethnic minority youths negatively influenced their attitudes and behaviors about educational and career options. In addition, systematic barriers, such as gender and racial discrimination, lack of financial resources, and cultural barriers related to fitting in the college environment, are also relevant factors (McWhirter, 1997). McWhirter et al. (2000) expanded the conceptualization of barriers to include issues especially pertinent to youths, such as family problems and negative family attitudes.

### *Summary*

Contextual factors including family, school, and attitudinal and environmental barriers are certainly correlated with occupational aspirations. Families play an important role on impacting adolescents' career development (Everson & Moon, 1987; Sales et al., 1991; Schultz, 1986; Schulenberg et al., 1984; Vondracek et al., 1986). School education provides critical skills and opportunities for career development. Special education interventions, especially vocational education, training, and guidance have a significant relationship with career development as well as occupational aspirations (Wenkman, 1994; Ericson & Riordan, 1993; Michaels, 1994). The teacher supports also have positive influence on the career decision-making efficacy and vocational goals (Cheung, 1995; Gushue & Whitson, 2006; Metheny et al., 2008). Attitudinal and environmental barriers have negative influence on the career choice and occupational aspirations. Negative attitudes (e.g., stereotypes, under-expectations) may decrease likelihood of occupational aspirations (Higgins & Bargh, 1987; Gray, 2002). Due to hearing loss, the normal verbal interaction environment or workplace may become a barrier for people with hearing impairment, and influence the career choice as well as occupational aspirations (Schildroth et al., 1991).

## Occupational aspirations of adolescents with disabilities

### *Definitions of occupational aspiration*

Aspirations are viewed as a complex of attitudes, centered on an affectively regarded goal. Each specific aspiration being part of, what Merton describes as a “framework of aspirational reference” (Merton, 1949). A frame of reference which embodies the person’s values, general orientation, which itself is a reflection of culturally defined goals and institutionalized means of reaching these goals. Of the many specific aspirations, occupational aspirations are likely to be modal, since they determine to a large extent the life chances of the individual. It is through participation in the social relations of work, that the individual obtains means for gratification of many of his needs and desires (Kaze, 1962). Crites (1969) pointed out the interchangeable use of different referent terms in the literature to portray the concept of vocational aspirations. Such terms include “interests”, “preferences”, “choice”, “plans”, “expectations”, and “goals”.

Occupational aspirations occupy a central role in many career development theories. They are typically characterized as developing from wishful views of the future to mature evaluations considered in the context of abilities, interests, values and opportunities (Gottfredson, 2002). Occupational aspirations are “expressed career-related goals or choices” that provide important motivational momentum for career-related behaviors and future educational and career success (Rojewski, 2005). Occupational aspirations can be either idealized or realistic. Idealized aspirations are occupations one would like to have if there are no limitations on opportunity, finances or ability when selecting a career. Realistic aspirations, or expectations, on the other hand, are the occupations one expects to have, given perceived or real limitations (Rojewski, 2005). Two approaches can be adopted when studying occupational aspirations. One method is to report occupational level, which reflects a vertical dimension that ranks occupations based on level of prestige or status. Numerical rankings are typically used and usually reflect some combination of wages earned,

education required, and perceived value to society. From this perspective, unskilled occupations are assigned lower scores, reflecting lower prestige, than professional occupations. A second approach examines occupational field or category. Field is a horizontal dimension based on type of work. Type of work is usually determined by the tasks, duties, and responsibilities of the occupation, and is often measured using Holland's typology (e.g., Arbona & Novy, 1991; McNulty & Borgen, 1988). Field of aspirations is important in that adolescents are more likely to engage in career compromise and circumscription by shifting aspirations between fields at the same level rather than moving between levels (Gottfredson, 1981).

#### *Definitions of occupational expectation*

Occupational expectations represent the job or career that individuals believe they will likely attain in the future (Baly, 1989) and play an important role in organizing adolescents' behavior toward the career development process (Super, 1980), such as the development of the occupational self-concept. Occupational expectations are the desire and yearning of individuals (natural persons) for some kinds of occupation, are a kind of attitude and belief towards the occupation. They belong to the category of personality tendency, are the externalization of vocational value, and reflecting on philosophy of life and world view (Yu, 2001). Occupational expectations are generally predictive of adolescents' occupational attainment as adults (Hotchkiss & Borow, 1996). From an emancipatory communitarian perspective to career development (Blustein et al., 2005), the sociopolitical context of adolescents also influences their occupational expectations. Occupational aspirations represent "the statement of a desired career goal given ideal conditions", whereas expectations represent "an individual's consideration of reality factors which may affect the attainment of aspirations" (Baly, 1989). Occupational aspirations are one's occupational dreams, whereas expectations are real-world beliefs of what occupation one will attain. Sociopolitical inequities in access to resources, in addition to a range

of sociopolitical barriers (Blustein et al., 2005), may explain this discrepancy between aspirations and expectations, which has been labeled the aspiration-expectation gap.

### *Definitions of work values*

Work values, or the goals that one seeks from working, play a crucial role in an individual's life and career development (Rosenberg, 1957; Super, 1990). They affect educational and career choices, and one's commitment to learning and work. People tend to select careers that are consistent with their work values; otherwise, they change their work values in the direction of the dominant values of their chosen fields of work (Rosenberg, 1957; Super, 1990). Monica (2005) considers that work values are beliefs about the desirability of various work features and are usually applied by referencing potential rewards derive from working (e.g., pay, prestige, opportunities to learn). Brown (1996) defines work values as the values that individuals believe should be satisfied as a result of their occupational work. According to Pennings (1970), work-value systems can be defined as constellations of attitudes and opinions with which individuals evaluate their jobs and work environments. Herzberg et al. (1959) considers work values as representing motivational aspects, i.e. motivators and hygiene. In terms of Levy's and Guttman's (1976) definition of values, an item is subject to the universe of work values if its domain asks for an assessment of the importance of a goal or behavior in the work context and the range is ordered from very important to very unimportant. A work value can be defined as the importance individuals give to outcomes arising in the work context (Elizur, 1984). Work-related values refer to the goals or rewards people seek through their work, and they are expressions of more general human values in the context of the work setting (Schwartz, 1999). Work values are a kind of evaluation of persons for requirements of social career (huang et al., 1994). Work values are the standards of individual evaluation and vocational choice (jin & li, 2005). Liu and Zhao (2001) define work values as one person's evaluations and viewpoints about meaning and importance to related objective thing.

*Studies on occupational aspirations of adolescents with disabilities*

Walker (1982) compared the experiences of a cohort of young disabled and non-disabled people all born in 1958. The proportion of youngsters with disabilities who aspired to semiskilled and unskilled jobs was six times the proportion of non-disabled young people with those aspirations. Despite these modest aspirations, only one-fifth of 18-year-olds with disabilities had achieved the occupational group of the job they had desired at age 16, compared to one-third of non-disabled youngsters. A follow-up study ten years later (Clark & Hirst, 1989) found that only half of those who had wanted to get a job were working, and most were still hoping to achieve what they regarded as full adult status. The impact of the school environment and of teachers on young disabled people appears to be stronger than for non-disabled young people. This can be positive or negative. In a review of disability discrimination in education, Gray (2002) reported that stereotyping of some young disabled people by teachers remained a problem, as did under-expectation of their academic abilities. Disability also interacts with other forms of disadvantage (Lakey, et al., 2001). The Black and disabled young people interviewed by Bignall and Butt (2000) who had similar aspirations to their non-disabled counterparts but had in some cases experienced double discrimination in pursuing their goals, on account of their ethnicity and their disability.

In the United States, Rojewski (1996, 1999) compared a cohort of adolescents with learning disabilities and without disabilities, then found: a) adolescents with learning disabilities displayed different career-choice patterns and strategies than their nondisabled peers (adolescents with learning disabilities were less likely to aspire to high-prestige occupations and were more likely to be indecisive about future occupational alternatives); b) females with learning disabilities appeared to be at particularly high risk of setting limits on their occupational futures; c) youth with learning disabilities were more likely to express lower or indecisive aspirations in early adolescence and then report higher aspirations in mid-adolescence; d) people

with learning disabilities and samples without disabilities have shown SES to have an early and persistent influence on occupational aspirations; e) academic achievement was the only factor that was significant in explaining occupational aspirations before high school completion. Adolescents with higher academic achievement generally reported higher aspirations.

Rojewski et al. (2012) adopted longitudinal research to analyze the development patterns of occupational aspirations in adolescents with high-incidence disabilities. They identified several factors to include in their longitudinal latent growth curve model, including gender, SES, academic achievement, and two concepts connected to the idea of self-determination, locus of control and self-concept. They pointed out that Gender was one of the most powerful and persistent influences on occupational development. Meanwhile they found females with learning disabilities and behavioral disorders reported higher prestige aspirations than did males with learning disabilities; males with either learning disabilities or behavioral disorders expressed aspirations that were close in prestige level and trajectory throughout high school. In addition, they found: a) the occupational aspirations of adolescents with high-incidence disabilities were consistently lower in prestige than the aspirations of their peers without disabilities; b) Higher socioeconomic status was associated with a positive change in the slope of aspirations; c) In adulthood, disability status was the only significant factor associated with aspiration change.

Schroedel (1991, 1992) investigated career decisions and career decision-making skills of students in grades 10-12 at residential and day schools for the deaf. Students were interviewed about the career development activities they had undertaken, and school counselors and teachers evaluated eight attributes of the career decision-making skills of each student. These evaluations indicated that approximately 60% of the students were considered to be unaware of their vocational aptitudes and interests, while 61% were considered to be deficient in occupational knowledge. Students who had participated in career development activities were considered to be more career's aware and motivated. However, these results derived

from the opinions of the students' teachers and counselors. No established measures were administered to the students, and interviews of the students elicited only information about career awareness activities and other influences on their career aspirations, and not about their specific career aspirations or their career decision-making processes.

King (1992) investigated the career maturity of adolescents with hearing impairments in order to determine the necessity of a separate theory of career development for people with hearing impairment. The study included 71 students in grades 10-12; 57 attended residential schools for the deaf and 14 were in regular schools, either in resource or mainstreamed programs. Hearing loss ranged from mild (9% of the sample) to profound (65%). This group was compared to a group of 318 normally-hearing students attending public schools in the same area. Participants compiled a composite score on the Career Development Attitudes (CDA) scale by completing the Career Planning and Career Exploration subscales of the Career Development Inventory, or CDI (Thompson, et al., 1981). In addition, students' family cohesion was rated using the 10-item cohesion scale of the Family Adaptability and Cohesion Evaluation Scales, or FACES III (Olson, et al., 1985); school records supplied reading and mathematics achievement levels. Questionnaires completed by the parents provided background information and parental aspirations for their children's occupational attainment. Parents also completed a measure of cultural participation, indicating the number of different kinds of educational, reading, and recreational materials available in the home. The results indicated similar mean CDA scores for the hearing-impaired and normally hearing groups. As King (1990a) pointed out, the aspect of career maturity explored in this study was the affective/attitudinal one of readiness to make career decisions, as measured by the CDA scale of the CDI, and not the cognitive dimensions of career maturity, or occupational aspirations and interests. The study did not include the cognitive component of the CDI in the form of the World of Work Information and Career Decision-Making subscales.

King (1992) designed a causal model of career maturity from the variables included in her study: gender, age, achievement level, parental socioeconomic status, parental aspirations, family cohesion, and cultural participation. She then constructed a second model with added variables specifically related to hearing impairment, such as degree of hearing loss, age at onset of hearing loss, parent-child communication, and degree of mainstreaming. Using path analyses, King tested the ability of each model to explain variance in the career maturity in the hearing-impaired and normally hearing groups of adolescents. She concluded that the second model, while more descriptive of the career development process of young people with hearing loss, was no more powerful in explaining variance in career maturity, and suggested that “consequently there is no need for a separate theory of career development for people with hearing impairments” (King, 1992).

In a New Zealand study (Furlonger, 1998), students completed the Self-Directed Search (Keeling & Tuck, 1982) and the Australasian revision of the CDI (Lokan, 1984). The students with hearing loss scored significantly lower than their normally hearing peers on three of the CDI’s subscales (Career Planning, World of Work Information, and Career Decision Making); while no significant difference was found on the fourth scale, Career Exploration. Furlonger explained that the Career Planning subscale asks respondents to consider how much thought they have given to jobs and their prerequisites; the responses of the students with hearing loss indicated that they had discussed these matters with a relatively small circle of people. He stated that their responses on the World of Work Information and Career Decision Making subscales indicate that they “were less informed about how to relate to fellow workers, job hunting, types of occupations, and the tools of certain trades”, reflecting, perhaps, “a limited experiential base”, as suggested in the literature. He concluded from the study’s findings that a developmental lag clearly existed in the career maturity of the study participants with hearing loss, and recommended improvements in the career education of deaf school students, including an emphasis on career awareness, career exploration, decision-making skills, and communication skills. He further suggested



that such programs begin earlier for this population than is usual for normally hearing students.

### *Summary*

Adolescents with disabilities have modest aspirations. Walker (1982) argued that the proportion of youngsters with disabilities who aspired to semiskilled and unskilled jobs was six times the proportion of non-disabled young people with those aspirations. The extremely limited studies were conducted in the last 20 years on the career development or career maturity of adolescents who are deaf or hard of hearing. Their conclusions were mixed: King (1990a, 1990b, 1992) found no significant difference between her hearing and hearing-impaired sample in the scores of Career Development Attitude scale, whereas Furlonger (1998) found significantly lower scores for his hearing-impaired sample on three of the four subscales of the Career Development Inventory. However, no research has been reported concerning the occupational aspiration or expectation of adolescents with hearing impairment. As King's (1992) suggestion, there is no need for a separate theory of career development for people with hearing impairments. Therefore some general career theories for adolescents without disabilities can be incorporated in this study.

## **CHAPTER III**

### **METHODOLOGY**

This quantitative study aims to compare the discrepancies of occupational aspirations between Czech and Chinese students, and examine the relationships among occupational aspirations, person factors and contextual factors that interact with career decision-making self-efficacy from two different social contexts, Czech and China, based on the SCCT model. A non-experimental, survey design was employed to explore these relationships: person factors (age, gender, hearing loss, work experience, academic achievement, work plan) and occupational aspirations; perceived family support and occupational aspirations; perception of barriers and occupational aspirations; career decision-making self-efficacy and occupational aspirations. The direction of the relationship is expressed as either positive or negative.

Accordingly, this chapter provides an overview of current study's (1) research questions and hypotheses; (2) methodology and design; (3) sampling procedures; (4) instrumentation; (5) data collection procedures, (6) pilot Study, and (7) summary.

#### **Research Questions and Hypotheses**

It is not known whether the discrepancies of occupational aspirations of students with hearing impairment exist in two different social-cultural region or country. Even though there were an abundance of researches on teenager's occupational aspiration. Accordingly, how and to what extent the variables influence the occupational aspirations of students with hearing impairment. The examination of these relationships was derived from the theoretical framework of Social Cognitive Career

Theory (SCCT), a theory that postulated that the dynamic relationships among social cognitive variables (e.g., self-efficacy) and their relationship with personal and environmental influences (e.g., gender, academic achievement, family, social supports) played an important role in developing vocational interests, making vocational choices, and achieving career success (Brown & Lent, 2005). A non-experimental, survey design will be employed to explore these relationships: person factors (age, gender, hearing loss, work experience, academic achievement, work plan) and occupational aspirations; perceived family support and occupational aspirations; perception of barriers and occupational aspirations; career decision-making self-efficacy and occupational aspirations. Gushue et al. (2006) indicated “for social cognitive career theorists, self-efficacy is a critical factor that mediates whether interests, goals, and actions develop in a particular domain”. Could self-efficacy be a mediator between variables and occupational aspiration in current study? Does each of self-efficacy, perceived family support, perception of barriers, academic achievement, age, and gender plays a role of predictor on occupational aspiration? The following research questions guided this study:

1. Do students with hearing impairment have occupational aspirations?
2. What kinds of occupational aspirations do students with hearing impairment have?
3. Are there any significant differences of occupational aspirations between Czech and Chinese students?
4. Are there differences in variables which can contribute to the difference in outcome of occupational aspirations ?
5. Are there significant correlations between variables and occupational aspirations?
6. Are there any variables serving as mediators between independent variables and occupational aspiration?

These questions served as precursors to the following hypotheses:

H<sub>1</sub>: There will be a significant difference in the occupational aspirations of students with hearing impairment between Czech and Chinese group.

H<sub>2A</sub>: There will be significant differences in the total scores of three scales (CDSE-SF, POB and PSF) of students with hearing impairment between Czech and Chinese group.

H<sub>2B</sub>: There will be a significant difference in the work experience of students with hearing impairment between Czech and Chinese group.

H<sub>2C</sub>: There will be a significant difference in the work plan of students with hearing impairment between Czech and Chinese group.

H<sub>2D</sub>: There is a significant difference in the way of seeking work of students with hearing impairment between Czech and Chinese group.

H<sub>3A</sub>: There will be a positive correlation between career decision-making self-efficacy and occupational aspirations.

H<sub>3B</sub>: There will be a negative correlation between perception of barriers and occupational aspirations.

H<sub>3C</sub>: There will be a positive correlation between perceived family support and occupational aspirations.

H<sub>3D</sub>: There will be a positive correlation between academic achievement and occupational aspirations.

H<sub>3E</sub>: There will be a positive correlation between gender and occupational aspirations.

H<sub>4A</sub>: Career decision-making self-efficacy will be mediator between perception of barriers and occupational aspirations.

H<sub>4B</sub>: Career decision-making self-efficacy will be mediator between perceived family support and occupational aspirations.

## Research Methodology

The purpose of this study was to compare and analyze the similarities and differences of occupational aspirations between Chinese group and Czech group, to examine the relationship between some variables and occupational aspirations, and to examine whether the mediator effect exist. This study employed a quantitative and descriptive design. Descriptive designs are “research strategies that enable the investigator to describe the occurrence of variables, the underlying dimensions in a set of variables, or the relationship between or among variables” (Heppner, et al., 1999). “One advantage of using the quantitative approach is that this makes it possible to measure the reactions of many people to a limited set of questions, consequently allowing comparison and statistical aggregation of the data; however, the validity of this approach depends on careful instrument construction to ensure that the instrument measures what it is supposed to measure” (Patton, 2002).

Quantitative research designs are distinguished from the other methods by their applicability to closed-ended questions that rely on evidence that takes the form of numbers rather than words. Accordingly, a quantitative approach is preferable because this kind of research question is at the center of this study. Despite it involves 4 open-ended questions in the surveys, however the response of the one question: “If you were completely free to choose any job, what would you like to choose as a lifetime job” can be classified to Holland’s (1997) RIASEC coding system which has been tested in China and found to be consistent with the structure identified in the West (Long et al., 2004), and rated on level of occupational prestige, using the Dictionary of Holland Occupational Codes (Gottfredson & Holland, 1996). The other questions can be recorded as number by the method of frequency.

When a researcher desires to understand the relationship between two or more variables, he often turns to either a descriptive or an experimental study - what Creswell describes as “strategies of inquiry” (2009, p. 11). All these types of quantitative study allow researchers to understand different aspects of the relationship

between variables. A descriptive study permits a researcher to establish the strength and direction of associations between variables (Creswell, 2008). There are some variables and their relationships which need to examine and analyze in present study. The data collected for all types of quantitative studies are numeric and can be analyzed by utilizing statistical procedures. This means that quantitative methods are limited to observations that can be quantified or measured (Hardin, 2010). Such observations are at the center of this study because almost all data will be inputted SPSS software

A descriptive methodology is appropriate for this survey study because it attempts to capture “the trends, attitudes, or opinions of a population” (Creswell, 2009, p. 12). Occupational aspirations are related to attitudes or opinions of a person. A researcher using this methodology typically begins with a theory from which they deduce a hypothesis (Creswell, 2009). He/she then collects observations from which he/she can test the hypothesis. This design for present study was appropriate because of the manner. The deductive nature of quantitative research implies a top-down process. Creswell defines a theory as “an interrelated set of constructs or variables formed into propositions, or hypotheses, that specify the relationship among variables (typically in terms of magnitude or direction)” (2009, p. 51).

As reviewed in chapter 2, many factors affect occupational aspirations of students with hearing impairment, such as gender, age, degree of hearing loss, age at onset of hearing loss, oral condition, academic achievement, work experience, family support, school support, attitudinal and environmental barriers, and self-efficacy, etc. Some variables were not chosen in correlation analysis because of their relatively lower effect. For instant, King (1992) indicated that hearing impaired variables were no more powerful in explaining variance in career maturity, and suggested that consequently there was no need for a separate theory of career development for people with hearing impairments. Some other variables were abandoned because this study did not focus on these variables. In addition, due to cultural difference and communicational barriers, on account of convenience of questionnaire survey, some

variables were investigated through other ways (e.g. for family support, the information of perceived family support was obtained via students' responses instead of parents' participation).

In order to investigate what occupational aspiration students have, the question "If you were completely free to choose any job, what you would like to choose as a lifetime job" was presented. The other three questions "(1) Have you had occupational experience or accepted occupational training/education? If you have, what is it? (2) Do you have career plan? If you have, what is it? (3) Which approach of job-hunting will you choose, for example, found by yourself, introduced through relative, introduced by school, the service center for disability?" were used to collect the information of social support. The first scale that was employed in this study was the Career Decision Self-Efficacy Scale-Short Form (CDSE-SF; Betz et al., 1996). This scale measured the independent variable – self-efficacy in this study. The second scale was Perceived Family Support Scale (PFS; Way & Rossmann, 1996), which was used to measure the perceived family support, independent variable too. The third scale was Perception of Barriers Scale (POB; Corrigan, 2008). This scale measured perception of barrier, an independent variable as well. A demographic form was also created for this study. Some background information was collected through this form.

Respondents in this study were students with hearing impairment in high school. Due to the particularity of respondents, all items were written simpler and more accessible. Therefore the language teachers in special education school and special education experts in university were invited to modify every item fitting the respondents' understanding. Meanwhile, all scales and questions were interpreted by sign language and made video so that respondents can understand clearly and easily. This study was a comparative study. Accordingly, the English version of questionnaire package was translated into Czech and Chinese version. Subsequently, a pilot study was conducted to reduce potential threats, and examine the problem of cultural compatibility in translation.

## Sampling procedure

The target population for this study included hearing impaired students in Chinese special education school, and hearing impaired students in Czech special education school. The number of participants needed for this study was determined by comparing this study's sample size to past sample sizes used in similar research studies, which have typically ranged from 95 to 197 (e.g. Murugami, 2010; Zhou & Santos, 2007; Miranda & Matheny, 2000; Tang, et al., 1999). Therefore, a sample size of 150 to 200 would provide sufficient power to test research hypotheses. To confirm the necessary sample size for testing research hypotheses, a preliminary power analysis using the software GPower 3.0 (Faul, et al., 2007) was calculated. Results of power analysis indicated that 150 to 200 participants are needed for a moderate effect size in order to attain an adequate power level of .80 for a multiple regression analysis consistent with  $H_{3A}$  to  $H_{4B}$  (i.e., each of the five variables mentioned in  $H_3$  and  $H_4$  will contribute unique variance in the prediction of occupational aspiration).

Participants were randomly recruited from 5 special education schools in Sichuan Province of China. These schools were purposively chosen because they represented different educational level and quality, and had different source of students (e.g. Chengdu special education school is one of the best special schools in Sichuan Province, and has a long history; most of students are from urban area, and have a good socioeconomic situation. Qionglai special education school is a new special school; most of the students are from rural area, and have a bad socioeconomic situation). Moreover, these schools are distributed among a metropolis (Chengdu City), a big city (Luzhou City), a middle city (Suining City), and two small cities (Qionglai City and Shifang City).

In addition, Sichuan Province is located in the southwestern area of China, with a population of 86.73 million (by the end of 2013) in an area of 481,000 square kilometer. Compared with some developed area, such as Beijing, Shanghai, and Guangdong Province, Sichuan is a relatively underdeveloped province (per capita GDP was about 5,500 US dollar, and ranking 24 in 27 provinces and 4 municipalities)



in China. However, from the perspective of the degree of being representative, it is better sample to denote the current condition of socially and economically development of China.

Participants were randomly recruited from 6 special education schools in Prague, Brno, Ostrava, and Olomouc in Czech. Czech is a developed country with a population of 10,280, 000 (by the end of 2013), and an area of 78,866 square kilometers, and with a high HDI of 0.873 which gives the country a rank of 28th out of 182 countries (United Nations Development Program, 2013).

### Instrumentation

A questionnaire package was distributed to students with hearing impairment in Czech and China. This package consisted of 5 sections. Following are descriptions of each of the research instruments used in the current study.

*Demographics.* The demographic form (see Appendix) was created for this study. Participants in the current study were asked to provide their age, gender, residence, the highest educational level of your family members, degree of hearing loss, onset of hearing loss, oral conditions, academic achievement, age of wearing hearing aids, and age of using cochlear implants.

*Occupational Aspiration Questions.* This section included 4 Open-ended questions. (a) If you were completely free to choose any job, what would you like to choose as a lifetime job? (b) Have you had occupational experience or accepted occupational training? If you have, what is it? (c) Do you have career plan? If you have, what is it? (d) Which approach of job-hunting will you choose, for example, seek by yourself, introduced through relative, introduced by school, the service center for disability?

*Career Decision Self-Efficacy Scale-Short Form.* The Career Decision Self-Efficacy Scale-Short Form (CDSE-SF; Betz et al., 1996) was derived from the Career Decision Self-Efficacy Scale (CDSE; Taylor & Betz, 1983). The original

Career Decision Self-Efficacy Scale (CDSE) was developed by Taylor and Betz, in an attempt to examine the utility of Bandura's self-efficacy theory (1977) in the context of the study of career indecision. CDSE-SF measures individuals' confidence in accomplishing tasks related to making career decisions (Betz, Klein, & Taylor, 1996). The CDSE-SF contains 25 items that cover five domains (subscales) of career choice: a) self-appraisal (e.g., "Accurately assess your strengths and weaknesses"), b) occupational information (e.g., "Find information in the library or on the Internet about occupations you are interested in"), c) goal selection (e.g., "Determine what your ideal job would be"), d) planning (e.g., "Make a list of your goals for the next five years"), and e) problem solving (e.g., "Persistently work at your major or career goal even when you get frustrated"). Each subscale consists of 5 items rated on a Likert-type confidence scale, with responses ranging from 0 (no confidence at all) to 4 (complete confidence). Scale scores are calculated by summing the responses to each subscale's items, and the total score is the sum of the five subscales' scores. High scores indicate considerable confidence related to career decision-making task.

Validity of the CDSE-SF was evaluated initially using American college students (Betz et al., 1996). Subsequently, several studies have demonstrated that the CDSE-SF has high validity (Betz et al., 2005; Liu, 2009; Kelly, 2009; Metheny, 2009). Some studies have supported the reliability of the CDSE-SF. Betz et al. (1996) found the alpha for the 25-item total CDSE-SF was .94. Results of several other studies have also indicated that the CDSE-SF is a reliable scale (e.g. Gushue et al. (2006) found a .89 coefficient alpha in this scale; Kelly (2010) found that the coefficient alpha for the entire scale was .93; Ziebell's (2010) result indicated that coefficient alpha was .95; Liu (2009) got a .94 coefficient alpha from this scale). Furthermore, researchers found levels of internal consistency ranging from .92 to .97 for college students (Nilsson, et al., 2002) and from .78 to .88 for high school students (Brown et al., 1999). When this scale was conducted in countries where English is not the official language, it was translated into the official native language in these countries such as Chinese (Hampton, 2005; Mau, 2000) and Hebrew (Gati et al., 1994). Coefficient alphas for

the total CDSE –SF ranged from .91 to .94 in these studies. Thus, the validity and reliability results from several studies with different populations support psychometric adequacy of the short-form of the CDSE.

In addition, all of the aforementioned study results indicated that the CDSE - SF, as a total scale, had a high validity and reliability in measuring career self-efficacy. Values of internal consistency reliability coefficient Cronbach's alpha were reported by Betz et al. (1996) as .73, .78, .83, .81, and .75 for Self-Appraisal (SA), Occupational Information (OI), Goal Setting (GS), Planning (PL), and Problem Solving (PS), respectively. In subsequent studies, however, researchers failed to find the five distinct theorized factors with college and high school samples different countries (Chaney et al., 2007; Creed, et al., 2002; Gati, et al., 1994; Hampton, 2005). CDSE-SF might be more appropriate as a measure of general career decision-making self-efficacy. Accordingly, in the current study, only the total CDSE – SF score was used to measure career decision-making self-efficacy.

*Perceived Family Support Scale.* Perceived family support for career development was assessed via a 5-item scale developed by Way and Rossmann (1996). Items reflect financial, emotional, and instrumental types of support perceived as being present in the family. Respondents are asked to identify the extent to which the family they grew up in has provided different extent of support. Participants rate their responses including no support (scored as 1), a little support (scored as 2), or considerable support (scored as 3). Sample items are “To what extent has the family you grew up in given you financial support for your education and training?” and “To what extent has the family you grew up in given you information and contacts that helped you with your occupational choices?” Higher total scores indicate higher levels of perceived support from the family. An internal reliability coefficient of .83 was obtained in a sample of 879 adults attending two-year colleges in the states of Arizona, Georgia, Minnesota, and Pennsylvania (Way & Rossmann, 1996). An alpha of .85 was also obtained by Clark and Watson (1995), suggesting adequate internal consistency. The total score of this instrument was used to measure perceived family support in

current study.

*Perception of Barriers Scale* (modified for people with disabilities). Current barriers to career aspirations were measured by Perception of Barriers (POB) Scale (Corrigan (2008) modified original Perception of Barriers Scale (McWhirter et al., 1997) for people with disabilities). This instrument is a 13-item scale designed to measure perception of barriers regarding career aspirations of people with disabilities. Participants rate their responses on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Each of the statements begins with, “In my future career, I will probably...” A higher score on this measure indicates perceiving more difficulty in overcoming barriers. A lower score on this measure indicates perceiving less difficulty in overcoming barriers. A sample item includes, “In my future job, I will probably be treated differently because of my sex” and “In my future job, I will probably be treated differently because of my disabilities.” A Cronbach’s alpha of .89 was found for a sample of 82 college students with disabilities career-related barriers (Corrigan, 2008). The total score of this instrument was used to measure perception of barriers in current study.

## Data Analysis

For question 1, a descriptive statistic was used to display the number and percentage of whether students with hearing impairment have occupational aspirations. For question 2, the method of frequency was used to calculate the frequency of one mentioned job. For question 3 and hypothesis 1, Holland’s RIASEC occupational codes were employed for classifying these jobs, meanwhile the Dictionary of Holland’s Occupational Codes was used to rate the level of occupational prestige. Moreover an independent sample t-test was used to examine the differences of occupational aspirations between Czech and Chinese group. For  $H_{2A}$ , a t-test was used to examine the differences of mean of total score in three instruments between Czech and Chinese group. For  $H_{2B}$ ,  $H_{2C}$  and  $H_{2D}$ , the Chi-square test was conducted to see the discrepancies among work experience, work plan, and the way of job-hunting

between Czech and Chinese group. For question 5 and H<sub>3A</sub> through H<sub>3E</sub>, the Pearson Correlation Analysis was used to examine the relationships between independent variables (e.g. age, gender, degree of hearing loss, work experience, work plan, academic achievement, the total score of CDSE-SF, the total score of POB, and the total score of PSF) and dependent variable (occupational aspiration). Bivariate correlation measures the strength of the relationship between two continuous variables (Tabachnick & Fidell, 2001). To test the predictor of independent variables, multiple regression analysis was used to ascertain the relationship between occupational aspiration and multiple independent variables, while assessing the relative importance of each of the independent variables toward the prediction of the dependent variable. Pedhazur and Schmelkin (1991) noted that estimates of effects of variables in multistage models can be calculated using multiple regression. Specifically, multiple regression analysis was computed to explore whether students' age, gender, degree of hearing loss, work experience, work plan, academic achievement, CDSE-SF, POB, and PSF significantly and positively predict occupational aspiration. For question 6 and H<sub>4A</sub> and H<sub>4B</sub>, multiple regressions were used to examine whether effects of mediator existed or not. Frazier et al. (2004) endorsed using multiple regressions as a viable means to test for the effects of moderator and mediator variables in multistage models. To test for mediator effects, Baron and Kenny (1986) recommended the following procedure: a) regress the dependent variable on the independent variable; b) regress the mediator on the independent variable; and c) regress the dependent variable on both the independent variable and on the mediator.

The research questions, hypotheses, variables of interest, and analyses are presented in Table 1.

*Table 1 Research Questions, Hypotheses, Variables of Interest, Data Analysis*

Question / Hypothesis	Variable	Analysis
<b>Question 1:</b> Do students with hearing impairment have		Descriptive

occupational aspirations?	statistic
<b>Question 2:</b> What kinds of occupational aspirations do students with hearing impairment have?	Word frequency
<b>Question 3:</b> Is there a difference of occupational aspirations between Czech and Chinese student?	T-test
<b>Hypothesis 1:</b> There will be a significant difference in the outcome of occupational aspirations of students with hearing impairment between Czech and Chinese group.	Word frequency
<b>Question 4:</b> Are there differences in factors which can contribute to the difference in the outcome of occupational aspirations ?	
<b>Hypothesis 2:</b>	
A: There will be significant differences in the total scores of three scales (CDSE-SF, POB and PSF) of students with hearing impairment between Czech and Chinese group.	Independent sample t-test
B: There will be a significant difference in the work experience of students with hearing impairment between Czech and Chinese group.	$\chi^2$ test
C: There will be a significant difference in the work plan of students with hearing impairment between Czech and Chinese group.	
D: There is a significant difference in the way of seeking work of students with hearing impairment between Czech and Chinese group.	
<b>Question 5:</b> Are there significant correlations between variables and occupational aspirations?	<b>Independent:</b> Age, gender, work experience, work plan, academic
<b>Hypothesis 3:</b>	
A: There will be a positive correlation between career	

decision-making self-efficacy and occupational aspirations.	achievement,	Pearson
B: There will be a positive correlation between perception of barriers and occupational aspirations.	CDSE-SF, POB, and PSF.	Correlation Analysis
C: There will be a positive correlation between perceived family support and occupational aspirations.	<b>Dependent:</b> Occupational aspiration	
D: There will be a positive correlation between academic achievement and occupational aspirations.	<b>Predictor:</b>	Multiple regression analysis
E: There will be a positive correlation between gender and occupational aspirations.	Gender, academic achievement, CDSE-SF, POB, and PSF.	
<hr/>		
<b>Question 6:</b> Are there any variables serving as mediators between independent variables and occupational aspiration?	<b>Mediator:</b> CDSE-SF	
<b>Hypothesis 4:</b>	<b>Independent:</b>	
A: Career decision-making self-efficacy will be mediator between perception of barriers and occupational aspirations.	POB, CDSE-SF, PSF	Multiple regression analysis
B: Career decision-making self-efficacy will be mediator between perceived family support and occupational aspirations.	<b>Dependent:</b> Occupational aspiration	

### Pilot study

The purpose of the pilot study was to examine readability and reliability for instruments used in this study, and to identify any issues with items written on the questionnaires. 40 secondary school students with hearing impairment in China

participated in this pilot study. Among these 40 students, 19 were males, and 21 were females. The mean age of the pilot group was 17, ranging from 13 to 20. 16 (40%) students resided in urban area and 24 (60%) students resided in rural area. The highest educational attainment of family member included 1 (2.5%) illiterate, 20 (50%) primary education, 13 (32.5%) secondary education, and 6 (15%) higher education. 4 (10%) students indicated excellent academic achievement, 20 (50%) students indicated moderate academic achievement, and 16 (40%) students had bad academic achievement. The demographic description of the pilot study sample is presented in Table 2.

*Table 2 Demographic Description of the Pilot Study Sample (N = 40)*

Variable	Mean	N	%
Gender			
Male		19	47.5
Female		21	52.5
Age	17		
Residence			
Urban		16	40
Rural		24	60
The highest educational attainment			
Illiterate		1	2.5
Primary education		20	50
Secondary education		13	32.5
Higher education		6	15
Academic achievement			
Excellent		4	10
Moderate		20	50
Bad		16	40

The SPSS analysis results demonstrated higher reliability for the *Career*



*Decision Self-Efficacy Scale-Short Form* (CDSE-SF) with a .91 coefficient alpha in this pilot study, compared to the original scale with a .95 coefficient alpha. The result (a coefficient alpha of .97) indicated the *perceived family support* (PFS) was a reliable scale. The result (a coefficient alpha of .83) also supported the reliability of *Perception of Barriers Scale* (POB). These results demonstrate that these scales are appropriately for current study. Table 3 and table 4 present descriptive statistics and reliability coefficients of each instrument in the pilot study.

*Table 3 Pilot Study Instrument Descriptive Statistics (N = 40)*

Instrument	M	SD	# of items
Career Decision Self-Efficacy Scale - Short Form (CDSE-SF)	2.59	0.53	25
Perceived Family Support Scale (PFS)	2.07	0.13	5
Perception of Barriers Scale (POB)	2.83	0.65	13

*Table 4 Pilot Study Instrument Reliability Coefficients (N = 40)*

Instrument	Alpha	Mean of Item Variances
Career Decision Self-Efficacy Scale - Short Form (CDSEM-SF)	.91	0.95
Perceived Family Support Scale (PFS)	.97	1.18
Perception of Barriers Scale (POB)	.83	.96

Data obtained from the pilot study suggested that the Career Decision-Making Self-Efficacy Short-Form, Vocational Outcome Expectation Scale-Revised, and Perception of Barriers Scale are appropriate measures of the constructs examined in the study, and could be used in the main study to examine relevant variables in making career related decisions. The results from the reliability analysis on these scales were inspiring.

## Summary

This chapter discussed the methodology used in the current study. Methods of determining the size and characteristics of the sample were reviewed. The study design was presented, and each of the questions and hypotheses was discussed along with the appropriate statistical analysis used to test each questions and hypothesis. A pilot study was conducted to examine the readability and reliability for instruments used in this study, and to identify any issues with items written on the Occupational Aspirations Questionnaire.

## CHAPTER IV

### RESULTS

The objective of this quantitative study is to compare and analyze the similarities and differences of occupational aspirations between Chinese group and Czech group, to examine whether significant and positive correlations can be found between some variables and occupational aspirations, and to test whether the mediator effect exist. The methodology employed in this cross-sectional survey study was a descriptive design that permitted bivariate correlation. Current study was guided by the following research questions: a) Do students with hearing impairment have occupational aspirations? b) What kinds of occupational aspirations do students with hearing impairment have? c) Is there a significant difference of occupational aspirations between Czech and Chinese students? d) Are there any differences in variables which can contribute to the difference in occupational aspirations ? e) Are there significant correlations between variables and occupational aspirations? f) Are there any variables serving as mediators between independent variables and occupational aspiration?

#### Descriptive Statistics

112 Participants were recruited from 5 special education schools in Sichuan Province of China, and 8 surveys were discarded due to extensive missing data. This study obtained 107 valid surveys from China, with a 95.6% response rate. 70 Participants were recruited from 6 special education schools in Czech, and 3 surveys were eliminated due to extensive missing data. This study got 67 valid surveys from Czech, with a 95.7% response rate. Thus 174 surveys were used in final analyses. Among these 107 Chinese respondents, 54 (50.5%) were males, and 53 (49.5%) were

females. Among 67 Czech respondents, 47 (70.1%) were males, and 20 (29.9%) were females. The mean age of the Chinese group was 16.9, with a 1.27 standard deviation, ranging from 13 to 21. For Czech group, the mean age was 19.4 with a 2.4 standard deviation, ranging from 15 to 25. Most Chinese students (67.3%) resided in rural area and fewer students (32.7%) resided in urban area. Compared with Chinese group, more Czech students resided in urban area, the percentage was 57.3%.

The highest education attainment of parents in Chinese group included 2 (1.9%) illiterate, 61 (57%) primary education, 31(29%) secondary education, and 13 (12.1%) higher education. Compared to Chinese counterparts, the Czech group demonstrated higher percentage of receiving secondary education (85.1%). 7% of Chinese students indicated excellent level of academic achievement, and 16.8% of them indicated bad level of academic achievement while more Czech students (19.4%) reported higher excellent level of academic achievement, and lower bad level of academic achievement. The demographic description of the main study sample is presented in Table 5.

*Table 5 Demographic Description of Main Study Sample (N = 174)*

variable	China (N=107)		Czech (N=67)	
	N (%)	M (SD)	N (%)	M (SD)
Gender				
Male	54 (50.5)		47 (70.1)	
Female	53 (49.5)		20 (29.9)	
Age		16.9 (1.7)		19.4 ( 2.4 )
Residence				
Urban	35 (32.7)		36 (57.3)	
Rural	72 (67.3)		31 (46.3)	
The highest educational attainment				
Illiterate	2 (1.9)			
Primary education	61 (57)		2 (3)	

Secondary education	31 (29)	57 (85.1)
Higher education	13 (12.1)	8 (11.9)
Academic achievement		
Excellent	7 (6.5)	13 (19.4)
Moderate	82 (76.6)	52 (77.6)
Bad	18 (16.8)	2 (3)

In addition to the demographic characteristics, some hearing-loss related characteristics were collected by questionnaire concerning degree of hearing loss, onset of hearing loss, oral condition, percent of using hearing aids, and percent of using cochlear implants. Specifically, the overwhelming majority of respondents were of severe to profound hearing loss except the response of “no clear”.

The age of hearing loss identified was varied, from birth to after 8 years old. Most respondents reported that the age of hearing loss diagnosed was from birth to 3 years old. 38.3% of Chinese students reported that onset of hearing loss was birth while Czech counterparts were 52.2%. 36.4% of Chinese students reported that onset of hearing loss was 1-3years old while Czech counterparts were 10.4%. 7.5% of Chinese students indicated that the oral condition was good while Czech counterparts were 23.9%. 44.7% of Chinese students indicated that the oral condition was bad while Czech counterparts were only 16.4%. On the aspect of whether using hearing aids and cochlear implants, the proportion of Czech students is similar with Chinese students’ situation. The hearing-loss related information is presented in table 6.

*Table 6 Hearing-loss Related Information of Main Study Sample (N = 174)*

variable	China (N=107)		Czech (N=67)	
	N	%	N	%
Degree of hearing loss				
26-40dB			4	6
41-55dB			2	3

56-70dB	4	3.7	5	7.5
71-90dB	6	5.6	7	10.4
90-110dB	10	9.3	17	25.4
>110dB	3	2.8	12	17.9
Not clear	84	78.5	20	29.9
Onset of hearing loss				
Birth	41	38.3	45	52.2
Less than 1 year old	9	8.4	1	1.5
1-3 years old	39	36.4	7	10.4
3-8 years old	11	10.3	10	14.9
After 8 years old	7	6.5	4	6
Oral condition				
Good	8	7.5	16	23.9
General	48	44.9	40	59.7
Bad	51	47.7	11	16.4
<hr/>				
variable	China (N=107)		Czech (N=67)	
	N (%)	M (SD)	N (%)	M (SD)
<hr/>				
Hearing aids				
No	45 (42.1)		29 (43.3)	
Yes	62 (57.9)		38 (56.7)	
Cochlear implants				
No	103 (96.3)		63 (94)	
Yes	4 (3.7)		4 (6)	
<hr/>				

The mean score of each item in CDSE-SF for Chinese group was 2.56, and higher than Czech group (1.86), whereas standard deviation of each item for Chinese group was 0.45, yet lower than Czech group (0.75). This result indicated that the responses of Chinese students with hearing impairment were more concentrated, and had relatively higher career decision-making self-efficacy than Czech counterparts.

Similarly, the mean score of each item in POB, the Chinese group reported higher score (2.92) than Czech group (2.56). It indicated that Chinese students with hearing impairment felt more difficulty in overcoming barriers. In terms of PSF, two groups reported similar mean score of each item (Chinese group = 2.13, Czech group = 2.11). The descriptive statistics of three instruments are presented in table 7.

*Table 7 Main Study Instrument Descriptive Statistics for Two Group (N = 174)*

Instrument	# of items	China (N=107)		Czech (N=67)	
		M	SD	M	SD
CDSE-SF	25	2.56	0.45	1.86	0.75
PSF	5	2.13	0.12	2.11	0.13
POB	13	2.92	0.63	2.56	0.64

The total sample was used to assess the reliability of the instruments used in this study. Cronbach's  $\alpha$  was computed as a measure of internal consistency for the total three scales. The three instruments demonstrated good evidence of reliability in both Czech and Chinese group (a coefficient alpha of .93 was got from CDSE-SF in both Czech and Chinese group; the coefficient alpha for PSF was .97 in both Czech and Chinese group; the coefficient alpha for POB was .82 in Czech group, and in Chinese group was .81). More specific data were presented in table 8.

*Table 8 Main Study Instrument Reliability Coefficients (N = 40)*

variable	China (N=107)		Czech (N=67)	
	Alpha	Mean of Item Variances	Alpha	Mean of Item Variances
CDSE-SF	.93	0.88	.93	1.26
PFS	.97	1.37	.97	1.34
POB	.81	1.12	.82	1.21

## Results of research questions and hypotheses

The purpose of this study was to compare and analyze the similarities and differences of occupational aspirations between Chinese group and Czech group, to examine the influence of some variables on occupational aspirations. The results of the statistical analyses used for examining these questions and hypotheses are presented here.

*Research question 1: Do students with hearing impairment have occupational aspirations?*

Through analyzing the responses of the open-ended question “If you were completely free to choose any job, what you would like to choose as a lifetime job”, the outcome of career decision-making or career indecision were found as follows: 72.9% of Chinese students with hearing impairment had occupational aspirations while Czech counterparts were 56.7%; accordingly, Czech students (44.3%) reported higher percentage of indecisive occupational aspirations than Chinese counterparts (27.1%). More details are presented in table 9. This result as an evidence supported the research “adolescents with hearing impairment have a lower level of career maturity, involving reduced career awareness and lower career decision-making competencies, than normally hearing adolescents” of Furlonger (1998) and Schroedel (1991).

*Table 9 Descriptive Statistics of Occupational Aspirations*

variable	China (N=107)		Czech (N=67)	
	N	%	N	%
<b>Occupational aspirations</b>				
Yes	78	72.9	38	56.7
No	29	27.1	29	43.3



*Research question 2: What kinds of occupational aspirations do students with hearing impairment have?*

In accordance with the category of Holland occupational codes, the occupational aspirations of Chinese students with hearing impairment were mainly concentrated three domains: (1) professional, technical and kindred works; (2) craftsmen and kindred works; and (3) managers and administrators. 37% of occupational aspirations of Chinese group were subordinated to the first domain including such occupations: art designer, game designer, fashion designer, teacher, entertainer, researcher, physicist, engineer, artist, computer technician, nurse, dancer, and model; 36% of their occupational aspirations were in the second domain including these occupations: cook, potter, cross-stitch master, embroidery worker, factory worker, tailor, and carpenter; and 29% of them desired administrative occupation, such as shopkeeper, factory director, company president, and self-employed work. Only 1 Chinese student would like to pursue the occupation of office clerk; and 2 students considered working on service work (soldier and cleaner).

Compared to Chinese group, more Czech students (60.5%) desired “professional, technical and kindred works”, such as teacher, pedagogue, programmer, accountant, computer technician, electronic technician, doctor, veterinarian, garden architect. 15% of Czech student would like to pursue service works including stewardess, hairdresser, fireman, soldier, and waitress. 13.2 % of occupational aspirations of Czech students were “craftsmen and kindred works” including car mechanic, joiner, massage, and mason. In addition, one Czech student would like to be company president, one student would like to be engine driver, and two students would like to be gardener. The descriptive statistic of occupational aspirations is presented in table 10.

*Table 10 Descriptive Statistics of Occupational Aspirations*

Occupational aspirations	China (N=78)		Czech (N=38)	
	N	%	N	%
Professional, Technical and Kindred Works				
Art designer	2	2,5		

Game designer	2	2.5		
Fashion designer	3	3.8		
Teacher	4	5	3	7.9
Pedagogue			1	2.6
Entertainer	2	2.5		
Researcher	1	1.3		
Physicist	1	1.3		
Engineer	2	2.5		
Programmer			3	7.9
Computer technician	5	6.4	3	7.9
Electronic technician			6	15.8
Doctor			2	5.3
Veterinarian			2	5.3
Accountant			1	2.6
Garden architect			2	5.3
Artist	3	3.8		
Nurse	1	1.3		
Dancer	1	1.3		
Model	2	2.5		
<hr/>				
Managers and Administrators				
Shopkeeper	3	3.8		
Factory director	1	1.3		
Self-employed work	9	11.5		
Company president	5	6.4	1	2.6
<hr/>				
Clerical and Kindred Works				
Office clerk	1	1.3		
<hr/>				
Craftsmen and Kindred Works				
Cook	19	24.4		
Potter	1	1.3		

Cross-stitch master	1	1.3		
Embroidery worker	2	2.5		
Factory worker	1	1.3		
Tailor	3	3.8		
Carpenter	1	1.3		
Car mechanic			2	5.3
Joiner			1	2.6
Massage			1	2.6
Mason			1	2.6
<hr/>				
Transport Equipment Operatives				
Engine driver			1	2.6
<hr/>				
Labors				
Gardener			2	5.3
<hr/>				
Service Workers				
Stewardess			1	2.6
Hairdresser			2	5.3
Soldier	1	1.3	1	2.6
Fireman			1	2.6
waitress			1	2.6
Cleaner	1	1.3		

*Research question 3: Is there a difference of occupational aspirations of Czech and Chinese student?*

*Hypothesis 1: There will be a significant difference in occupational aspirations of students with hearing impairment between Czech and Chinese group.*

According to Holland's RIASEC occupational codes, 72.9% of Chinese students and 56.7% of Czech students were coded for their most desired jobs. Non-coded responses included "don't know", "anything" and "challenging", "no matter",

“nonsense”. What careers of Chinese group most frequently desired were Realistic, Artistic and Enterprising occupations, and what those least desired were Social, Investigative and Conventional occupations. Compared to Chinese group, Czech counterparts frequently aspired to Investigative, Realistic and Social occupations, and those least aspired to Conventional, Artistic and Enterprising occupations. There is a significant difference in the outcome of occupational aspirations of students with hearing impairment between Chinese group and Czech group ( $t=2.05$ ,  $p=0.042$ ). For Chinese group, girls more likely to pursue Artistic career than boys, whereas boys more likely aspire to Investigative career than girls. In terms of Czech group, girls had higher percentage on Conventional career while boys had higher percentage on Enterprising and Artistic occupations. More details are presented in table 11.

*Table 11 Frequencies for Occupational Aspirations*

Holland code	China (N=78; Female=37; Male=41)			Czech (N=38; Female=9; Male=29)		
	F (%)	M (%)	T (%)	F (%)	M (%)	T (%)
Realistic	16(20.5)	21(26.9)	37(47.4)	5(13.2)	9 (23.6)	14(36.8)
Investigative	0	6(7.7)	6(7.7)	2(5.3)	12(31.5)	14(36.8)
Artistic	10(12.8)	7(9)	17(21.8)	0	2(5.3)	2(5.3)
Social	4(5.1)	1(1.3)	5(6.4)	1(2.6)	3(7.9)	4(4.5)
Enterprising	7(9)	6(7.7)	13(16.7)	0	2(5.3)	2(5.3)
Conventional	0	0	0	1(2.6)	1(2.6)	2(5.3)

*Research question 4: Are there differences in factors which can contribute to the difference in the outcome of occupational aspirations ?*

*Hypothesis 2:*

*A: There will be significant differences in the total scores of three scales (CDSE-SF, POB and PSF) of students with hearing impairment between Czech and Chinese group.*

*B: There will be a significant difference in the work experience of students with hearing impairment between Czech and Chinese group.*

*C: There will be a significant difference in the work plan of students with hearing impairment between Czech and Chinese group.*

*D: There is a significant difference in the way of seeking work of students with hearing impairment between Czech and Chinese group.*

This question can be specified as “explored the mean difference in career decision-making self-efficacy, perception of barrier, and perceived family support (as measured by total scores on these scales) ,percent difference in work experience, work plan, and the way of seeking work between Czech and Chinese groups”. To test  $H_{2A}$ , the means and standard deviations were computed. The mean of total score in each instrument of Chinese group was higher than Czech group. For total scores on CDSE-SF, the minimum score was 34, and maximum score was 98 in Chinese group while Czech group reported the same maximum score, and lower minimum score (27). For total score on PFS, the Chinese group reported a 5 minimum score and a 15 maximum score, the same result was found in Czech group. For total score on POB, Chinese group indicated a higher minimum score (22) while Czech group indicated a higher maximum score (61); accordingly, Czech group reported a lower minimum score (14) while Chinese group reported a lower maximum score (56). An independent sample t-test was computed comparing the mean difference of these three scales for students with hearing impairment from two different groups. Levene’s test for equality of variances supported the assumption that two independent groups have approximately equal variance on the dependent variable. As hypothesized, some significant differences were found in these scales between Czech and Chinese groups ( $t = 7.15, p < .001$ ;  $t = 2.29, p < 0.01$ ;  $t=33.67, p<0.001$ ). Table 12 present the descriptive statistics and t-test analysis results.

*Table 12 Means and Standard Deviations of Three Scales Total Scores by Two Group*

Instrument	China (N=107)		Czech (N=67)		T-Test
	Mean	SD	Mean	SD	
CDSE-SF	63.91	11.24	46.86	18.69	7.15***
POB	37.91	8.23	33.44	8.37	2.92**
PFS	10.87	2.09	9.14	2.1	33.67***

\*\* Stands for significant at the 0.01 level (2-tailed).

\*\*\* Stands for significant at the 0.001 level (2-tailed).

In order to identify potential effect on occupational aspirations, two open-ended questions were proposed: (1) Have you had occupational experience or accepted occupational training/education? If you have, what is it? (2) Do you have career plan? If you have, what is it? In Chinese group, only 9.3% of Chinese students had occupational experience, whereas Czech counterparts were 55.2%. 8.4% of Chinese students had career plan while Czech counterparts were 16.4%. To test H<sub>2B</sub> and H<sub>2C</sub>, the Chi-square test was computed. A significant difference was found in occupational experience between Czech and Chinese groups ( $\chi^2 = 43.99, p < .001$ ). However, no significant difference was revealed in work plan between Czech and Chinese group. Table 13 presents the descriptive statistics and Chi-square analysis results.

*Table 13 Work Experience and Plan of Students with Hearing Impairment*

variable	China (N=107)		Czech (N=67)		$\chi^2$
	N	%	N	%	
work experience					43.99***
Yes	10	9.3	37	55.2	
No	97	90.3	30	44.8	
work plan					2.6
Yes	9	8.4	11	16.4	
No	98	91.6	56	83.6	

\*\*\* Stands for significant at the 0.001 level (2-tailed).

In order to explore social support towards students with hearing impairment, one

open-ended question was proposed: “Which way of job-hunting will you choose, for example, found by yourself, introduced by relative or friends, introduced by school, service center for people with disabilities?” The results showed that more Chinese students (24.3%) were “do not know how to find a job” than Czech counterparts (7.5%). The most popular way of job-hunting in Chinese group (28%) was finding a job by themselves, whereas Czech group was via relatives or friends (42.3%). Chinese group (21.5%) was inclined to finding a job through all kinds of available approach, whereas Czech counterparts reported zero. Main approaches of seeking work were similar in both Czech and Chinese group. They were via oneself and via relative or friend. To test  $H_{2D}$ , the Chi-square test was calculated. A significant difference was found in the way of seeking work between Czech and Chinese groups ( $\chi^2 = 43.67$ ,  $p < .001$ ). Table 14 presents the descriptive statistics and Chi-square analysis results.

*Table 14 The Way of Seeking Work of Students with Hearing Impairment*

The way of seeking work	China (N=107)		Czech (N=67)		$\chi^2 = 48.67^{***}$
	N	%	N	%	
No idea	26	24.3	5	7.5	
1 via oneself	30	28	19	28.4	
2 via relative or friend	14	13.1	29	43.2	
3 via school	0	0	1	1.5	
4 via service institutes for people with disabilities	4	3.7	1	1.5	
1+2	5	4.7	8	11.9	
1+3	0	0	3	4.5	
1+4	2	1.9	0	0	
2+3	0		1	1.5	
3+4	3	2.8	0	0	
1+2+3+4	23	21.5	0	0	

\*\*\* Stands for significant at the 0.001 level (2-tailed)

*Research question 5: Are there significant correlations between variables and occupational aspirations?*

*Hypothesis 3:*

*A: There will be a positive correlation between career decision-making self-efficacy and occupational aspirations.*

*B: There will be a negative correlation between perception of barriers and occupational aspirations.*

*C: There will be a positive correlation between perceived family support and occupational aspirations.*

*D: There will be a positive correlation between academic achievement and occupational aspirations.*

*E: There will be a positive correlation between gender and occupational aspirations.*

To answer the question of “Are there significant correlations between variables and occupational aspirations”, what factors contributing to the outcome of occupational aspirations should be identified. In accordance with model of SCCT, there are certain correlations between person factors, contextual factors, career decision-making self-efficacy, and occupational aspirations. Therefore, these variables (gender, age, the degree of hearing loss, work experience, work plan, academic achievement, the total score of CDSE-SF, the total score of POB, and the total score of PSF) should be considered as a potential predictor towards occupational aspirations. These correlations between variables and occupational aspirations were examined with the Pearson Correlation Analysis in SPSS (Statistics Package for Social Science). The prestige-score of occupation (this score is obtained from Dictionary of Holland Occupational Codes) was treated as dependant variable while the other factors were treated as independent variables.

The results indicated that gender was weakly and negatively correlated ( $r = -.096$ ) with occupational aspirations while other factors (age, degree of hearing loss, work



experience and work plan) were weakly and positively ( $r = .066$ ;  $r = .044$ ;  $r = .083$ ;  $r = .039$ ) correlated with occupational aspirations, and the correlations were not significant ( $p > .05$ ). Subsequently, the five hypotheses were examined by Pearson Correlation Analysis. Four of the five independent variables were significantly correlated with occupational aspirations at the .01 and .05 level: academic achievement ( $r = .201$ ), career decision-making self-efficacy ( $r = .235$ ), perception of barriers ( $r = .207$ ), and perceived family support ( $r = .162$ ). There is a strong positive relationship between career decision self-efficacy and occupational aspirations, and a moderate positive relationship between academic achievement and occupational aspirations, and a positive relationship between perceived family support and occupational aspirations. Thus three of the five correlational hypotheses were supported. However, the negative relationship hypothesized between perception of barriers and occupational aspirations was not found; in contrast, significantly positive correlation was found between these two variables. Furthermore, the positive correlation between gender and occupational aspiration was not supported in current study. In addition, career decision-making self-efficacy was significantly and negatively correlated with age and work experience, and significantly positively correlated with perception of barriers and perceived family support. These findings were helpful to discuss subsequent mediator effect. More details concerning these correlations are presented in table 15.

*Table 15 Correlation Analysis between Variables*

	1	2	3	4	5	6	7	8
1 Gender								
2 Age	-.224**							
3 work experience	-.087	.388**						
4 work plan	.059	.154*	.397**					
5 Academic achievement	-.049	-.128	-.163*	.000				

6 CDSE-SF	.113	-.257**	-.331**	-.140	.129			
7 POB	.120	.171*	.198**	-.029	.144	.336**		
8 PFS	-.121	-.014	-.084	-.133	.377**	.303**	.139	
9 Occupational aspirations	-.096	.066	.083	.039	.201**	.235**	.207**	.162*

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

In accordance with model of SCCT, each of the five variables mentioned in H<sub>3A</sub> through H<sub>3E</sub> will contribute unique variance in the prediction of occupational aspirations. To examine whether these independent variables predict occupational aspirations, a multiple regression analyses was used to estimate the effects of each of the variables on the prediction of occupational aspirations, in which occupational aspiration was the dependent variable, and age, academic achievement, career decision-making self-efficacy, and perception of barriers, perceived family support were the independent variables. As previously noted, Pedhazur and Schmelkin (1991) maintained that estimates of effects of variables in multistage models, such as the SCCT model, can be calculated using multiple regression. The concrete procedure was “each endogenous variable to be regressed on the variables said to affect it, and the b’s (unstandardized coefficients) or p’s (standardized coefficients) are taken as indicating the effects of the variables with which they are associated” (p. 3 14).

The results of multiple regression analyses indicated that career decision-making self-efficacy ( $t = 2.50, p < .05$ ), perception of barriers ( $t = 2.58, p < .05$ ), and perceived family support ( $t = 2.09, p < .05$ ) significantly predicted occupational aspiration. The academic achievement ( $t = 2.63, p < .01$ ) very significantly predicted occupational aspiration. However, other independent variables such as gender, age, the degree of hearing loss, work experience, and work plan did not predict occupational aspiration of students with hearing impairment.

*Table 16 Regression Analyses*

	R	R2	B	SE	$\beta$	t
CDSE-SF	0.19	0.04	0.35	0.14	0.19	2.50*
POB	0.20	0.04	0.61	0.24	0.20	2.58*
PFS	0.16	0.03	0.13	0.06	0.16	2.09*
Academic achievement	0.20	0.04	0.91	0.25	0.30	2.63**

\* Stands for significant at the 0.05 level (2-tailed).

\*\* Stands for significant at the 0.01 level (2-tailed).

*Research question 6: Are there any variables serving as mediators between independent variables and occupational aspiration?*

*Hypothesis 4:*

*A: Career decision-making self-efficacy will be mediator between perception of barriers and occupational aspirations.*

*B: Career decision-making self-efficacy will be mediator between perceived family support and occupational aspirations.*

According to the result of correlation analysis, there were significant and positive correlations among career decision-making self-efficacy, perception of barriers, and occupational aspiration. It indicated that mediator effect could exist in these three variables. Similarly, what significant and positive correlations were found existed among career decision-making self-efficacy, perceived family support, and occupational aspiration. It indicated that mediator effect could exist in these three variables as well. To test whether effects of mediator existed or not, the multiple regressions were used to examine these relationships.

To establish mediation, Baron and Kenny (1986) indicated that the independent variable must affect the dependent variable in the first equation; the independent variable must affect the mediator in the second equation; and the mediator must affect the dependent variable in the third equation. Baron and Kenny further stated that “if all these conditions hold in the expected direction, then the effect of the independent

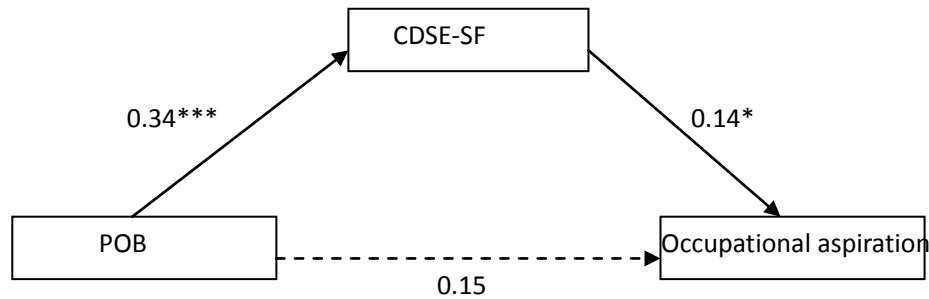
variable must be less in the third equation than it is in the first; perfect mediation holds if the independent variable has no effect when the mediator is controlled”.

Based on the SCCT model, one of the relationships hypothesized in the current study was that the independent variable perception of barriers (POB) would predict occupational aspiration (the dependent variable), and that this relationship would be mediated by career decision-making self-efficacy (CDSE-SF). On the other hand, POB was expected to lead to CDSE-SF, which then in turn would lead to occupational aspiration. Accordingly, in current study, the associated set of equations and expectations for this hypothesis were as follows: a) occupational aspiration was regressed on perception of barriers, and perception of barriers was expected to have a significant effect on occupational aspiration; b) career decision-making self-efficacy (the mediator) was regressed on perception of barriers (the independent variable), and perception of barriers was expected to have a significant effect on career decision-making self-efficacy; c) occupational aspiration was regressed on both career decision-making self-efficacy and perception of barriers; and it was predicted both that career decision-making self-efficacy would have a significant effect on occupational aspiration and that the relationship between perception of barriers and occupational aspiration would be lower than it was in the first equation.

The result from figure 1 showed that the total effect ( $\beta = 0.2$ ,  $p < 0.05$ ) and indirect effect ( $\beta = 0.05$ ,  $p < 0.01$ ) were significant, but the direct effect was not significant ( $\beta = 0.15$ ,  $p > 0.05$ ). Thus, the mediator effect of career decision-making self-efficacy was significant between perception of barriers and occupational aspiration, the mediating rate was 25%. The mediating model indicated that perception of barriers effected on occupational aspiration completely through the indirect pathway career decision-making self-efficacy. In other words, if students with hearing impairment had more strong perception of barriers, they would have higher outcome of career decision-making efficacy; and higher self-efficacy would lead to higher occupational aspiration. The result supported  $H_{4A}$ , also partially supported the SCCT model. The mediating model of CDSE-SF between POB and occupational

aspiration was presented in figure 1.

*Figure 1 Mediating Model of CDSE-SF between POB and Occupational Aspiration*



\* Stands for significant at the 0.05 level (2-tailed).

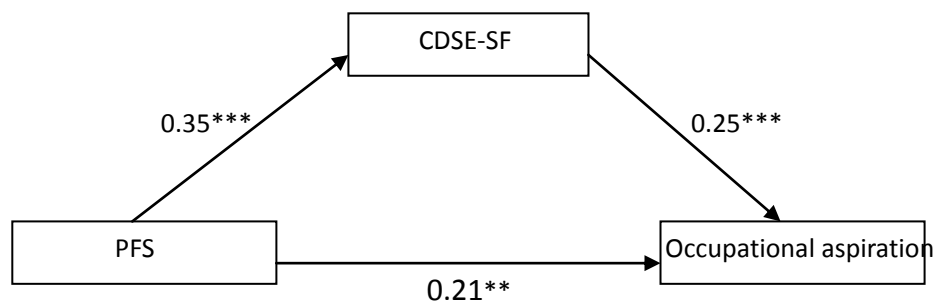
\*\*\* Stands for significant at the 0.001 level (2-tailed).

To test  $H_{4B}$ , one of the relationships hypothesized in the current study was that the independent variable perceived family support (PFS) would predict occupational aspiration (the dependent variable), and that this relationship would be mediated by career decision-making self-efficacy (CDSE-SF). On the other hand, PFS was expected to lead to CDSE-SF, which then in turn would lead to occupational aspiration. Accordingly, in current study, the associated set of equations and expectations for this hypothesis were as follows: a) occupational aspiration was regressed on perceived family support, and perceived family support was expected to have a significant effect on occupational aspiration; b) career decision-making self-efficacy (the mediator) was regressed on perceived family support (the independent variable), and perceived family support was expected to have a significant effect on career decision-making self-efficacy; c) occupational aspiration was regressed on both career decision-making self-efficacy and perceived family support; and it was predicted both that career decision-making self-efficacy would have a significant effect on occupational aspiration and that the relationship between perceived family support and occupational aspiration would be lower than it was in the first equation.

The result indicated that the total effect ( $\beta = 0.3$ ,  $p < 0.001$ ) and indirect effect ( $\beta = 0.09$ ,  $p < 0.001$ ) were significant, and the direct effect was also significant ( $\beta = 0.21$ ,

$p < 0.01$ ). Thus, the mediator effect of career decision-making self-efficacy was significant between perceived family support and occupational aspiration, the mediating rate was 30%. The mediating model indicated that perceived family support effected on occupational aspiration partially through the indirect pathway career decision-making self-efficacy. Similarly, if students with hearing impairment had better perceived family support, they would have higher career decision-making efficacy; and higher self-efficacy would lead to higher occupational aspiration. The result supported  $H_{4B}$ , also supported the SCCT model. The mediating model of CDSE-SF between PFS and occupational aspiration was presented in figure 2.

*Figure 2 Mediating Model of CDSE-SF between PFS and Occupational Aspiration*



\*\* Stands for significant at the 0.01 level (2-tailed).

\*\*\* Stands for significant at the 0.001 level (2-tailed).

## Summary

182 hearing impaired students were recruited from Czech and China, and 174 surveys were used in final analyses. In 107 Chinese respondents, 54 (50.5%) were males, and 53 (49.5%) were females; and in 67 Czech respondents, 47 (70.1%) were males, and 20 (29.9%) were females. 72.9% of Chinese students had occupational aspirations while Czech counterparts were 56.7%; accordingly, Czech hearing impaired students (44.3%) reported higher percentage of career indecision than Chinese counterparts (27.1%). The occupational aspirations of Chinese students with hearing impairment were mainly concentrated three domains: professional, technical and kindred works (37%); craftsmen and kindred works (36%); and managers and administrators (23%). Compared to Chinese group, more Czech students (60.5%)

desired “professional, technical and kindred works”.

What careers of Chinese group most frequently desired were Realistic, Artistic and Enterprising occupations, and what those least desired were Social, Investigative and Conventional occupations. Compared to Chinese group, Czech counterparts frequently aspired to Investigative, Realistic and Social occupations, and those least aspired to Realistic, Artistic and Enterprising occupations. There is a significant difference in the outcome of occupational aspirations of students with hearing impairment between Chinese group and Czech group ( $t=2.05$ ,  $p=0.042$ ).

There was a significant difference in the total score of CDSE-SF ( $t = 7.15$ ,  $p < .001$ ), POB ( $t = 2.29$ ,  $p < 0.01$ ) and PSF ( $t=33.67$ ,  $p<0.001$ ) of students with hearing impairment between Czech and China. A significant difference was found in work experience between Czech and Chinese groups ( $\chi^2 = 43.99$ ,  $p < .001$ ). Similarly, a significant difference was found in the way of seeking work between Czech and Chinese groups ( $\chi^2 = 43.67$ ,  $p < .001$ ). However, no significant difference was revealed in work plan between Czech and Chinese group.

There is a strong positive relationship between career decision self-efficacy and occupational aspirations, and a moderate positive relationship between each of the other two variables (academic achievement and perception of barriers) and occupational aspirations, and a positive relationship between perceived family support and occupational aspirations. The results of Multiple Regression Analyses indicated that career decision-making self-efficacy ( $t = 2.50$ ,  $p < .05$ ), perception of barriers ( $t = 2.58$ ,  $p < .05$ ), and perceived family support ( $t = 2.09$ ,  $p < .05$ ) significantly predicted occupational aspirations; and academic achievement ( $t = 2.63$ ,  $p < .01$ ) very significantly predicted occupational aspiration. The mediator effect of career decision-making self-efficacy was significant between perception of barriers and occupational aspirations, the mediating rate was 25%; similarly, the mediator effect of career decision-making self-efficacy was significant between perceived family support and occupational aspiration, the mediating rate was 30%.

## CHAPTER V

### DISCUSSION

In this chapter, the findings of this study are presented; the theoretical and practical implications of this study are discussed; and limitations of the study and future research are outlined. Finally, the major ideas of this study are presented in the conclusion.

#### Discussion of the results

*The similar characteristics of occupational aspirations between Czech and Chinese students.*

A considerable proportion of students with hearing impairment *were likely to be indecisive* about future occupational choice. The result of current study showed that 27.1% of Chinese students and 43.3% of Czech students expressed indecisive occupational aspirations in adolescence. This result as an evidence supported the research “a developmental lag clearly existed in the career maturity of the study participants with hearing loss” of Furlonger (1998); and was consistent with the research “approximately 60% of the deaf students were considered to be aware of their vocational aptitudes and interests, while 61% were considered to be deficient in occupational knowledge” of Schroedel (1991, 1992). Why students with hearing impairment were much higher indecisive occupational aspiration than students without disabilities. A significant reason is their hearing loss. Specifically, first, the career-related information casually picked up by children without hearing loss through listening to others talking and to television and radio may be missed by deaf or hard of hearing children who have less auditory access to this kind of incidental learning (Furlonger, 1998); second, some parents may be more protective of their deaf or hard of hearing child than they would be of a child without hearing loss (Gregory,



1998; Luterman, 1999; Morgan-Redshaw, et al., 1990; Warick, 1994), and consequently may limit their child's age-appropriate opportunities to explore the world and his or her own capabilities (King, 1992); third, adolescents with hearing loss may have less experience of part-time employment during their secondary school years than their normally hearing peers. It has been asserted that such work experience has a beneficial effect on adolescents' development, fostering responsibility, independence, changed self-concepts, and a greater awareness of interests (Mortimer, et al., 1994), as well as positively affecting certain work values, although not necessarily resulting in reduced career indecision (Skorikov & Vondracek, 1997).

From the perspective of occupational prestige level, the distribution of occupational aspiration of both Czech and Chinese students was *polarized*. Compared to hearing peers, students with hearing impairment were *less likely to aspire to high-prestige occupations*. According to Holland codes, the occupational level can be evaluated by general educational development (GED) level and occupational prestige. Occupational prestige scores are derived from ratings by general public of the desirability of jobs. Prestige score is reported on a scale from 0 to 96 (e.g. the prestige score of accountant is 60.6; architect is 70.9; tailor is 31.7, etc.). Gottfredson and Brown (1978) thought that the list of Holland codes provided for "1970 detailed census occupational titles" is useful to both researchers and practitioners in vocational psychology and other disciplines. Using the occupational prestige scores of Holland codes, the result of this study indicated that 31.8% of Chinese students reported high-prestige score (ranging from 51.8 to 73.6) while Czech counterparts (ranging from 51.9 to 88.4) were 26.5%. However, 57% of Chinese students reported low-prestige scores (ranging from 0 to 37.3, including no occupational aspiration), and 57.4% of Czech students also reported relatively low scores (ranging from 0 to 38.5, including no occupational aspiration). A factor could exert certain influence on low-prestige occupational aspiration. That was deficient work experience and work plans. Current study found that 90.3% of Chinese students and 44.8% of Czech

students did not have work experience; and 91.6% of Chinese students and 83.6% of Czech students did not have work plans. Weakly correlations were found between occupational aspiration and work experience ( $r = .083$ ); and between occupational aspiration and work plan ( $r = .039$ ). Another reason is stereotype. When categorize a person as individuals with hearing impairment, the derived expectancies about the concept from stereotype-based assumptions made about these people as a group. As a result of these expectations, the hearing impaired person may encounter a number of treatment-related problems, including a decreased likelihood of occupational aspirations. For other type of disabled people, Rojewski (1996) also found that youth with learning disabilities were less likely to aspire to high-prestige occupations and were more likely to be indecisive about future occupational alternatives. A number of investigations had shown that persons with disabilities were more likely to be underemployed and concentrated in lower-prestige occupations including service, sales, and managerial fields. These occupations often reflected career choices that deemphasized academic skills while capitalizing on individual strengths (Fourqurean, et al., 1991; Gottfredson, et al., 1984; White, 1985).

The *scope of occupational aspirations* of students with hearing impairment was *limited* because of their hearing loss. The results indicated that overwhelming majority of students with disabilities aspired to the occupations which require a minimum of verbal, particularly vocal, interaction with people and a maximum of work with data or things. For instance, art designer, game designer, fashion designer, researcher, physicist, engineer, artist, computer technician, programmer, accountant, cook, potter, cross-stitch master, embroidery worker, factory worker, tailor, carpenter, car mechanic, gardener, engine driver, joiner, massage, mason, and so forth. The difficulties of interpersonal communication and safety issues are reasons which contribute to limited occupational options and preferences of data or things. Another reason is limited expectations appear to affect hearing impaired youth. In a study of hard of hearing youth, 20% of the respondents reported that their parents' suggested career options were limited by concerns about their son's or daughter's hearing loss

(Warick, 1994). It is a problem for concern if parent, teacher, or counselor expectations exclude certain career options from exploration by students with hearing impairment.

*Discrepancies in the outcome of occupational aspirations between Chinese and Czech group*

From the perspective of *occupational types*, a significant difference was found between Czech and Chinese students.

Due to different occupational tradition, socioeconomic development; and particularly, the content of vocational education and training (e.g. many Chinese special education schools provide such kinds of vocational training to students with hearing impairment as cooking, embroidery, painting, sewing, pottery, dancing, computer technology, etc.), the occupational aspirations of students with hearing impairment were significantly different. For instant, in the domain of “professional, technical and kindred works”, Chinese students tended to prefer art designer, game designer, fashion designer, teacher, entertainer, researcher, physicist, engineer, artist, computer technician, nurse, dancer, and model; whereas Czech counterparts desired teacher, pedagogue, programmer, accountant, computer technician, electronic technician, doctor, veterinarian, and garden architect. Especially in the domain of “craftsmen and kindred works”, the occupational aspirations were completely different. Chinese students aspired to cook, potter, cross-stitch master, embroidery worker, factory worker, tailor, and carpenter while Czech counterparts were car mechanic, joiner, massage, and mason. An important reason, different industrial types (e.g. light industry is advanced in China while heavy industry is advanced in Czech) may impact the outcome of occupational aspiration.

Due to different philosophy, the occupational aspirations were significant different between two groups. The most important influence on Chinese culture and education over the centuries is the philosophy of Confucius which is developed from 551–479 BC. Confucian emphasis on respect for authority, whether it would be the

elders of the family or the leaders of the social hierarchy, and on a designated social status for groups of people (e.g., husband and wife, sons and daughters, educated and uneducated) in order for a family and society to maintain harmony for preserving the established social order and encouraged the static nature of Chinese society over the centuries (Ellsworth & Zhang, 2007). Influenced by the concept of Confucian social hierarchy, a considerable number (18) of Chinese students aspired to “managers or administrators”. On the contrary, only 2 Chinese students expressed the aspiration of service work, and no one aspired to “labors”. Influenced by pragmatic philosophy, 13.2% of Czech students would like to do service works, 5.3% of Czech students would like to be “labors”.

According to Holland’s RIASEC occupational codes, what careers of Chinese group most frequently aspired to were Realistic, Artistic and Enterprising occupations, while Czech counterparts frequently aspired to pursue Investigative, Realistic and Social occupations. This result in Chinese group was partial consistent with a study’s finding “Chinese students without disabilities aspired to Conventional, Social, Enterprising and Realistic occupations” (Creed et al., 2009). The result from Czech group was also found in an Australian study conducted by Patton and Creed’s (2007) (students’ aspirations were more Investigative, Social and Realistic occupations). In general, boys reported more diverse occupational aspirations, which supported past studies (e.g. Adams & Hicken, 1984; Franken, 1983; Looft, 1971; Vondracek & Kirchner, 1974). For Chinese group, girls more likely to pursue Realistic (20.5%), Artistic (12.8), enterprising (9%), and Social (5.1%) occupations; boys more likely desire Realistic (26.9%), Artistic (9%), enterprising (7.7%) and Investigative (7.7%) occupations. In terms of Czech group, girls more likely to pursue Realistic (13.2%), Investigative (5.3%), Conventional (2.6%), and Social (2.6%) occupations; boys more likely desire Investigative (31.5%), Realistic (23.6%), Social (7.9%), Artistic (5.3%), and enterprising (5.3%) occupations. The result demonstrated that no significant difference on occupational aspirations between male and female. Similar findings were found in some studies (Archer, 1984; Bobo et al., 1998; Trice & King, 1991).

*Significant differences in factors which can contribute to the difference in the outcome of occupational aspirations.*

A significant difference of the total score in CDSE-SF was found between Czech and Chinese group ( $t = 7.15, p < .001$ ). The mean of total score in this instrument, Chinese group (63.91) was higher than Czech group (46.86). Nevertheless, the standard deviation in this instrument, Chinese group (11.24) was lower than Czech group (18.69). Another significant difference of the total score in POB was found between Czech and Chinese group ( $t = 2.29, p < 0.01$ ). The mean of total score in this instrument, Chinese group (37.91) was higher than Czech group (33.44). However, the standard deviation in this instrument, Chinese group (8.23) was similar to Czech group (8.37). One more significant difference of the total score in PFS was found between Czech and Chinese group ( $t=33.67, p<0.001$ ). The mean of total score in this instrument, Chinese group (10.87) was also slightly higher than Czech group (9.14). The standard deviation in this instrument, Chinese group (2.09) was similar to Czech group (2.1).

A significant difference was found in occupational experience between Czech and Chinese groups ( $\chi^2 = 43.99, p < .001$ ). The proportion of work experience of students with hearing impairment in Czech group (55.2%) was six times the proportion of Chinese group (9.3%). This phenomenon indicated that special education in China underscored the importance of school education, and despised social experience. It reflected a character of Chinese school education, was an epitome of Chinese education system. For instance, Fu' (1999) pointed out that a big problem in Chinese education was over-highlighting theoretical study, and neglecting social practice.

The way of job-hunting in Chinese group was significant differed with Czech group ( $\chi^2 = 43.67, p < .001$ ). The proportion of “do not how to find a job” in Chinese group (24.3%) was over three times than Chinese group (7.5%). Chinese students preferred job-hunting by themselves (28%), through all kinds of available approach

(21.5%), and via relatives or friends (13.1%); did not prefer job-hunting via school (0) and via service institutes for people with disabilities (3.7%). Compared Chinese group, Czech students preferred job-hunting via relatives or friends (42.3%) and by themselves (28.4%); did not prefer job-hunting via school (1.5%) and via service institutes for people with disabilities (1.5%).

### *Intersection of occupational aspiration and SCCT*

As discussed in the chapter I, the occupational aspiration for those who have a certain type of disabilities is an area that has been largely neglected by career researchers. There were some notable exceptions, however. For example, Rojewski et al. (2012) adopted longitudinal research to analyze the development patterns of occupational aspirations in adolescents with high-incidence disabilities. Schroedel (1991, 1992) investigated career decisions and career decision-making skills of students in grades 10-12 for the deaf. Furlonger (1998) investigated the career development of 26 high school students with hearing impairment, and a matched control group of normally hearing peers. King (1992) investigated the career maturity of adolescents with hearing impairments. She indicated that hearing impaired variables were no more powerful in explaining variance in career maturity, and suggested that consequently there was no need for a separate theory of career development for people with hearing impairments. These studies cited, in which factors associated with career development were identified, and were in fact the basis for the parameters of the present study. Specifically, the studies were used to choose the target population and the variables that Social Cognitive Career Theory (SCCT; Lent et al., 1994, 2000) found to predict career choice goal as a measure of an occupational aspiration were tested in the present study.

SCCT is viewed as one of the most researched theories in vocational psychology and has received considerable empirical support for its propositions (Swanson & Gore, 2000; Lent & Brown, 2006). SCCT offers a comprehensive framework for understanding the development of career interest, career choice, and performance that

is grounded in self-efficacy theory. In the past decade, SCCT has generated a large number of research studies, including some studies conducted with international samples (e.g., Arulmani et al., 2003; Hampton, 2005; Patton et al., 2004). At a theoretical level, Lent, Brown, and Hackett (1994) proposed key roles for career-related self-efficacy and outcome expectations in determining aspirations. SCCT provided a theoretical framework and hypothesis model for present study. Current study focused on SCCT components of person factors and contextual variables, and the person-cognitive variables of self-efficacy. Given SCCT's propositions, the hypothesized relationships were that person and contextual variables had predicting effects on occupational aspirations. Specifically, age, gender, academic achievement, work experience, work plan, career decision-making self-efficacy, perceived family support, perception of barriers were correlated with occupational aspiration; self-efficacy was a mediator between perceived family support and occupational aspirations, and between perception of barriers and occupational aspirations.

#### *Correlations between independent variables and occupational aspirations*

As reviewed in the chapter II, early social factors and personal preferences related to gender influence adolescent's career aspirations and choices (Lapan & Jingeleski, 1992; Stockard & McGee, 1990). The predominant finding is that boys aspire and expect to pursue male-dominated occupations and girls aspire and expect to pursue female-dominated occupations (e.g., Griffin & Holder, 1987; Sellers et al., 1999). For students with hearing impairment, the results of current study indicated that gender was weakly and negatively correlated ( $r = -.096$ ) with occupational aspirations. No significant sex difference was found in current study, which supported these researches (Archer, 1984; Bobo et al., 1998; Trice & King, 1991). Age was weakly and positively correlated ( $r = .066, P > 0.05$ ) with occupational aspirations. It indicated that adolescent's occupational aspirations might become more focused on prestigious occupations with increasing age. Although age was not found to be a

significant predictor of students' occupational aspiration, however, this result was consistent with previous research findings (Creed, Patton, & Watson, 2002; Mau, 2004) that age impacted students' career self-efficacy ( $r = -.257, P < 0.01$ ), but the influence was not positive that older students with established career maturity would report lower career decision-making self-efficacy than younger students. The negative correlation between age and career self-efficacy was rooted in "more difficulty was perceived by students with increasing age in overcoming barriers". A positive correlation was found between age and perception of barriers in present study ( $r = .171, P < 0.05$ ).

School education provides critical skills and opportunities for career development. Special education interventions related to career development include instruction in a wide range of topics related to participation in adult roles (Szymanski, 1994). As one part of function curriculum, work experience and work plan play an important role for career development of individuals with disabilities. However, results in current study indicated that work experience ( $r = .083, P > 0.05$ ) and work plan ( $r = .039, p > 0.05$ ) were weakly and positively correlated with occupational aspirations, and the correlations were not significant.

Academic achievement was the only factor that was significant in explaining occupational aspirations before high school completion (Rojewski et al., 2012). Actually, Mau and Bikos (2000) declared that academic achievement was perhaps the single best predictor of occupational aspirations. The result in current study validated prior studies that there was a significantly positive correlation between academic achievement and occupational aspiration ( $r = .201, p < 0.01$ ). Students with higher academic achievement generally reported higher occupational aspirations.

In SCCT, career decision-making self-efficacy is a crucial variable which contributes to career choice. Numerous studies have validated that CDSE exerts a predictor towards developing vocational interests, making vocational choices, and achieving career success (e.g. Brown & Lent, 2005; Swanson & Gore, 2000; Lent & Brown, 2006; Gushue et al., 2006; Kelly, 2009; Hardin, 2010). Consistent with prior



studies, the result in this study also supported that CDSE was significantly correlated with occupational aspiration ( $r = .235, p < 0.01$ ). Therefore, the current study also provided evidence for the use of the CDSE-SF (Betz et al., 1996) for this unique population. More importantly, this finding underscored the importance of teaching career decision skills to students with disabilities.

Families have a critical impact on the successful transition from school to adult life for youth with disabilities (Everson & Moon, 1987). In fact, parent participation is considered to be one of the most important elements of transition programs (Sales et al., 1991; Schultz, 1986) that lead to positive outcomes for youth with disabilities (Gardner et al., & Jacobson, 1988). Turner and Lapan (2002) found perceived family support to be a significant predictor of the career self-efficacy of adolescents in general population. In terms of the relationship between perceived family support and occupational aspiration, the Pearson correlation analysis displayed a significantly positive correlation between these two variables ( $r = .162, p < 0.05$ ).

In SCCT, Lent et al. (1994, 2000) define that barriers generally refers to negative contextual influences, with the understanding that contextual barriers are often functionally related to, yet conceptually distinct from detrimental person factors. Stereotypes were used in combination with category membership as a basis for generating expectancies about persons with disabilities (Higgins & Bargh, 1987). When categorized a person as individuals with disabilities, the derived expectancies about the concept from stereotype-based assumptions made about disabled people as a group. As a result of these expectations, the disabled person may encounter a number of treatment-related problems, including a decreased likelihood of occupational expectation. The Pearson correlation analysis showed that a significantly positive correlation was found between perception of barriers and occupational aspiration ( $r = .207, p < 0.01$ ). The similar result was found in a study conducted by Gushue & Whitson (2006).

A Multiple Regression Analyses indicated that career decision-making self-efficacy ( $t = 2.50, p < .005$ ), perception of barriers ( $t = 2.58, p < .005$ ), and

perceived family support ( $t = 2.09, p < .05$ ) significantly predicted occupational aspiration; and academic achievement ( $t = 2.63, p < .01$ ) very significantly predicted occupational aspiration. However, other independent variables such as gender, age, degree of hearing loss, work experience, and work plan did not predict occupational aspiration of students with hearing impairment.

In fact, career decision-making self-efficacy not only shared the strongest relationship with occupational aspiration in all the variables tested, but also mediated the relationship between perception of barriers and occupational aspiration. This mediator effect of career decision-making self-efficacy was significant; the mediating rate was 25%. The mediating model indicated that perception of barriers effected on occupational aspiration completely through the indirect pathway career decision-making self-efficacy. In other words, if students with hearing impairment had more strong perception of barriers, they would have higher outcome of career decision-making efficacy; and higher self-efficacy would lead to higher occupational aspiration. In the same vein, career decision-making self-efficacy mediated the relationship between perceived family support and occupational aspiration. The mediating effect of career decision-making self-efficacy was significant between perceived family support and occupational aspiration, the mediating rate was 30%. The mediating model indicated that perceived family support effected on occupational aspiration partially through the indirect pathway career decision-making self-efficacy. Similarly, if students with hearing impairment had better perceived family support, they would have higher career decision-making efficacy; and higher self-efficacy would lead to higher occupational aspiration. The result supported the SCCT model.

Overall, the results of this study at least in part supported the SCCT model, in that several of the variables the authors identified as important factors were found to be significantly related to occupational aspiration. Further, parts of the SCCT model were also validated for use with students with hearing impairment, not only limited for people without disabilities. Thus, the current study offered some evidences of validation for use of these measures with this population.

## Implications

Teenagers' occupational aspirations are a critical ingredient for achievement in occupational outcomes and play an important role in the transition from school to employment. However, the results of this study indicated that 27.1% of Chinese students and 43.3% of Czech students expressed indecisive occupational aspirations in adolescence. Moreover, from the perspective of occupational prestige level, 57% of Chinese students reported low-prestige scores, and 57.4% of Czech students also reported relatively low scores. These findings present a realistic problem for parents, teachers, administrators of special education school, and educational policy-makers that how to help students with hearing impairment set appropriate occupational aspirations.

This study also provides empirical support for examining which factors can exert significant influence on occupational aspirations of students with hearing impairment. These findings provided the evidences that academic achievement, career decision-making self-efficacy, perceived family support, and perception of barriers significantly positively predicted occupational aspiration. Other demographic variables such as age, gender, residence, the highest educational attainment of parents, degree of hearing loss, onset of hearing loss, oral condition, using hearing aids or cochlear implants, work experience, and work plan did not predict occupational aspiration. Furthermore, career decision-making self-efficacy was confirmed to be a very important predictor for occupational aspiration. In addition, career decision-making self-efficacy also played a role of mediator between perceived family support and occupational aspiration, and between perception of barriers and occupational aspiration. Therefore, these findings indicated that SCCT model was appropriate for not only people without disabilities, but also for people with hearing impairment. According to these findings in current study, in order to facilitate career maturity of student with hearing impairment, some recommendations were proposed for relevant persons.

Strengthening family support on a) adolescents' career-related awareness,

motivation, and skill; b) career-related modeling behavior; c) encouragement and praise associated with educational and career development; d) serving as consultants to handle future-oriented problem related to career choice; e) positive occupational expectation towards adolescents' future career choice. Meanwhile, the effect of parents' role models is also important. Young et al. (1991) declared that influence of parents as role models for educational and occupational attainment may be especially salient for young adults with disabilities. When parents are perceived as supportive, adolescents are more likely to report higher expectations for their futures (McWhirter et al., 1998), and higher career aspirations (Flores & O'Brien, 2002).

Strengthening school support on a) constructing functional curriculum which provides critical skills (e.g. social skills, communication skills, problem solving skills, self-efficacy skills, independent living skills, etc.) and opportunities (career preparation, vocational training, and vocational practice) to adolescents' career development; b) incorporating career planning into IEP, which provides crucial career awareness and occupational information to adolescents; c) forming vocational ability which provides necessary competence to adolescents for future employment. It is those adolescents most in need who show the greatest potential to benefit from social support in schools (DuBois et al., 1994).

Encouraging the growth of career maturity through assisting students to obtain part-time jobs or work experience. Cooperation between special education schools and enterprises could be a good way, in which not only lets students gain work experience but also provides some useful employees to enterprises. "1+1" or "1+2" models can be used in some schools, namely the disabled students spend only one year studying knowledge in the school and spend one or two years training relevant skills in the enterprise (Lei, 2011).

Facilitating informed choice by students by guiding them in the discovery of more detailed information about particular occupations, any potential barriers their hearing loss may cause in particular occupational roles, and potential solutions to these difficulties. In order to facilitate the ability of people with developmental

disabilities to make informed choices in their own career development, Hagner and Salomone (1989) have recommended consideration of a) guided job experiences, b) decision-making training, c) technical assistance within the decision-making process, and d) longitudinal career services.

Encouraging the intervention of vocational rehabilitation via assessment and individual career planning. The broad interventions of assessment and individual career planning are key strategies in the rehabilitation process (Rubin & Roessler, 1995).

In addition, the use of deaf or hard of hearing role models from the workplace may further inform these decision-making processes. Providing assertiveness training to enable hearing impaired students to confidently and appropriately explain their needs and make preparations for future employment.

### Limitations and future research

One potential problem with survey research is that respondents can be inclined to provide socially desirable responses to questions, which will introduce measurement error in the analysis and reduce the reliability of responses (Liu, 2009). To diminish the potential problems associated with this type of measurement error, the respondents were reminded of the confidential nature of the survey in the beginning of informed consent. As a result, respondents were more open to answer questions given this sufficient assurance of anonymity.

The first limitation is the unbalanced sample used in the analysis. Creswell (2008, p. 370) recommends that the group be adequately sized; he writes, "Larger sizes contribute to less error variance and better claims of representativeness". However, of all the 174 participants in the final analysis, only 67 (only 20 female students) are from Czech. The small sample size in the Czech group cannot provide much variance in the final measure. Even though significant mean differences were found between these two groups on their occupational aspirations; the results might exist certain

sample errors.

The second limitation is language barrier. There exists an obvious challenge that accuracy of translation and analysis adapted the cultural context when assistor translates English into Czech, because this researcher does not know Czech.

The third limitation is convenience sampling procedure in pilot study. A major limitation of this sampling procedure is that there is no guarantee how representative the resulting data will be for the population as a whole. Since it is a non-probability method, the generalization of the study results to the target population will be limited.

The fourth limitation is as any non-experimental study, it cannot establish causality between any of the variables.

The fifth limitation is that the questionnaire package might take long time because it includes 57 items (25 in CDSE-SF, 13 in POB, 5 in PSF, 10 in demographic form, and 4 open-ended questions).

The sixth limitation is that a related limitation may be linked to the differential reading abilities of the current sample. Similarly, while every effort was made to ensure that the measurements chosen were appropriate in terms of the estimated reading levels of the members of the current sample, some participants may have had difficulty comprehending all of the survey questions.

Finally, future research is needed to identify other variables that may influence occupational aspiration within similar population. Specifically, this study did not address factors such as socioeconomic status, ethnicity, school support, and outcome expectation which play roles in the development of career choice goals based on SCCT. A similar study should be conducted using a longitudinal instead of a cross-sectional design that is preparing to analyze the development of occupational aspirations for students with hearing impairment from the perspective of Gottfredson's theory of circumscription and compromise. In addition, more students from Czech group should be recruited in the future study to improve the strength of the relationship between independent variables and occupational aspiration.

## Conclusion

This study sought to compare the similarities and differences of occupational aspirations of students with hearing impairment from two different social-cultural contexts, Czech and China; and examine the relationships between some variables and occupational aspirations based on the model of Social Cognitive Career Theory. A non-experimental, questionnaire survey was employed to explore these relationships. Participants were 107 Chinese hearing impaired students and 67 Czech hearing impaired students from high schools. The data were analyzed using independent sample t-test, Chi-square test, Pearson correlation, and multiple linear regressions. Specific conclusions were proposed as follows:

- (1) A considerable proportion of students with hearing impairment were likely to be indecisive about future occupational choice.
- (2) From the perspective of occupational prestige level, the distribution of occupational aspiration of both Czech and Chinese students was polarized. Compared to hearing peers, students with hearing impairment were less likely to aspire to high-prestige occupations.
- (3) The scope of occupational aspirations of students with hearing impairment was limited because of their hearing loss. Overwhelming majority of students with disabilities aspired to the occupations which require a minimum of verbal, particularly vocal, interaction with people and a maximum of work with data or things.
- (4) A significant difference of occupational aspirations was found between Czech and Chinese students ( $t=2.05$ ,  $p=0.042$ ). According to Holland's RIASEC occupational codes, what occupations of Chinese group most frequently desired were Realistic, Artistic and Enterprising occupations, whereas Czech counterparts frequently aspired to Investigative, Realistic and Social occupations. In general, boys reported more diverse occupational aspirations than girls. However, no significant difference was found between male's occupational aspirations and female's occupational aspirations.

- (5) Chinese hearing impaired students reported higher total score in three scales: CDSE-SF, POB and PSF; while Czech hearing impaired students had more work experience (six times than Chinese group).
- (6) Academic achievement, career decision-making self-efficacy, perception of barriers and perceived family support were significantly predicted occupational aspiration of students with hearing impairment. However, other independent variables such as gender, age, work experience, the degree of hearing loss, and work plan cannot predict occupational aspiration of students with hearing impairment.
- (7) Career decision-making self-efficacy positively mediated the relationship between perceived family support and occupational aspiration. Career decision-making self-efficacy also positively mediated the relationship between perception of barriers and occupational aspiration.



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## APPENDIX A: QUESTIONNAIRE IN ENGLISH

Welcome! Thank you for taking part in this career survey. We hope that by answering these questions, you are able to learn more about yourself and how you make career decisions and set occupational aspirations. To get to know you better, we will need a little background information. Please respond to the following questions. We will ensure you that the questionnaire is absolutely anonymous and just will be used in the research. Thanks for your cooperation.

### PART 1: Background information

1. I am:            a. male            b. female
2. Age is \_\_\_\_\_ years old.
3. Reside in:    a. town/city    b. village
4. The highest educational level of your family members:  
a. illiterate    b. primary    c. secondary    d. university or higher
5. The degree of hearing loss:  
a. 26-40dB    b. 41-55dB    c. 56-70dB    d. 71-90dB  
e. 91-110dB    f. >110dB    g. I don't know
6. The onset at which hearing loss occurred:  
a. birth    b. within 1 year old    c. 1-3 years old    d. 3-5 years old  
e. 5-8 years old    f. after 8 years old
7. The score are:    a. excellent    b. medium    c. lower
8. The oral conditions are:    a. excellent    b. general    c. bad
9. The age when child began to use hearing aids: \_\_\_\_\_ years old.
10. The age of child's using cochlear implant: \_\_\_\_\_ years old.

### PART 2: Response is open

1. If you were completely free to choose any job, what would you like to choose as a lifetime job?
2. Have you had occupational experience or accepted occupational training/education? If you have, what is it?
3. Do you have career plan? If you have, what is it?
4. Which approach of job-hunting will you choose, for example, found by yourself, introduced

by relative, introduced by school, the service institute for disability?

**PART 3: Family support measures**

Directions: Please answer the following questions about the family you grew up in.

1. To what extent has the family you grew up in given you financial support for your education and training?
  - a. no financial support
  - b. a little financial support
  - c. considerable financial support
  
2. To what extent has the family you grew up in given you information and contacts that helped you with your occupational choices?
  - a. no information and/or contacts
  - b. a little information and/or a few contacts
  - c. considerable information and/or many contacts
  
3. To what extent has the family you grew up in given you emotional support for your educational training?
  - a. no emotional support
  - b. a little emotional support
  - c. considerable emotional support
  
4. To what extent has the family you grew up in given you maintenance support (time and study space, help with school work, college applications, etc.)?
  - a. no maintenance support
  - b. a little maintenance support
  - c. considerable maintenance support
  
5. To what extent has the family you grew up in shown an interest in and/or participated in your education?
  - a. no interest and/or participation
  - b. a little interest and/or participation
  - c. considerable interest and/or participation

**PART 4: Perception of barriers measure**

Each of the statements below begins with, “**In my future career, I will probably...**”, or a similar phrase. Please respond to each statement according to what you **think (or guess)** will be true for you.

<b>“In my future career, I will probably....”</b>	<b>Strongly Agree</b>		<b>Not Sure</b>	<b>Strongly Disagree</b>	
1. ... be treated differently because of my sex.	A	B	C	D	E
2. ... be treated differently	A	B	C	D	E

	because of my disability.					
3.	... experience negative comments about my sex (such as insults or rude jokes).	A	B	C	D	E
4.	... experience negative comments about my disability (such as insults or rude jokes).	A	B	C	D	E
5.	... hard to be employed than people of the opposite sex.	A	B	C	D	E
6.	... hard to be employed than people without disability.	A	B	C	D	E
7.	... experience discrimination because of my sex.	A	B	C	D	E
8.	... experience discrimination because of my disability.	A	B	C	D	E
9.	... have difficulty finding quality daycare for my children.	A	B	C	D	E
10.	... have difficulty getting time off when my children are sick.	A	B	C	D	E
11.	... have difficulty finding work that allows me to spend time with my family.	A	B	C	D	E
12.	... have difficulty finding work that provides adequate health care benefits.	A	B	C	D	E
13.	... face many barriers as I try to achieve my <i>career</i> goals.	A	B	C	D	E

## PART 5: career decision-making self-efficacy measure

Read each of the following statements carefully and indicate how much confidence you have that you will accomplish each task. You will show your confidence level in the following manner:

- (1) No confidence
- (2) Little confidence
- (3) Moderate confidence
- (4) Some confidence
- (5) Complete confidence

Please circle the number that best expresses how confident you feel you can accomplish the task.

q1	I'm able to find information of my future job in the library or on the internet.	1	2	3	4	5
q2	I'm able to select one major from a list of potential majors.	1	2	3	4	5
q3	I'm able to make a plan of my goals for the next five					

	years.	1	2	3	4	5
q4	If I meet academic difficulties in my study, I'm able to determine how to do.	1	2	3	4	5
q5	I'm able to accurately assess my strengths and weaknesses.	1	2	3	4	5
q6	I'm able to select one job from lots of potential occupations.	1	2	3	4	5
q7	I'm able to determine what I should do to successfully complete chosen major.	1	2	3	4	5
q8	I'm able to insist on my major to fulfill the goals of future job, even if I get a hit.	1	2	3	4	5
q9	I'm able to determine what kind of job is my ideal job.	1	2	3	4	5
q10	I'm able to find out employment trends for a job over the next ten years.	1	2	3	4	5
q11	I'm able to choose a career to fit my preferred lifestyle.	1	2	3	4	5
q12	I'm able to prepare a good resume.	1	2	3	4	5
q13	I'm able to change majors if I don't like my current major.	1	2	3	4	5
q14.	I'm able to decide what I value most in an occupation.	1	2	3	4	5
q15	I'm able to find out the average yearly earnings of my interested occupation.	1	2	3	4	5
q16	I'm able to make a career decision and not worry whether it was right or wrong.	1	2	3	4	5
q17	I'm able to change jobs if I'm not satisfied with one.	1	2	3	4	5
q18	I'm able to figure out what I want to sacrifice to achieve my career goals.	1	2	3	4	5
q19	I'm able to communicate with an employed people in my interested field.	1	2	3	4	5
q20	I'm able to choose my interested job.	1	2	3	4	5
q21	I'm able to find information about employers, firms, and institutions relevant to my possible jobs.	1	2	3	4	5
q22	I'm able to define my desired ways of life in future.	1	2	3	4	5
q23	I'm able to find information about universities or professional schools.	1	2	3	4	5
q24	I'm able to successfully manage the job interview process.	1	2	3	4	5
q25	I'm able to identify alternative jobs if I can't get my first choice.	1	2	3	4	5

## APPENDIX B: QUESTIONNAIRE IN CZECH

Milí žáci,

Děkujeme vám za spolupráci na výzkumu zaměřeného na vaše očekávání v pracovním uplatnění. Doufáme, že vaše odpovědi pomohou připravit lepší podmínky pro přípravu vašeho pracovního uplatnění v zaměstnání. Prosíme vás o několik informací. Odpovězte prosím na následující otázky. Dotazník je zcela anonymní a použijeme ho jen pro účely výzkumu. Děkujeme za spolupráci. Skupina mezinárodního výzkumu Institut speciálněpedagogických studií Univerzita Palackého v Olomouci.

**Návod: Prosím zakroužkujte nebo doplňte informace**

### Část 1: Osobní informace

1. Jsem: 1 a. muž 2 b. žena
2. Je mi .....roků.
3. Bydlím: 1 a. ve městě 2 b. na vesnici
4. Nejvyšší vzdělání mých rodičů:  
1 a. základní vzdělání 2 b. střední škola/výuční list 3 c. vysoká škola
5. Stupeň ztráty sluchu: 1 ..... 6  
a. 26-40dB b. 41-55dB c. 56-70dB d. 71-90dB e. 91-110dB f. více než 110dB  
g. nevím
6. Období ztráty sluchu: 1 ..... 6  
a. od narození b. do 1 roku c. 1-3 roky d. 3-5 roků e. 5-8 roků f. vícenež 8 let
7. Školní výsledky mám: 1 a. výborné 2 b. dobré 3 c. horší
8. Moje řeč-mluvení je: 1 a. výborná 2 b. dobrá 3 c. špatná
9. Sluchadlo používám od: .....roků.
10. Kochleární implantát používám od: ..... roků.

### Část 2:

1. Kdybyste si mohl/a vybrat jakékoliv povolání, které byste si vybral jako práci na celý život?  
Word



2. Měl/a jste již nějakou pracovní zkušenost nebo jste absolvoval/a nějakou stáž či praxi? Jestli ano, jakou?
3. Máte již nějaký plán Vaší pracovní kariéry? Jestli ano, jaký?
4. Jaký způsob hledání práce byste si zvolil/a?
  - a, budete hledat sám/a
  - b, pomohou Vám známí
  - c, škola
  - d, speciálněpedagogické centrum

### Míra rodinné podpory

Návod: Zodpovězte prosím následující otázky o rodině, ve které jste vyrůstali. Zakroužkujte vhodnou odpověď podle Vaší aktuální situace.

6. Jak moc Vám rodina finančně pomohla ve vzdělávání?
  - a. žádná finanční podpora
  - b. malá finanční podpora
  - c. dostatečná finanční podpora
7. Jak moc Vám Vaše rodina pomohla v získání informací a kontaktech při výběru Vašeho budoucího povolání?
  - a. žádné informace a/nebo kontakty
  - b. málo informací a/nebo pár kontaktů
  - c. dostatečné informace a/nebo mnoho kontaktů
8. Jakou Vám poskytla Vaše rodina citovou podporu během vzdělávání?
  - a. žádnou citovou podporu
  - b. málo citové podpory
  - c. dostatečnou citovou podporu
9. Jak Vás rodina dále podpořila během studia? (čas a místo studia, pomoc se školními úkoly, žádost na univerzitu, atd.)
  - a. žádná další podpora
  - b. malá podpora
  - c. dostatečná podpora
10. Jaký Vaše rodina projevila zájem a/nebo účast na Vašem vzdělávání?
  - a. žádný zájem a/nebo účast
  - b. malý zájem a/nebo účast
  - c. dostatečný zájem a/nebo účast

### bariéry

Každé z následujících tvrzení začíná „ **V mé budoucí kariéře budu pravděpodobně..**“, nebo podobně. Prosím odpovězte na každé z následujících tvrzení a použijte **X** pro označení odpovědi.

- A Naprosto souhlasím
- B Souhlasím
- C Nejsem si jist
- D Nesouhlasím
- E Vůbec nesouhlasím

## Ve svém příštím zaměstnání

1.	... budu mít problém kvůli svému pohlaví.	A	B	C	D	E
2.	...budu mít problém kvůli svému postižení.	A	B	C	D	E
3.	... setkám se s ošklivými vtipy kvůli pohlaví.	A	B	C	D	E
4.	... setkám se s ošklivými poznámkami kvůli mému postižení	A	B	C	D	E
5.	... bude těžké, když žena pracuje s muži nebo muž s ženami	A	B	C	D	E
6.	... bude těžké pracovat se slyšícími	A	B	C	D	E
7.	... pocítím diskriminaci kvůli pohlaví	A	B	C	D	E
8.	... pocítím diskriminaci kvůli postižení	A	B	C	D	E
9.	... budu těžko hledat kvalitní školku pro svoje děti	A	B	C	D	E
10.	... budu mít problém s volnem, že budou děti nemocné.	A	B	C	D	E
11.	... bude problém mít práci a také dost času na rodinu	A	B	C	D	E
12.	... budu mít problém najít zaměstnání, kde se pečuje o zdraví zaměstnanců.	A	B	C	D	E
13.	...budu mít hodně překážek na cestě k mým cílům.	A	B	C	D	E

Přečtěte si pečlivě každé z následujících tvrzení a určete, jak si věříte v každém úkolu. Stupeň důvěry vyjádřete na následující stupnici.

- A Žádná důvěra
- B Malá důvěra
- C Střední důvěra
- D Nějaká důvěra
- E Úplná důvěra

### rozhodnutí o kariéře

Prosím odpovězte na každou otázku a použijte **X** pro označení odpovědi.

q1	Umím najít informace o svém budoucím zaměstnání v knihovně nebo na internetu.	1	2	3	4	5
q2	Dovedu si vybrat budoucí zaměstnání ze současné					

	nabídky.	1	2	3	4	5
q3	Mám plán svých cílů, které chci dosáhnout v příštích pěti letech.	1	2	3	4	5
q4	Když mám problém s učením ve škole, vím, s kým se mohu poradit.	1	2	3	4	5
q5	Umím přesně posoudit své silné a slabé stránky.	1	2	3	4	5
q6	Jsem schopen vybrat jednu práci z mnoha možných profesí.	1	2	3	4	5
q7	Jsem schopen si určit nový cíl, když původní se nepodaří dosáhnout.	1	2	3	4	5
q8	Chci vykonávat vybranou práci, i když budou problémy.	1	2	3	4	5
q9	Dovedu si vybrat ideální zaměstnání.	1	2	3	4	5
q10	Jsem schopen zjistit zaměstnanosti trendy pro práci v průběhu příštích deseti let.	1	2	3	4	5
q11	Umím si vybrat svoje zaměstnání, které mi vyhovuje.	1	2	3	4	5
q12	Umím napsat dobře životopis.	1	2	3	4	5
q13	Dovedu měnit svoje cíle, když to je potřeba.	1	2	3	4	5
q14.	Umím vysvětlit, proč se mi líbí moje oblíbené povolání.	1	2	3	4	5
q15	Dovedu zjistit výplaty za rok zaměstnání, které mne zajímá.	1	2	3	4	5
q16	Rozhodnu se pro zaměstnání a potom se nebudu zajímat, jestli to bylo dobře.	1	2	3	4	5
q17	Budu chopen změnit zaměstnání, pokud nebudu spokojen.	1	2	3	4	5
q18	Vím, co všechno musím udělat pro svoje příští zaměstnání.	1	2	3	4	5
q19	Komunikuji s lidmi, kteří pracují v mém vybraném zaměstnání.	1	2	3	4	5
q20	Dovedu si vybrat zaměstnání a nemám z toho strach.	1	2	3	4	5
q21	Jsem schopen najít informace o zaměstnavateli nebo firmě, kde bych rád pracoval.	1	2	3	4	5
q22	Umím říci své požadavky a způsob života v budoucnosti.	1	2	3	4	5
q23	Jsem schopen najít informace o vysokých školách a odborných školách.	1	2	3	4	5
q24	Jsem schopen úspěšně zvládnout přijímací pohovor do zaměstnání.	1	2	3	4	5
q25	Dovedu hledat jiné možnosti, když se mi nepodaří mít zaměstnání, které jsem si přál.	1	2	3	4	5