

Fort Hays State University

FHSU Scholars Repository

Master's Theses

Graduate School

Summer 2010

Foreign language acquisition, motivation and creativity

XiXi Du

Fort Hays State University

Follow this and additional works at: <https://scholars.fhsu.edu/theses>



Part of the [Psychology Commons](#)

Recommended Citation

Du, XiXi, "Foreign language acquisition, motivation and creativity" (2010). *Master's Theses*. 167.

DOI: 10.58809/GCEL7863

Available at: <https://scholars.fhsu.edu/theses/167>

This Thesis is brought to you for free and open access by the Graduate School at FHSU Scholars Repository. It has been accepted for inclusion in Master's Theses by an authorized administrator of FHSU Scholars Repository. For more information, please contact ScholarsRepository@fhsu.edu.

FOREIGN LANGUAGE ACQUISITION, MOTIVATION,
AND CREATIVITY

being

A Thesis Presented to the Graduate Faculty
of the Fort Hays State University in
Partial Fulfillment of the Requirements for
the Degree of Master of Science

by

Xixi Du

B.S., East China Normal University

Date _____

Approved _____
Major Professor

Approved _____
Chair, Graduate Council

The research described in this thesis utilized human subjects. The thesis prospectus was therefore examined by the Human Subjects Research Committee of the Psychology Department and the Institutional Review Board of Fort Hays State University, and found to comply with Title 45, Subtitle A – Department of Health, Education and Welfare, General Administration; Part 46 – Protection of Human Subjects.

ABSTRACT

Previous research has suggested that advanced Second Language (L2) learners are more intrinsically motivated than beginning L2 learners (e.g., Rivers, 1996), and that Third Language (L3) learners are more intrinsically motivated than L2 learners (Schütz, 2007). However, Chomsky (1975) believes that children have to be creative to learn their first language, and others (e.g., Fraser, 2007; Heath & Wolf, 2005) believe that children are creative even when learning a second language.

In this research, 67 L2 learners and 38 L3 learners were recruited. They completed a survey including a language achievement scale, an intrinsic motivation scale, and a creativity scale. The results showed that L2 or L3 learners who perceived their foreign language achievement to be fluent or experienced scored higher on both the intrinsic motivation and the creativity scales than beginners, and that L3 learners scored significantly higher on the intrinsic motivation scale than L2 learners.

Follow-up tests found that the factor of intrinsic motivation indeed was more important for language achievement for beginner to medium-level foreign language learners just as for the entire sample taken as a whole. However, this relationship disappeared for the very advanced learners. For these more advanced “expert” learners, there was no relationship between intrinsic motivation and language achievement but the creativity scale was positively correlated with the language achievement scale.

Keywords: Second Language (L2), Third Language (L3), Language Acquisition, Intrinsic Motivation, Creativity

ACKNOWLEDGMENTS

This thesis was made through the help and advice and support from many individuals. It is a pleasure to thank those who make this thesis possible. In the first place I would like to record my gratitude to Dr. Stephen Kitzis for his supervision, advice, and guidance, which helped me through many difficult situations.

I also gratefully acknowledge Dr. Carol Patrick, Dr. Leo Herrman, Dr. Janett Naylor, and Dr. Daniel Kulmala for their advice, contribution, and for reviewing my thesis and making recommendations along the way.

Many thanks to my parents and friends for always being there for me. Thanks for your support and love. I love you too.

TABLE OF CONTENTS

	Page
ETHICS REVIEW STATEMENT	i
ABSTRACT	ii
ACKNOWLEDGMENTS	iii
TABLE OF CONTENTS.....	iv
LIST OF TABLES	vii
LIST OF APPENDIXES	viii
INTRODUCTION	1
Language Acquisition	1
First Language (L1) Acquisition.....	1
<i>Biology of L1 Acquisition</i>	1
<i>Children's Intuitive Learning of L1</i>	2
<i>Components of the Language System</i>	3
<i>Critical Period Theory</i>	4
<i>Nature and Acquisition</i>	5
Second Language (L2) Acquisition	6
<i>Why Do We Learn Foreign Languages?</i>	6
<i>Two Types of Second Language Learners</i>	9
<i>Sequential Bilingual</i>	9
<i>Simultaneous Bilingual</i>	10
<i>Dialects</i>	12
<i>Multilingualism</i>	13

Summary of Language Acquisition	17
Motivation.....	18
<i>Extrinsic Motivation</i>	19
<i>Intrinsic Motivation</i>	22
<i>Drive Theory</i>	23
<i>16 Basic Desires Theory</i>	23
<i>Flow Theory</i>	24
<i>Self-Determination Theory (SDT)</i>	24
<i>Interest</i>	25
<i>Motivation Studies in Language Acquisition</i>	26
<i>Measuring Motivation</i>	28
<i>Cross-cultural Approaches</i>	30
Creativity.....	31
<i>Neurology of Creativity</i>	31
<i>Creativity Process</i>	32
<i>Characteristics of Creativity</i>	32
<i>Fields of Creativity</i>	33
<i>Creativity Techniques</i>	33
<i>Why is Language Acquisition Creative?</i>	33
<i>Play with Language</i>	34
<i>Measuring Creativity</i>	36
<i>Motivation and Creativity</i>	37
Hypotheses	38

METHODS	39
Participants.....	39
Procedure	39
Scales Construction.....	40
RESULTS	42
Demographic Descriptive Results.....	42
Scale Descriptive Results.....	42
Hypothesis Tests	44
Follow-up Hypothesis Tests	45
DISCUSSION	49
Scale Construction	49
Sampling	50
REFERENCES	53

LIST OF TABLES

Table		Page
1	Participants Reported Native Languages and Foreign Languages.....	43
2	Participants Reported Language Acquisition Levels	43
3	Descriptive Analysis of Language Acquisition, Intrinsic Motivation, and Creativity Scale Scores.....	44
4	Descriptive Analysis of Language Acquisition, Intrinsic Motivation, and Creativity in L2 and L3 Learners	45

LIST OF APPENDIXES

Appendix	Page
A Informed Consent Form	64
B Foreign Language Acquisition Scale.....	67
C Intrinsic Motivation Scale	69
D Creativity Scale	71
E Total Scale.....	73
F Debriefing Form	78
G Concept Validity (Original Scales).....	80

INTRODUCTION

Language Acquisition

The term language acquisition usually refers to the learning of a first language. It refers to the process by which human beings acquire the ability to perceive, understand and produce the language in order to communicate. It is one of the central topics in cognitive psychology. Some of the pioneers of cognitive psychology in the 1950's, Roger Brown, Noam Chomsky, and George Miller, made major contributions to the research literature on language acquisition, verbal behavior, and communication with language (Chomsky, 1959; Miller, 1956; Brown, 1973). Definitions, theories and research on language acquisition will be discussed below.

First Language (L1) Acquisition

Biology of L1 Acquisition

Language is unique to human beings. We use language to convey our thoughts and ideas. It seems natural that children learn a first language almost with no effort, despite not having any extrinsic motivation to learn the language.

Evolutionary psychologists show great interest in the shape of human vocal tract development and Darwinian natural selection. Pinker and Bloom (1990) tried to figure out the presumable reasons for the evolution of human language: developed technology and knowledge of local environment from our ancestors and extensive reciprocal cooperation.

Other neurologists are interested in another topic — brain function lateralization, which is quite evident when we discuss the language function. Most people have left-

hemisphere dominance of language: 95% of right-handed people and 80% of left-handed people (Taylor & Taylor, 1990). Broca's area and Wernicke's area are the two crucial locations for language and speech processing, respectively.

Children's Intuitive Learning of L1

It seems that almost every child learns a first language successfully with little effort. They are intuitive learners, according to Gardner (1991). They do not need formal instructors, lessons, or clear goals. We tend to ask where their motivation comes from — if they have motivation at all.

It is a tough question to answer. At least we know that children are superior to adults in language acquisition. According to Gardner (1991), the young child is superbly equipped to learn language and other symbolic systems. Chomsky (1959) argued that children learn languages governed by highly subtle and abstract principles, and they do so without explicit instruction or any other environmental clues to the nature of such principles. He called it a "language acquisition device": a biological mechanism which enables an individual to recreate correctly the rules (grammar) and certain other characteristics of language used by speakers around the learner. This device, according to Chomsky, turns off over time and is not normally available by puberty, which he uses to explain the poor results most adolescents and adults have when learning aspects of a second language. Hence, he concluded that language acquisition depends on an innate, species-specific module that is distinct from general intelligence. In Chomsky's theory, the process of learning a first language is more like a mechanical process than a process that needs motivation to pull the children to learn. However, I would like to say that

learning a language needs effort no matter whether you are learning a first, second, or third one, and regardless of whether you are a child or an adult. Curiosity might not be a proper word to describe the resource of children's motivation, or wanting to learn. However, it is actually the point of departure of learning everything for children, and presumably even for adults. Children are born in an environment with everything new to them. Following the development of sensory perception and emotion, their desire to express their feelings and ideas increases. To them, learning the language that their parents and surrounding people use is the best way to communicate with them, and it is also the way they observe how others express their feelings.

Components of the Language System

Many linguistic theories suggest all languages have four basic components, which are phonological, semantic, grammar, and pragmatic. The first three form the speaker's linguistic competence, which refers to the underlying knowledge of rules of one's native language. The pragmatic component has more connection to communicative competence, which means one knows how to use language to interact appropriately in different communication situations (Sharon, 1990).

In a little more detail, phonology involves a set of speech sounds and a set of prosodic features. Children acquiring language must know phonemes to make up their particular language system. Then they follow the phonological rules, pay attention to the melodic and rhythmic patterns, such as stress, juncture, and intonation (Sharon, 1990). Semantics is the rules governing meaning or content of words and word combinations. Semantic knowledge mainly involves the meaning of words (Owens, 1984). Grammar

involves syntax and morphology. Syntax is the rules to combine meaningful units (words) into larger units (sentences). Morphology consists of meaning-carrying forms that indicate tense, active or passive voice. Pragmatic rules are those that govern language usage in context. For example, we may change pragmatics when talking to different people, using different ways of greetings and titles. That is to say, we use language for various communicative intents, conversational interactions, and use it in different speech styles (Sharon, 1990).

Linguistic rules are gradually and sequentially acquired by children, consistent with these four components in the language system. Children gradually and sequentially acquire these rules. Infants babble first and do phonetic play, and then they learn to say words, make sentences. They might not seriously care about grammar until they get formal education. In school, they would continue their syntax, semantic and pragmatic development.

The current study hypothesizes that the critical difference of language acquisition between children and adults is that adults do not follow the natural way of language acquisition as children do. They usually start with the memorizing of words, and soon try to make up sentences or to translate. They skip the most important but mysterious stage of phonological development of a new language. They should have found the interest and happiness to learn and express.

Critical Period Theory

Age seems to be a big issue in language acquisition. The maturation of language circuits during a child's early years could be a driving force. Neurons keep developing

and spreading out new branches. The brain size, cell density and synapses are continuing to increase rapidly. Theories such as “critical period” therefore introduce the idea that language-learning circuitry is more plastic in childhood (sometime between 5 and puberty). Once the critical period passes, it will be much more difficult and ultimately less successful to acquire language (Kolb & Whishaw, 2006). There is also an extended critical period theory for second language acquisition, discussed in the following section.

Nature and Acquisition

Cultural differences and environment are persistent. The intuition of language acquisition seems as “natural” as many of the reflexes and instincts we are born with. However, the truth is the tastes, nonverbal communication, language, and habits, which all seem “natural”, are acquired. A child growing up in Japan speaks Japanese, failing to hear the English r-l distinction, whereas a child brought up in America would speak English as native speakers. In fact, a Japanese infant can hear the r-l distinction as well as an American infant. Thanks to the plasticity of the brain, many Japanese can make the r-l distinction after the critical period by continual practice— it is never too late to change the mapping of brain (Doidge, 2007).

First language acquisition is a complex process of innate organic and nerve development with mental maturation confounding with environmental and cultural influences.

Second Language (L2) Acquisition

Why Do We Learn Foreign Languages?

Why do so many people choose to learn a new language? The answer might be that it helps us to build up communication with more friends throughout the world.

Language is a tool for us to feel, understand, and live with others. We use language to transfer our concepts, ideas, and feelings. However, every language has its unique system of grammar, semantics, morphology, syntax, etc., that are very hard to translate. As Roman Jakobson, the Russian linguist declared, “Poetry by definition is untranslatable” (Hirsch & Aschkenasy, 1982, p. 21). Even if we try to translate or interpret a language into our own language, we usually feel something is lost during the translation.

Nowadays, globalization is on everyone’s tongue. The best way to understand the people and their thoughts in another culture is through language, and the best way to understand a foreign language is not through translation but through learning that language.

A second language (L2) refers to the language learned after the first language (L1). In most Asian countries, English is the second language in most normal school curricula. Researchers usually use ESL (English as a second language) to refer to the use or study of English by speakers with a different native language. There have been many studies investigating the connections between L1 and L2, and there is an increasing interest in which factors of L1 can influence L2 reading, oral, and writing proficiency development and improvement (e.g., see Wang & Koda, 2007). Most of the difficulties in learning a second language are the consequence of the degree to which their native language differs from English. Imagine a native speaker of German who finds it much

easier to learn English than a Chinese ESL learner because there are substantial similarities between German and English, whereas Chinese is quite different from English in almost every aspect. Not only L2 learners, but also the native speakers, are somewhat aware of their unique “problems.” There has been interesting research to investigate how native English speakers in the U.S. construct social categories in addressing linguistic discrimination on people from non-English speaking countries. For example, Stephanie (2005) found that evaluation was central to description with a stigmatized category, something like “broken” English, used to describe almost all non-native speakers except perhaps (Western) Europeans. These include Mexican accents, Chinese English, Japanese English, etc. This investigation shows an implication about the explicit features of ESL learners of various mother tongues.

In Sparks, Ganschow, and Pohlman's (1989) Linguistic Coding Differences Hypothesis (LCDH), they proposed that native language skills including phonological, syntactic, and semantic skills provide the basic foundation for foreign language acquisition. In a recent study (Sparks, Patton, Ganschow, Humbach, & Javorsky, 2008) on the relation between L1 reading and spelling skills carrying into the L2, it was concluded that the measure of reading comprehension in L1 was the best predictor of reading comprehension in L2. L1 word decoding skill also was an important predictor for reading comprehension in L2. Even when several years pass after students learning to read and spell in their L1, spelling, reading comprehension, and word decoding skills transfer to L2 from L1. On the other hand, Wang and Koda (2007) examined the word identification skills of Chinese and Korean ESL learners and found that the “differences

among L1 language and writing system backgrounds have an impact on L2 learning. (p.218)” Korean students’ performance was better than the Chinese students’ naming both in high and low frequency words as well as the tasks of auditory meaning retrieval. Their research provided evidence of the influences of alphabetic and non-alphabetic L1 factors on L2 learning.

There are some studies that investigate how factors such as age, motivation, personality, aptitude, intelligence, and confidence influence L2 learning. For example, Si and Do (2008) investigated the relationships among factors affecting L2 acquisition. Their analyses showed that intrinsic motivation was the strongest determinant among the self-confidence and motivations to learn. However, it is an indirect element. Researchers believe that there must be a Critical Period in which children can learn a language (Kolb & Whishaw, 2006). The same as L1 learning, learners must experience a Critical Period in which they can learn a L2 to native-like proficiency. Krashen, Scarella, and Long (1982) tried to prove the Critical Period Hypothesis. They tested several variables including phonological systems, syntax, accurate pronunciation, etc. in participants of different ages. The researchers divided participants into four groups according to their start time of learning the second language: from birth (bilingualism), at very young age, normal in school, or in the adult stage. They found that the earlier the stage of L2 learning, the faster they process in L2. However, they also found that those participants who were exposed to the natural environment of L2 during childhood achieve the best level of proficiency.

The idea that natural environment gives us more chances to master a language brings us back to the concept of “universal grammar” in which Chomsky tried to explain language acquisition in general—it is natural for children to acquire a language.

Universal Grammar, as hypothesized by Chomsky, suggests that there are principles of grammar shared by all languages, which is innate to humans.

Krashen (Schütz, 2007) built up his theory of L2 acquisition. He thinks the word “acquisition” is different from “learning.” The acquisition system is “the product of a subconscious process very similar to the process children undergo when they acquire their L1.” The meaningful interaction — communication — is the central idea of his theory. The role of conscious learning, however, in his words, is “somewhat limited in second language performance” (Schütz, 2007). Krashen’s theory can generalize to foreign language acquisition. When the participants are learning a L3 or even L4 or L5, the idea of natural acquisition remains the same. Although there has been much research investigating the relationship between L1 and L2 during the L2 acquisition, there are fewer studies focused on the interaction between L2 and L3 or multilingual acquisition in general.

Two Types of Second Language Learners

Sequential Bilingual. The traditional way of second language acquisition is through school education. A bilingual or multilingual person learns the syntax, semantics, and pragmatics of a foreign language from a formal education, which is quite different from intuitive language learning. In most of the Asian and developing countries, children are required to learn a second language, usually English. Few students in those countries

are learning a second language because they are interested in learning it. The motivation usually comes from their parents, teachers, and environment; not from their own interest, planning, or needs.

Simultaneous Bilingual. The majority of L2 learners learn the second language in school or an institution (Gardner, 1991). However, it is also possible that a child acquires two languages intuitively without formal education, called “simultaneous bilinguals.” Like most sequential multilinguals, simultaneous bilinguals are usually dominant in one language over the other.

Simultaneous bilingual learning is most likely to occur when a child is raised by bilingual parents in a predominantly monolingual environment, or when parents raise the child in a bilingual or even multilingual environment, or perhaps even in different countries. However, after entering the schools, teachers usually would force children to conform to the dominant community language, which is probably why most simultaneous bilinguals ultimately become dominant in one language or the other. The researchers believe that at the beginning, the motivation of simultaneous bilinguals seems mostly to come from the outside (extrinsic motivation), or there is no evidence to show that they are motivated just the same as intuitive first language learners (Gardner, 1991). Therefore, it is not strange that most of the few studies interested in simultaneous bilingual studies look into language differentiation and the possibility of mutual influence during the development of simultaneous language acquisition instead of looking for the sources of motivation (e.g. Clark, 2000; Garcia & Trujillo, 1979).

Simultaneous bilingual children have an environmental advantage in a context domain of everyday life activities, such as talking with family members or playing with friends. This gives them the same kind of language input interaction as native speakers. In addition, children have the ability to discriminate between sounds of different languages. Patricia Kuhl's brain-wave studies showed that human infants are capable of hearing any sound distinction in almost all languages (Doidge, 2007). The result could be associated with the extended version of critical period for second language acquisition, although this is much less widely accepted. As Singleton & Lengyei (1995) stated in learning a second language, "younger = better in the long run." However, they also point out that there are many exceptions.

Evidence is controversial about whether second language acquisition involves a critical period. Nevertheless, researchers generally agree that younger people could who learn a second language achieve more fluency and learn quicker than older learners. Older learners might be able to speak the language but will lack the native fluidity of younger learners. Just like the 6-month infant critical period theory, once the critical period of auditory cortex development closes, the infant can no longer distinguish the different sounds of languages. Simultaneous bilingual children are lucky to be immersed in two languages before the critical period, which allows them to develop simultaneous bilingual language skills in a way very much similar to monolingual acquisition.

Although most of the time environment and intensive immersion are good for language acquisition, sometimes the environment can play a negative role in potentially simultaneous bilingual children. In Japan, it has been found that many immigrant children

cannot master their first language well . In some cases, their parents switch homes from Asian to South America and back again. They were able to speak Japanese, but unable to master it to the degree of learning in the school system. Finally, they had to drop out from school without mastering either their L1, Japanese, or L2, English (Capital, 2008).

Dialects

Dialect refers to variations that characterize the language of a particular group. The language system of a dialect varies in some way from an ideal language standard (Owens, 1984). However, people rarely use the ideal standard except in formal writing. The concept of a standard language is also practically a myth (Foss & Hake, 1978). Actually, a standard language was a dialect which has been chosen as the “official” criterion. The dialectal differences come from geography, socioeconomic level, race and ethnicity, situation or context, peer group influences, and first- or second language learning (Owens, 1984). The most obvious difference between a dialect and standard language is phonology. Besides the distinct sound patterns, there are differences of words and idioms, syntactic and prosodic systems. Those speakers with a different native language experience code-switch from one to another, which might be the main reason of the occurrence of dialectal-like language. Code-switching refers to the practice of moving between variations of languages in different contexts (Coffey, 2007).

Researchers have studied African-American and Hispanic children from Spanish-speaking homes to understand the role of language in certain culture and the differences between dialect and standard language. However, it is believed that there also are children who can use both dialect and standard language very well, just as many children

can speak two languages. That is, they can do style-shifting swiftly and perfectly (Foss & Hake, 1978).

Multilingualism

In recent years, research focusing on L3 acquisition is mainly on Indo-European languages (Odlin, 2004), and much less work has been done on Asian languages. In some cross-lingual studies, researchers tried to find out whether there was a translation from one language to another (e.g. Duyck, Depestel, Fias, & Reynvoet, 2008). Recently, Stafford (2007) conducted research in which he used four groups of bilingual Latino adults who learned English as their L2 at different ages. The researchers divided participants into four groups according to the age at which they began to learn English. The participants learned Latin as a L3 by means of computer-based lesson. The results indicated that the prior language experience and age differences were not significant predictors of L3 development. Regardless of cognitive capability, verbal working memory capacity was a significant predictor of L3 achievement. Working memory capacity, as a broad definition, is simply the ability to remember things in an immediate-memory task. In a narrower sense, it is the focus of attention of an individual (Cowan, 2005).

Another study (Carvalho & da Silva, 2006) investigated Spanish-English bilingual students who were learning Portuguese as their L3 to figure out the effects of typological distance and the order of foreign language acquisition. The findings revealed that both of the two groups (English as L1 or Spanish as L1) rely on Spanish heavily during their performance. The researchers concluded, “Linguistic similarity between the languages

overrides order of acquisition” (p.185). In this study, Spanish and Portuguese were more similar in linguistic construction. They believed L3 acquisition is something like L2 acquisition, which heavily relies on the former language the participants acquired before. The only difference is that L3 learners have more choices to rely upon compared to L2 learners. They can choose the more similar language to refer to. Van den Noort, Bosch, and Hugdahl (2006) conducted another study on the interaction with foreign language working memory capacity. The participants’ L1 was Dutch and they were fluent in German (L2). They studied L3, Norwegian, shortly before the study was conducted. The researchers found differences in performance between the three languages both on simple and complex working-memory tasks, which supports the hypothesis that working memory capacity interacts with foreign language proficiency.

There are few studies investigating the process of Anglo-Saxon L1’s learning an Asian language as L3. Fouser (1995) has studied students in Australian universities who took Japanese, which is quite different not only in cultural terms but also in linguistic system, as their L3. The research suggested that the learners’ perception of cultural and linguistic knowledge is transferable in an L3 communication setting.

Besides the clue of L2 or L1, according to Krashen (1996), there are other references for L3 or L4 learners to consider. He used his own experience of narrow listening to suggest that repeated listening, familiar context, and interest in the topic help us to make the input of foreign language comprehensive. For example, a student who has read about French history in her/his L2 — English — later starts to learn French. She/he may have the chance to read the same history in French. The student can take advantage

of the similarity of English and French to learn the new language. At the same time, the content is familiar to her/him in English, and she/he is quite interested in this topic. This can be another clue for the student to acquire the L3 — French.

Bardel and Falk (2007) studied the role of the second language in third language acquisition. They found that typological proximity between L1 and L2 is not enough for the English as second language (ESL) group to resort to L1 transfer. However, they did find that typological proximity seems to favor transfer from L2 to L3, but not from L1 to L3, which means in L3 acquisition, the L2 acts like a filter, making the L1 inaccessible. Leung and her colleagues' research (2005) supports Bardel and Falk's theory in some aspects. They examined two groups of French beginners: one Vietnamese L2 group without any exposure to English and one L3 group of Chinese who had taken English as L2. The study found the L3 group performed significantly better than the L2 group. This effect tells us again that learning L3 is not as simple as learning L2. The transferring of language is not always from L1, either. There are also some other factors such as the similarity between English and French that might play a role in this effect.

Researchers can find the positive effects of bilingualism on third language acquisition in children as well as in adolescents. Research findings show that children who have a second language in their linguistic repertoire are better L3 learners than pure sequential L3 learners. Errasti's research (2003) examined students ranging from twelve to sixteen-year-olds in a Basque school. Their first language is Basque, and they learned Spanish as a majority language together with English as a foreign language. The results showed that the students are all highly competent in Spanish, but the ones who use

Basque in more language domains achieved the best scores in English (L3). The researcher concluded that the degree of high competency in both Basque and Spanish gave the student an advantage over the mainly Spanish-speaking peers when confronted with a third language. Although researchers have conducted several studies trying to investigate the role of bilingualism on acquiring L3, they cannot easily estimate the exact role played by L1, L2, or both L1 and L2. The researchers (Errasti, 2003) thought that they should also take other factors into consideration, such as social, educational, and individual factors.

In Errasti's (2003) study, the students who used the minority language — Basque — in social contexts and school outperformed their peers who mostly used Spanish. This might be due to social issues. Using Basque might give them more chances to start a conversation with parents and elders. Taking the initiative in language choice might in turn influence their proficiency in English.

According to Rivers (1996), L3 learners are highly successful: they learn their newest language faster than L2 learners learning the same language. They are self-directed and would like to spend more time learning outside formal study. Rivers also observed these learning characteristics in L3 learners' efforts when they were learning their second language. Rather than considering the clues of L2 achievements and similarity among languages, perhaps researchers should not overlook individual differences and the efforts they make in language learning.

An overview of the research just reviewed suggests that there is usually a positive effect of bilingualism on third language acquisition. However, there can be neutral or

even negative effects. For example, in Okita and Hai's research (2001, as cited in Cenoz, 2003), they compared monolingual Chinese to bilingual Chinese (ESL) in the acquisition of Japanese. The results indicated that the performance of monolingual Chinese was better than the bilingual Chinese. The explanation might be that those Singapore bilinguals did not have a strong command of the Chinese writing system, which would prevent them from transferring Hanzi (Chinese) to Kanji (Japanese).

Summary of Language Acquisition

First language acquisition in childhood is believed to be an intuitive process. Researchers have tried for years to answer the question of why children can acquire the first language without any effort in biological, evolutionary, motivational aspects, etc. However, it is such a complex process that we cannot use a simple answer to cover all of the possibilities.

Learning a second language, which is more difficult, however might not be that complex. For researchers there are some solid things to consider — motivation, environment, and efforts. Simultaneous bilinguals are more like intuitive first language learners who depend more on intrinsic motivation and seem to follow the biological “critical theory.” Sequential multilinguals, the major group of second language learners, are more likely to lean on extrinsic motivation at the beginning of learning. However, if they want to succeed in learning a foreign language, they need to become better learners who are more self-directed, have a higher self-efficacy, and always try to get involved in the environment and culture of the language to obtain more immersion in the language. In short, they need to be more intrinsic motivated.

Krashen introduced the idea that “acquisition” is different from “learning.” The acquisition system is “the product of a subconscious process very similar to the process children undergo when they acquire their first language.” The meaningful interaction — communication — is the central idea of his theory. The role of conscious learning, however, in his words, is “somewhat limited in second language performance” (Schütz, 2007). In summary, learning a second or further language is not only a simple process of learning the phonology, semantics, grammar, and pragmatics, but learning to interact with others, joining in the conversation, and most interestingly, learning the culture.

Motivation

Many studies of foreign language acquisition (e.g., Gagné & Deci, 2005; & Gardner, 2001) focus on individual characteristic variables such as personalities, attitudes, language aptitudes, language anxiety, motivation, self-confidence, and language learning strategies. Many of these variables are dependent on or correlated with motivation. For example, if a learner is highly motivated to learn a foreign language, her/his attitudes towards that language should be positive and her/his language anxiety tends to be lower than those who are less motivated. It is reasonable to believe that motivation should be a central element in language acquisition (or even in any other learning process).

Motivation is an internal state or condition that activates or energizes goal-oriented behaviors (Huitt, 2001). Researchers believe that learned behaviors do not occur unless energized. Motivation should be involved in the performance of all learning processes.

According to Gardner (2001), motivation refers to the driving force in any situation. In his socio-educational model, motivation to learn the second language includes three elements: the motivated individual expends effort to learn the language, the motivated individual wants to achieve the goal, and the motivated individual will enjoy the task of learning the language. The first one indicates that there is a persistent and consistent attempt to learn the language by doing homework or by doing extra work. In the second, an individual will express the desire to succeed and will strive to achieve success. Moreover, the individual says that it is fun, a challenge, and enjoyable. The first element comes from the external world rather than the learner. The second one is somewhere between intrinsic and extrinsic motivation, which depends on the source of “want.” The last one is the only one that comes entirely from within the learner. This provides us the general question of motivation studies: whether motivation is a primary or secondary influence on behavior. That is, are the occurrences of behavior better explained by environmental/ecological influences, perception, memory, cognitive development, emotion, explanatory style, or personality. For instance, people respond to increasingly complex stimuli up to a point and then responses decrease. Researchers are trying to figure out whether changes in behavior are better explained by external factors (e.g., classical or operant conditioning) or an internal state of arousal in some form of motivational process (Huitt, 2001).

Extrinsic Motivation

Researchers divide motivation into extrinsic motivation and intrinsic motivation. Extrinsic motivation comes from outside the learner. Extrinsic motivations such as

money, fame, rewards, and prizes are very common external stimuli. These stimuli provide pleasure and satisfaction to the learner rather than the learning task itself. For instance, an extrinsically motivated student who dislikes mathematics may work hard on mathematical questions simply because she/he wants the reward of completing it. The reward would be a good grade on an assignment or a test.

In many developing countries, English is a required second language in schools. The motivation of learning English seems to be more extrinsic as sometimes the child is forced to learn a language she/he does not like. Some students learn a second language for a number of duties and responsibilities, such as school required, parents required, or job required. Nikolov (1999) looked into the attitudes and motivation of Hungarian children who were required to learn English as their second language in school. The results showed extrinsic motives such as rewards, grades, and approval from teachers and parents were very important for young children to get good grades in English classes.

It seems that extrinsic motivation is effective to some extent. It does induce individuals to perform a certain task even if they have no interest in it. They can get rewards for the task, which makes them feel happy. It also paves the way for individuals to set goals for the future. Extrinsically motivated second language learners are more likely to study abroad and develop a huge amount of effort to realize the goal.

Although we cannot ignore the fact that extrinsic motivators keep us moving and provide us perseverance when we lose interest or drive for learning or working, it is very limited. Extrinsic rewards can lead to over justification and subsequent reduction in intrinsic motivation (Urdu, 2003). In Lepper, Greene, and Nisbett's research (1973),

they found that children who were lavishly rewarded for drawing with felt-tip pens later showed little interest in playing with pens again.

The learning environment as a source of extrinsic motivation plays an important role in second language acquisition. Immersion learning of a foreign language provides learners more chances to hear and speak, which is the most important part of mastering a language. Therefore, the potential multilingual could be a person who has a lot of foreign language immersion, no matter whether in childhood or in adulthood. Maybe she/he lives in a country, which has two or more official languages (e.g., Canada), in one which requires children to study English as a second language (most Asian countries), or lives in a border area. Alternatively, perhaps the person lives in a multilingual community, which provides easy access to foreign languages.

However, the environment sometimes cannot account for the reason of acquiring a foreign language, or even the acquisition of a first language. People make their own choices to acquire languages by their intrinsic motivation. An example is Leopold's daughter (Hakuta, 1986). She was born in a German family in English culture. The girl's early lack of language differentiation between German and English made her only speak English. However, she had sufficient command of German, which allowed her to understand what her parents were saying. At age 7, she continued to speak German studded with English words to her father. Sometimes she just switched to English when she could not think of the proper German. Her parents' improper way of teaching her language caused the result. However, she chose to use both languages — one in school, one at home. She continued using German to talk to her father although she used English

most of the time. Of course, she can speak English to her father. However, she just wants to talk to her father in her father's language.

Intrinsic Motivation

Intrinsic motivation helps us to make choices. Intrinsic motivation comes from rewards inherent to a task or activity itself: the enjoyment of a puzzle or the love of doing the task (Gagné & Deci, 2005). Having fun, doing something for its own sake, enjoying the time, or being deeply involved in something are reasons given by people that are described as intrinsically motivated. During the moment of having fun, learners usually invoke feelings or emotions (Kripperndorff, 2004). However, there has not been very much research in this field.

It is believed that older second language learners rarely achieve the native-like fluency that younger learners do (Seigler, 1998), despite the fact that they often progress faster than children in the initial stages. In this case, the intrinsic motivation is crucial. People with a strong interest in a foreign language are usually intrinsically motivated. While people who find it necessary to acquire a foreign language in order to make new friends, to do business, to gather information, to have entertainment, or for religious reasons are extrinsically motivated learners.

In order to dig deeper into the differences of motivational determinants in foreign language acquisition between people with difficulties and those with high learning skills, some researchers compared students of different groups. The motivational determinants include self-efficacy, self-regulation, perceptions of competence, control, and attribution beliefs (Sideridis, 2002). Sideridis believes that goal-setting in language learning is very

important, though it is often overlooked. In his study, he found that students at risk of inadequate language learning had lower perception of control, lower belief strength, outcome evaluation, and normative beliefs than students with high language skills. However, they also had a stronger extrinsic motivation to comply with requests of significant others. He concluded that there was a direct link between goal importance and behavioral intention, belief strength, outcome evaluation, normative beliefs, motivation to comply, and perceived control. The result was consistent with previous study (e.g., (Sideridis & Kaissidis-Rodafinos, 1998; Sideridis , 2001).

According to Artelt (2005), intrinsic motivation can be differentiated into two forms: a subject-centered and an activity-centered form. In the former situation, a person engages in a learning activity because he/she is interested in a particular subject; in the latter, a person does so because of the enjoyment of doing it. Theorists do research on both situations and have put forward several theories, such as Deci and Ryan's Self-Determination Theory (Gagné & Deci, 2005) and Csikszentmihalyi's Flow Theory (Csikszentmihalyi, 1990). Below will be briefly described several theories which focus on intrinsic motivation.

Drive Theory. Drive theory comes from the concept of biological drives. There are four types of drives: hunger, thirst, sex, and escape from pain (Hull, 1943). As time passes, the strength of the drive increases if it is not satisfied.

16 Basic Desires Theory. Reiss (2004) studied the 16 basic desires, which represent how intrinsic desires lead to the multifaceted nature of end goals. Basic desires organize our attention, cognitions, feelings, and behaviors into a coherent action. That is,

people who differ in basic desires pay attention to stimuli that are relevant to the satisfaction of certain desires, and ignore the others.

Flow Theory. Csikszentmihalyi (1990) outlined this theory, in which people are most happy when they are in a state of flow — concentration or complete absorption with the activity at hand. It is thought to be an optimal state of intrinsic motivation, in which a person is fully immersed in doing something.

Self-Determination Theory (SDT). Another characteristic of intrinsically motivated second language learners is self-determination. Self-Determination Theory (SDT) is concerned with the choices people make with their own free will and full sense of choice, without any external influence and interference. In simple terms, SDT focuses on the degree to which an individual's behavior is self-endorsed and self-determined (Deci & Ryan, 2002). Many older second language learners believed that self-access centers help them to learn a foreign language independently and equip them for future learning (Detaramani & Chan, 1999). Second language learners are free to choose to learn a language or not, and to choose the way of learning. It is self-directed and autonomous. Autonomy means endorsing one's actions at the highest level of reflection (Dworkin, 1988). In this situation, learners are also intrinsically motivated, responsible, and diligent. When they engage in learning a new language because it is interesting, they are doing it voluntarily. In contrast, when they had a sense of pressure, or unwillingness, they are not doing it voluntarily. Gagné and Deci (2005) pointed out in their self-determination theory that there can be autonomous and controlled motivation, which differ in terms of both their accompanying experiences and their underlying regulatory

processes. They also suggested it is important to decide the degree to which human behavior was autonomous versus controlled motivation. This is also the primary difference between SDT (Gagné & Deci, 2005) and most motivation theories. They believed that autonomous motivation facilitates effective performance and well-being, while controlled motivation can detract from those results, particularly in a situation where the task requires creativity, flexibility, or deep processing of information.

Interest

Interest can be argued to be the most important form of intrinsic learning motivation. There are two kinds of interests: situational interest and individual interest. The former is a situation-specific motivational state generated by the incentive structure of a specific (learning) situation. The latter is a habitual tendency or dispositional characteristic of a person (Alexander, Kulikowich, & Jetton, 1994). It is assumed that individual interest in a particular subject is relatively stable and is manifested in different situations. That is to say, a person with individual interest would be more self-determined and intrinsically motivated because the interest comes from inside the learner. A situational interest could be a nice learning environment or an attractive instructor, in which a learner's interest would only arise in this specific situation. Once the outside stimuli disappear, the learner would lose his/her interest. It appears that situational interest more likely comes from extrinsic motivation, while individual interest is more intrinsic motivation orientated.

Furthermore, Schiefele (2001) defined individual interest as a domain or theme-specific motivational personality trait comprising feeling-related and value-related

intrinsic valences. Feeling-related interests include enjoyment, activation, and involvement. The learner is not adversely affected by anxiety or internal/external constraints and, on the whole, finds the learning experience emotionally satisfying. Value-related valences exist when personal significance is attributed to an object or activity, and the object of interest assumes a higher position in the person's value hierarchy (Artelt, 2005). Since interests may differ in the extent to which they are based on the experience of feelings or the attribution of personal significance, we might say feeling-related intrinsic valence is more intrinsic motivation related, while value-related valences tend to be more extrinsic motivation related.

Motivation Studies in Language Acquisition

Detaramani and Chan (1999) pointed out that in a traditional Asian class, second language learners found it difficult to accept non-teacher-directed language learning programs. In addition, it would be hard for teachers to raise the intrinsic motives in those students.

In some other studies, researchers tried to investigate attitude-mediated contact effects on foreign language learners' motivation (e.g., Dörnyei & Csizér, 2005; Ortiz & Harwood, 2007). In recent years, globalization affects every aspect of life and provides researchers more opportunities to be exposed to a different culture and language. Intercultural contact has been a significant issue in modern individual's lives. Being fluent in a second language creates the medium of communication between members of different cultural groups and helps learners form their own attitude and motivation, which would promote their motivated behavior in other learning subjects. Dörnyei and Csizér

(2005) focused on the increased intercultural contact through tourism, which would lead to enhanced language attitudes and language learning motivation. Their most consistent overall finding was that inter-cultural contact largely promoted positive intergroup and language attitudes. One of the interesting findings was that although more contacts promote more intergroup and language attitudes and motivation of language learning, if the contacts exceed a certain level, the attitudes and motivation decreased as an upside-down U-shaped model.

Social issues also have influence on attitudes of language learning. In Errasti's (2003) study, which was mentioned earlier, the students learned Basque—a minority language, Spanish and English. Those who used Basque, in both social contexts and school outperformed in their peers who mostly used Spanish. This might be due to social issues. Using Basque might give them more chances to start a conversation with parents and their siblings. Since language use outside school plays an important role in developing the level of language competence in each language (As Threshold Hypothesis, Cummins, 1976, quoted by Errasti, 2003), they also performed better in English.

All this leads to the consideration of the motivation of third language learners since they might have more intrinsic motivation in learning their L3. In some of the research, L3 learners were found to be highly successful: they learned the language faster than second language learners learning the same language (Rivers, 1996). They were also more self-directed and tended to like spending more time learning outside of formal study.

Measuring Motivation

It has been about 80 years since we had the first psychological measurement. In the early 20th century, psychodynamic and behavioral theory focused on biological urges as one of the most important source of motivation. Interest in the sources of motives has increased since then (Mayer et al., 2007). Researchers often use self-judgment scales to measure variables such as Maslow's need, satisfaction, expectation, etc. Motivation involves the organization of needs and goals within the individual (Gagné & Deci, 2005). It is "why" a person makes choices or decisions to do or not to do something. Motivational tests should probably measure the general motives, self-related motives, motivational dynamics, or even specific areas of motivation. The approaches could be direct, inferable, current concerned, or social context based. The Thematic Apperception Test (TAT), Personality Research Form (PRF), and Edwards Personal Preference Schedule (EPPS) are general measures of motivation (Mayer et al., 2007). Most of these are personality-based self-judgment scales. Motivation is usually just one factor of the instrument. For example, the General Causality Orientation Scale (Deci & Ryan, 1985) is widely used to test self-determined motivation. A more specific motivation scale, for example Cuning and Wakefield's Work Motivation Inventory or the Children's Motivation Analysis Test (CMAT) (Mayer, Faber, & Xu, 2007) would be used for a specific context such as work, school/academic, athletic or for a specific category of people. A lot of these tests focus on the achievement motive, in which we may have many academic achievement scales, work achievement scales, or sport achievement scales.

There continue to be new scales, such as biological bases of motives, current concerns and endeavors, self-monitoring, social based, implicit attitudes, and values. Because the old scales can never cover every specific aspect of motivation, their validity and reliability continue to be a big problem.

An example of a specific motivation scale would be French and Oakes's (2003) new instrument to measure the intrinsic motivation of first-year college students. They used four subscales, which are challenge, control, curiosity, and career outlook (which was considered to be future-orientation) as four dimensions of intrinsic motivation. They concluded that the new instrument has good reliability and validity. It has only twenty items, which means it can be easily used before class to measure the intrinsic motivation of freshmen.

Wang (2008) has created a specific Intrinsic/Extrinsic Motivation Scale of English Learning (I/EMSEL) in the context of Chinese learning English based upon the self-determination theory. She used very direct questions in the scale, such as "I like learning English" for intrinsic motivation; or "I study English only to pass CET-4 or CET-6 (Chinese English Level test)" for extrinsic motivation. She tested the correlation between intrinsic motivation, extrinsic motivation, and English achievement. The result showed that the measure which they called "autonomous extrinsic motivation" (Gagné & Deci, 2005, p.339) correlated positively with intrinsic motivation and English achievement. However, the strongest predictor was motivation for knowledge, which was considered to be intrinsic motivation.

Cross-Cultural Approaches

A central question for any research in language acquisition is whether the findings can be generalized across countries and cultures. Cross-cultural and international studies raise issues such as appropriate diagnostics and avoiding cultural bias, and draw attention to the dangers of misinterpretation (Artelt, 2005). Many of the criticisms in motivation scales focus on the Western concepts of motivation and goal orientations. Most scales seem to be limited by cultural beliefs and social practices (Pintrich & Schunk, 2002). For instance, Heine et al. (2001) in comparing the working styles of Japanese and North Americans found out that Japanese work harder when they focus on shortcomings of themselves, while North Americans work harder than they focus on their strengths. The result suggests a large cultural difference in the source of intrinsic motivation: wanting to correct vs. wanting to maintain. An intrinsic motivation for academic achievement seems to be less biased, in which the intrinsic motivation turns out to be interest. However, many scale items are limited to the emotional aspects, usually feelings of interest. For example, in “How do you like the science?” Artelt (2005) pointed out this kind of one-item approach limited to only one facet of the interest failed to examine the variability of students’ performance within countries. Researchers need to build a scale which contains several aspects/subscales and in which more than feelings are being reported. For example, we need to ask students’ willingness to engage in self-regulation study, their motivation to learn new material, and so on.

Creativity

The concepts of creativity have been changing throughout history. There are still disagreements on the definition of creativity. Some believe “creativity” and “innovation,” which are often interchangeable, to be fundamentally different (Stamm, 2008). Creativity often refers to the act of producing new ideas, approaches, or actions, while innovation is the process of both generating and applying such creative ideas in some specific context.

Some just believe they are quite similar: creativity is a way of thinking and acting or making something that is original for the individual and valued as useful by that person or others (Mayesky, 2003). Another alternative conception will be simply the act of making something new regardless of utility (Wikipedia, n.d.). Something new could be a generation of new ideas, concepts, inventions, or new combination of the existing ones.

Neurology of Creativity

Heilman, Nadeau, and Beversdorf (2003) developed some theories about the neurobiological basis of creative innovation. Skills such as specific knowledge and divergent thinking are thought to be necessary components of creativity. They found that specialized knowledge is stored in specific portions of the temporal and parietal lobes and that divergent thinking has a relationship with activities in the frontal lobes. In fact, frontal lobes are primary cortical regions that control the locus coeruleus-norepinephrine system. High levels of norepinephrine increase the size of distributed concept representations and co-activation across modular networks, which aid divergent thinking. They also suggested that creative people might be endowed with a brain that could store extensive specialized knowledge in their temporoparietal cortex. This might show us

some indications of the connection between creativity and language — the latter is stored in the temporal lobes.

Creativity Process

The process of creativity is usually described as two parts: the discovery of a new idea, plan, or answer, and working out, proving or making certain if the idea or plan works. The first part involves the imagination, playing with ideas, and exploring. The second part is to put the thinking into action, which involves learning skills, evaluating, and testing (Mayesky, 2003). However, Wallas (1926) concluded that there were four steps to the creativity process: preparation, incubation, illumination, and verification.

Characteristics of Creativity

Henry (1991) summarized five resources of creativity based upon different views on the origin of creativity: grace, accident, association, cognitive, and personality. The first one has dominated the thinking of creativity until the early eighteenth century. The other four make some assumption that creativity is something that could be encouraged and trained instead of a gift inside. A newer perspective of the characteristics of creative people would be formulating new problems rather than depending on others and transferring what they learned across different contexts (Seltzer & Bentley, 1999).

Csikszentmihalyi (1990) believed that there might be certain neurological physiologies that predispose a person to one or another type of creativity. However it does not seem to take a particular talent or genius to be very creative. He concluded that there are several typical characteristics of creative persons: they are good at divergent thinking while also good at synthesizing ideas into a single concept; they have high levels

of energy, even at an old age; they are often caught up being alone, but also are willing to interact with others and seek stimulation; they tend to be psychologically androgynous, highly intrinsically motivated, passionate, and detached; and they are confronting and challenging but also “stand on the shoulders of giants” (Stamm, 2008).

Fields of Creativity

People have stereotypes that fields associated with arts such as painting, music, and literature (novels and poetry) are creative. Fields such as science and engineering are less related. However, Simonton (1999) pointed out that all of the major scientific and engineering advances could be attributed to the creativity of individuals. Creativity is also a vital trait for a successful organization. Creativity helps a organization maintain flexibility, improve the quality, and produce a constant stream of innovative products and services (Martin, 2000). In business, expertise, creative thinking skills, and intrinsic motivation are needed to enhance creativity (Amabile, Barsade, Mueller, & Staw, 2005)

Creative Techniques

Creativity is becoming increasingly important. Schools, kindergartens, and educational institutions attempt to provide a creative environment for learners. The basic techniques include “establishing intension and purpose, encouraging, stimulating curiosity, exploring, developing self-management” (Nicerson, 1999).

Why is Language Acquisition Creative?

Language used to be a field that few researchers believe to be creative. However, Chomsky (1975) pointed out that language acquisition is an innovative process, in which children create their own rules for making sentences. She discussed *invented spelling*

systems, which is a linguistic innovation created by children who write before they know how to read. That is, four and five-year-olds who do not yet read can use alphabetic letters to write words exactly the same as the pronunciation of the word. She also pointed out the creative aspect of language use for all ages, contained in the fact that learners' knowledge of language is not the actual sentences, but rather the system of rules for making sentences. Learners can innovate, according to rules, which are implicitly held in common with other speakers. The children cannot observe the rules directly. They are learning the rules indirectly from experience and are continuously constructing the rules by themselves actively. The process is quite similar to the "look and fill" questions in some of the Intelligence tests or creativity tests.

As far as researchers realize the similarities between the process of language learning and creativity performance, can they admit that the process of language learning is indeed a creative process. Moreover, institutional education of language learning could kill children's natural creativity in producing language. As Piaget said "Children have real understanding only of that which they invent themselves, and each time we try to teach them something too quickly, we keep them from reinventing it themselves" (quoted in Chomsky, 1975, p.24).

Play with Language

There has been some research about the playfulness of children's language acquisition in L1 and L2, which agrees with Chomsky's (1975) view of an innovative language learning process. It seems that children have a spontaneous predilection for playing with language (Cumming, 2007).

Learning through play has been considered a corner-stone of early childhood theory and practice since the beginning of the 19th century (Fraser, 2007). Dewey (1915) believed that learning through play was a basic philosophical perspective in early childhood education. Later, Piaget (1952) introduced the theory that children learn best through exploration and active engagement with the environment.

Art is often thought to be creative. It is interesting to think about whether art and language development correlate with each other. Heath and Wolf (2005) conducted a study to test the correlation between art and language acquisition. They found that children's artistic growth, such as drawing, was a necessary companion for their entry into a life course of learning. Visual focus, with its keen attention to detail, technical tools and terms, and the manipulation of props, a variety of media, played integratively as children learned to draw as well as enhanced their language development.

In Fraser's (2007) study, she looked into the strategies that teachers used to enable children from different cultures or speaking different languages to express their ideas verbally and visually and work collaboratively. She found that the children were very creative in that they used play and materials to communicate and exchange ideas to overcome cultural barriers. They also were productive and could work out complex imaginative project work and engage in many of the pedagogical processes. Malgady (1981) did a study to examine the relationship between creativity and children's appreciation of figurative language usage. He found that children at the kindergarten level who had a better nonverbal creativity would be more likely to appreciate figurative language. At Grades 3 and 6, moreover, children's appreciation of figurative language

would be tied to verbal IQ and verbal creativity. However, in another study, Truhon (1983) also tested whether play affects creativity. He did not find any significant correlations between playfulness-fun or playfulness-intelligence and creativity.

Most of the correlation studies between creativity and first language learning focus on children. Fewer look at adolescents or foreign language acquisition. Bushnell (2009) is one of the few researchers to consider that the language acquisition of adults is also playful and productive. The result revealed that language play (LP) is a highly salient feature of the learner's interaction in an introductory Japanese as a foreign language classroom. The participants were able to engage in teacher-assigned pedagogical activities on their own terms through LP. The author believed that LP is potentially of great benefit to the linguistic development of L2 learners.

Measuring Creativity

Researchers have developed many creativity-related tests over the years. There are personality tests that contain creativeness scales (e.g., Khatena & Torrance, 1976; Taylor & Fish, 1979), tests that measure the different styles of expressing creativity (e.g., Kumar, Kemmler, & Holman, 1997), tests that measure divergent thinking (e.g., Meeker & Meeker, 2000), tests that measure how suitable various environments are for creative expression (e.g., Amabile & Gryskiewicz, 1989), tests that measures creative achievement (e.g., Karnes & Chauvin, 1985), and so on (Epstein, Schmidt, & Warfel, 2008).

Although there have been many creativity tests in various perspectives, there are several problems to be aware of. The definitions of creativity are constantly changing and

there is no single definition or description that makes everybody satisfied. Moreover, according to the examples of former creativity-related tests, it seems difficult to construct a pure creativity test ruling out all other confounds, such as ways of expression, thinking, achievement, or environment.

Labeling is another problem, which can lead some people to believe that they are naturally creative and others to believe that they have little potential. Creativity should not be a fixed trait, but rather a flexible characteristic. This produces another concern that everybody has potential to improve her/his creativity through experience and practice. A competencies approach should emphasize human potential (Epstein et al., 2008).

Motivation and Creativity

How is a creative person motivated? What is the relationship between motivation and creativity? In order to answer those questions, researchers have done many studies to figure out a reasonable explanation. Amabile et al. (2005) tested the effects of intrinsic and extrinsic motivation on creative writers and found that poems which were written under an extrinsic orientation were significantly less creative than those written under intrinsic orientation or a control condition. That is, creative writers focusing on extrinsic motivation experienced a temporary decrease in creativity.

However, those focusing on intrinsic motivation did not experience a significant increase in creativity in their study. Their result was consistent with former studies and their hypothesis that intrinsic motivation is conducive to creativity while extrinsic motivation is detrimental (Amabile, 1979). Two main factors in extrinsic motivation which produce decremental effects on creativity are expectation and rewards. Amabile

(1979) found the expectation of evaluation, one specific kind of external motivation, would produce lower creativity work than those who do not expect evaluation. The same result was found with students who expected rewards. They would write less creative stories than those who simply volunteered to do the writings (Kruglanski, Frideman, & Zeevi, 1971).

Given the language acquisition, motivation, and creativity studies discussed above, this study would be conducted regarding the relationship between these three factors. Language acquisition, which is a learning process, is often connected with motivation research. It would be interesting to find whether a better language learner is generally more intrinsically motivated. In addition, it would also be interesting to find whether multilinguals are more intrinsically motivated. Creativity is not often mentioned in language learning studies of adults. It should correlate to adults' language learning behaviors and achievements to some extent. It would be interesting to find whether better language learners, or multilinguals are generally more creative.

Hypotheses

There will be a positive correlation for L2 and L3 learners between their perceived foreign language achievement scale scores and their intrinsic motivation scale scores and their creativity scale scores.

L3 learners in general will have higher scores on the intrinsic motivation scale and creativity scale than L2 learners.

METHODS

Participants

L2 and L3 learners were recruited from Fort Hays State University. The school's International student union, modern language department and English department were contacted to recruit the participants. Some small learning groups and student clubs such as Chinese Academy, Japanese Club to gather participants were also contacted.

The participants involved in the survey were 103 students and 2 non-students, 105 in total, 44 were males and 56 females (5 not specified). Forty were undergraduate students, 60 were graduate students, and 3 were not students (2 not specified). The ages ranged from 18 to 34 ($M = 23.45$, $SD = 2.76$). Most of the participants were from the People's Republic of China (86 participants), but 13 were American, 2 from Saudi Arabia, 1 from Japan, 1 from Taiwan, and 1 from Turkey.

Procedure

The participants were first given an informed consent form (see Appendix A, which ensured that they voluntarily wanted to join the research. They then completed a questionnaire, which included two parts. Part 1 was on demographics such as age, gender, how many languages they understood and their TOEFL or IELTS scores if available. Part 2 consisted of 5-point Likert-style questions which included scales on self-perception of foreign language acquisition achievement, intrinsic motivation, and creativity. It generally took about 15 minutes to finish the questionnaire. Participants did the questionnaire one by one, and could not talk to each other. However, if they had any questions, they could ask the researcher for clarification.

Scales Construction

The Self-Perception Scale contains questions such as “I like reading articles in a foreign language that I know”. It is not as direct as questions such as “I like learning a foreign language” used in some studies (e.g. Wang, 2008). The participants were asked on how comfortable they are when using the foreign language in their lives.

Since there are no generally agreed upon definitions of intrinsic motivation or creativity, I created questions for these two scales based on my research ideas. For intrinsic motivation, some ideas of the questions were borrowed from personality scales, however all questions were recreated, for example “I do things for the satisfaction I feel when I try to overcome challenges” (Pelletier, Vallerand, Green-Demers, Blais, & Brière, 1996). I also created some questions such as “I learn a foreign language just for fun”, which might be highly correlated to the perception of language achievement and their real achievement.

For creativity, I used the idea of “adventure” from Myers-Briggs Type Indicator (MBTI) assessment (Myers & Myers, 1980) and created question such as “I feel a thirst for adventure”. I also created some questions such as “It is hard to get me interested in most things.” which is a reversed question.

The original survey contained 42 questions in three scales: Language Acquisition Scale (13 questions), Intrinsic Motivation Scale (15 questions), and Creativity Scale (14 questions). All questions were 5-point Likert-style questions, with 1 meaning Agree and 5 meaning Disagree. Eleven psychology graduate students rated the scales for validity

testing. They rated how well the questions match the definition provided for the three scales of interest (See Appendix H).

A simple test was run in EXCEL. Any question having an inter-rater reliability lower than .8 was excluded. As a result, 13 questions were dropped from the original survey leaving 29, and the final average inter-rater reliability was .88. There were 10 questions remaining for Language Acquisition, 10 questions for Intrinsic Motivation, and 9 questions for Creativity (please see Appendix C, D, E for specific questions on each scale).

RESULTS

Demographic Descriptive Results

The descriptive analysis showed that the years of learning foreign language ranged from six months to 24 years ($M = 10.10$, $SD = 4.48$). Eighteen participants reported TOFEL scores, 12 were IBT (Internet based TOFEL) scores and 6 were paper based TOFEL scores which were transferred into IBT scores according to official ETS TOFEL Internet-based Test Score Comparison Tables (TOFEL, 2005). The scores ranged from 71 to 108 (120 for full credit, $M = 84.39$, $SD = 9.82$). Twelve participants reported IELTS scores, which ranged from 5.5 to 7.0 ($M = 6.04$, $SD = .58$). Of the total of 105 participants, 38 were at least a beginner of L3, and 67 were only L2 learners.

Participants described their foreign languages as shown in Tables 1 and 2.

There were several participants who reported dialects as L2, which were very different from their L1 in grammar and in pronunciation (3 Shanghainese, 3 Cantonese, and 1 Taiwanese), which was not included as foreign languages.

Scale Descriptive Results

The descriptive analysis results for the sum of question scores on each of the three scales is shown in Table 3. The mean score for each scale was close to but a little below the middle value in the full range of possible scores (3 on a 5-point scale, or 30 for the 10 questions on the language acquisition and intrinsic motivation scales and 27 for the 9 questions on the creativity scale).

Table 1. *Participants Reported Native Languages and Foreign Languages.*

	L1	L2	L3	L4	L5	L6
Mandarin	88	4	3	1		
English	14	91				
Arabic	2		2	1		
Spanish		5	8		2	
Japanese	1	3	11	8		
German		2	3	1	1	
French			8	1		
Italian			1			
Korean			1	1		
Russian			1			
Latin						1

Table 2. *Participants Reported Language Acquisition Levels.*

	L1	L2	L3	L4	L5	L6
Fluent	103	23	1			
Experienced	1	70	6			
Beginner		10	31	13	3	1

Table 3. *Descriptive Analysis of Language Acquisition, Intrinsic Motivation, and Creativity Scale Scores.*

	Low	High	<i>M</i>	Median	<i>SD</i>
Language Acquisition	11	39	24.54	25	6.15
Intrinsic Motivation	11	37	20.93	20	5.73
Creativity	11	37	21.29	20	5.33

Linear correlations were run for the three scales. The correlation between language acquisition and intrinsic motivation, $r(103) = .69, p < .01$, between language acquisition and creativity, $r(103) = .62, p < .01$, and between intrinsic motivation and creativity, $r(103) = .63, p < .01$, were all positive and statistically significant.

Hypothesis Tests

The inter-correlations on the three scales were all positive and statistically significant, which supported the first hypothesis that L2 or L3 learners who perceive their foreign language achievement to be better would score higher on both an intrinsic motivation scale and a creativity scale.

The second hypothesis was tested by running *t* tests. The average score of language acquisition, intrinsic motivation and creativity in L3 learners and L2 learners are in Table 4. The results indicated that L3 learners reported themselves to be more comfortable in using a foreign language, more intrinsically motivated, and more creative than L2 learners. However, the difference between L3 and L2 learners in language acquisition and creativity did not reach a significant level. The difference between the

two groups on their intrinsic motivation scores barely reached the level of statistical significance, $t(96) = 2.09, p < .05$. This is at least partial support for the second hypothesis that L3 learners would score higher on an intrinsic motivation scale and a creativity scale than L2 learners.

Table 4. *Descriptive Analysis of Language Acquisition, Intrinsic Motivation, and Creativity in L2 and L3 Learners.*

		Language Acquisition	Intrinsic Motivation	Creativity
L2 Learners	<i>M</i>	25.27	21.73	21.67
	<i>SD</i>	5.99	6.19	5.62
L3 Learners	<i>M</i>	23.26	19.53	20.61
	<i>SD</i>	6.30	4.55	4.78

(On each question 1= agree, and 5 = disagree)

Follow-up Hypothesis Tests

There was no significant difference between males and females in distribution of L2 and L3 learners.

L3 learners reported significantly higher TOFEL and IELTS scores than L2 learners. However, only 18 participants reported TOFEL scores and 10 participants reported IELTS scores. It is impossible to generalize this result is to the larger sample.

T tests also showed that there were significant differences between L2 and L3 learners on individual questions. The average scores in Q7, Q8, and Q11 between L2 and L3 groups were significant. That is, L3 learners showed significantly higher tendency to

read articles in a foreign language, learn a foreign language just for fun, and more likely to listen to radio in a foreign language.

In order to go further into the details of possible relationship between questions, an inter-correlation of all questions was run. The questions of language acquisition showed a clustered pattern. Q4, 7, 10, 11, which are leisure time language acquisition questions, correlated with each other significantly. Q1, 22, 25, which are academic language acquisition questions, correlated with each other significantly. These questions were added together and formed into two new variables: academic language acquisition ($M = 6.82$, $SD = 2.49$) and leisure time language acquisition ($M = 10.25$, $SD = 3.40$). Questions on intrinsic motivation and creativity did not show specific clustered pattern.

Linear correlations were run with the two new variables. The result showed that academic language acquisition is significantly correlated to intrinsic motivation, $r(103) = .56$, $p < .01$, to creativity, $r(103) = .52$, $p < .01$, and to L2 level of proficiency, $r(103) = -.29$, $p < .01$. Leisure time language acquisition also correlated to intrinsic motivation, $r(103) = .53$, $p < .01$, to creativity, $r(103) = .45$, $p < .01$, and to whether participants were L2 or L3 learners, $r(103) = -.23$, $p < .05$.

Because intrinsic motivation and creativity were highly correlated with each other as well as with the the language acquisition scale, partial correlation tests and linear regressions were run to go further into understanding the relationships between the three scales.

The correlation between intrinsic motivation and language acquisition was $r_{LI}(102) = .49$, $p < .01$, controlling for creativity. The correlation between language acquisition

and creativity was $r_{LC}(102) = .34, p < .01$, controlling for intrinsic motivation. This implies that intrinsic motivation was more positively correlated to language acquisition than creativity once the other factor was controlled. The correlation between intrinsic motivation and creativity was $r_{IC}(102) = .36, p < .01$, controlling for language acquisition. All three of these partial correlations taken together implies that though there is some relation between the intrinsic motivation and creativity scales, much of the effects of intrinsic motivation and creativity on the language acquisition scale must be fairly independent of each other.

Another way of producing this same conclusion is to look at the results of linear regressions. The model of intrinsic motivation and creativity predicting language acquisition was statistically significant, $F(2,102) = 58.30, p < .01$, with $\beta = .53$ for intrinsic motivation and $\beta = .36$ for creativity ($R^2 = .53$). Stepwise regression analysis produced $\beta = .74$ when intrinsic motivation was included but creativity excluded in predicting language acquisition, $F(1,103) = 92.99, p < .01, (R^2 = .47)$. Both partial correlation and stepwise regression indicated that creativity might not be included as a factor of language acquisition in the whole group of participants. However, descriptive analysis showed that the distribution of intrinsic motivation and creativity varied in different levels of scores and categories (L2 or L3) of language acquisition.

For this analysis, the participants were divided into three levels of language acquisition. Group 1 was those whose language acquisition score was equal to or lower than 21, which accounted for the lowest 33%. Group 2 was those whose language acquisition scores were higher than 21 but lower than or equal to 26, which accounted for

another 33%. Participants in Group 3 scored higher than 26 and accounted for the remaining third.

In Group 1, those most comfortable with the foreign language, the correlation between language acquisition and intrinsic motivation was not significant at all but the correlation between language acquisition and creativity was significant, $r(32) = .37, p < .05$, as was that between intrinsic motivation and creativity, $r(32) = .37, p < .05$. In Group 2, the result resembled the total population, all correlations were significant. In Group 3, those least comfortable with the foreign language, the correlation between language acquisition and intrinsic motivation was significant, $r(34) = .55, p < .01$, correlation between language acquisition and creativity not significant, and correlation between intrinsic motivation and creativity significant, $r(34) = .49, p < .01$.

These descriptive results imply that beginner to medium level foreign language learners needed higher intrinsic motivation to achieve higher language acquisition. However, this relationship disappeared after language acquisition had reached a certain level. That is, for the more advanced “expert” learners, higher creativity was positively correlated with language acquisition but intrinsic motivation was not.

DISCUSSION

The scores on the three scales positively correlated each other. This is consistent with the first hypothesis, the idea that foreign language learners with a higher perception of language achievement would score higher in terms of both intrinsic motivation and creativity. However, the intrinsic motivation scale also positively correlated with the creativity scale, even controlling for language acquisition. The ideal result would have been that intrinsic motivation and creativity each independently correlated to language acquisition without a strong overlap between themselves. In addition, the second hypothesis only had partial support. These mixed results could have occurred for a number of possible reasons.

Scale Construction

The scales used in this research were half borrowed and half created by the researcher. Though the scales have face validity, based on the scoring by 11 psychology graduate students, the real problem is that none of the scales often used to measure motivation or creativity can be considered to have high validity. Most of them are for very specific motivational constructs such as academic motivation (Wang, 2008) or leisure time motivation (Pelletier et al., 1996). As for creativity, there is no single definition or description that would make everybody happy as was discussed earlier in the review of the literature. In any future study, it would be very important to make the operational definitions of intrinsic motivation and creativity very clear and to create scales as reliable and valid as possible.

For language acquisition, it is difficult to find a scale testing for knowledge level in specific languages, as languages are so very different. In many ways, perhaps the best method is to just ask individuals for their own personal assessment of language achievement as I did in this research. However, this of course introduces problems related to any such subjective perception and the variety of individuals. Another more objective problem is exactly what constitutes level of language acquisition. I have tried to cover the functional aspects of language acquisition, such as overall listening, reading, speaking, and writing both in class and during leisure time. However, language acquisition can refer to more than just these abilities. Perhaps the most important capacity of all might be the ability to think in a foreign language. Questions such as “I feel comfortable having a discussion with speakers of a foreign language that I know” may come closest in trying to capture this, communicating in real time with native speakers in a foreign language. In the future, I believe researchers need to ask better questions concerning understanding in a foreign language as well as just using it with competence.

Sampling

In order to generalize any results to the population of interest, foreign language learners, a much larger sample of that population would be needed in a future study. If nothing else, a group with more diversity of language experience will be necessary. In this research, most participants were required to take a L2 class in school. For example, Chinese students were required to learn English in middle school or sometimes even in primary school. American students in pursuing a Bachelor of Arts degree were required to take a L2 class. This could be the reason why L2 level correlated significantly to

academic language achievement since most L2 associated activities occurred in classes. On the other hand, L3 learners would be more intrinsically motivated to choose the L3 to learn and spend more leisure time on it, which was consistent with the significant correlation between leisure language acquisition and whether you are L2 or L3. In the future, researchers would need participants from many countries studying different foreign languages in multi-linguistic studies. Researchers from different cultures need to get together and cooperate in collaborative participant recruitment and data gathering.

The sampling technique used in this research was a very simplistic version of snowball sampling. This technique was used because it was the only realistic way to find enough L3 participants in a small university town.

A related problem was that it was not straightforward as to how to divide participants into the L2 or L3 categories. In this research study, the majority of participants who described themselves as L3 learners were beginners having been learning the L3 for only about one year. I would recommend recruiting more experienced or fluent L3 learners in future studies. The beginner L3 learners tended to resemble experienced L2 learners in many aspects. It turned out that there were only seven experienced L3 learners in this study. I ran correlation tests for this small group, and the results showed that the only significant correlation was that between language acquisition and creativity, $r(5) = .78, p < .05$, which happens to be the largest correlation coefficient that I have seen in this research study. There were only seven people, however it seems to indicate that the experienced successful L3 learners also happen to be creative language learners.

Expert L2 and L3 learners may turn out to be more child-like and creative in their approach to language learning. As I discussed in the literature review, creativity is found in children when they are learning first and foreign languages. This suggests that a better way to learn a foreign language might be to learn it as a first language (Krashen, Scarella, & Long, 1982) and be creative. As Kumagai and Fukai (2009) examined an intermediate-level Japanese language-learning project at a university in the U.S., they pointed out that the cultivation of critical thinking and creativity were essential to further language proficiency. It is good for learners to creatively use the language and critically analyze the information based upon their own experience and knowledge.

In summary, intrinsic motivation plays an important role in foreign language learning, particularly for beginners. However, the advanced learners and multi-linguistic learners showed a correlation between language achievement and creativity. It is important to have intrinsic motivation in all kinds of learning situations. However, as learners advance they will often come to a point where it is hard to make further progress. I would recommend that foreign language learners and teachers not forget the origin of learning their first language: child-like creativity. There is no shame to being child-like when you are learning a language. You will find some things that are amazing and progressive when you enlighten your learning with creativity. Enjoy learning and be creative, and there can be no end to progress.

REFERENCES

- Alexander, P., Kulikowich, J., & Jetton, T. (1994). The role of subject-matter knowledge and interest in the processing of linear and nonlinear texts. *Review of Educational Research, 64*, 201-252.
- Amabile, T. M. (1979). Effects of external evaluation on artist creativity. *Journal of Personality and Social Psychology, 37*, 221-233.
- Amabile, T. M., Barsade, S. G., Mueller, J. S., & Staw, B. M. (2005). Affect and creativity at work. *Administrative Science Quarterly, 50*, 367–403.
- Amabile, T. M., & Gryskiewicz, S. S. (1989). The creative environment scales: Work environment inventory. *Creativity Research Journal, 2*, 231-253.
- Artelt, C. (2005). Cross-cultural approaches to measuring motivation. *Educational Assessment, 10* (3), 231-255.
- Bardel, C., & Falk, Y. (2007). The role of the second language in third language acquisition: the case of Germanic syntax. *Second Language Research, 23* (4), 459-484.
- Brown, R. W. (1973). *A first language : The early stages*. Cambridge, MA: Harvard University Press.
- Bushnell, C. (2009). ‘Lego my keego!’: An analysis of language play in a beginning Japanese as a foreign language classroom. *Applied Linguistics, 49*-69.
- Capital. (2008). *Society*. (Crown Publishing Plc.) Retrieved December 2, 2008 from Capital:
<http://www.capitalethiopia.com/archive/2009/November/week3/society.htm>

- Carvalho, A. M., & da Silva, A. J. (2006). Cross-linguistic influence in third language acquisition: the case of Spanish-English bilinguals' acquisition of Portuguese. *Foreign Language Annals*, 39 (2), 185-202.
- Cenoz, J. (2003). The additive effect of bilingualism on third language acquisition: A review. *The International Journal of Bilingualism*, 7 (1), 71-87.
- Chomsky, C. (1975). Creativity and innovation in child language. *Annual Meeting of the National Conference on the Language Arts in the Elementary School* (pp. 12-24). Boston: Boston University.
- Chomsky, N. (1959). A review of B.F. Skinner's "Verbal Behavior". *Language*, 35, 26-58.
- Clark, B. A. (2000). First- and second-language acquisition in early childhood. *Lilian Katz Symposium*, (pp. 181-188). Champaign.
- Coffey, H. (2007). *Code-switching*. Retrieved January 20, 2010 from LEARN NC: <http://www.learnnc.org/lp/pages/4558>
- Cowan, N. (2005). *Working memory capacity (Essays in cognitive psychology)*. New York, NY: Psychology Press.
- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York: Harper & Row.
- Cumming, R. (2007). Language play in the classroom: encouraging children's intuitive creativity with words through poetry. *Literacy*, 41 (2), 93-101.

- Cummins, J. (1976). The influence of bilingualism on cognitive growth: A synthesis of research findings and explanatory hypotheses. *Working Papers on Bilingualism*, 9, 1-43.
- Deci, E. L., & Ryan, R. M. (1985). The general causality orientations scale: Self-determination in personality. *Journal of Research in Personality*, 19, 109-134.
- Deci, E.L., & Ryan, R.M. (2002). *Handbook of self-determination research*. Rochester, NY: University of Rochester Press.
- Detaramani, C., & Chan, I. S. (1999). Learners' needs, attitudes and motivation towards the self-access mode of language learning. *RELC Journal*, 30, 124-150.
- Dewey, J. (1915). *The school and society* (Rev. ed.). Chicago, IL: University of Chicago Press.
- Doidge, N. (2007). *The brain that changes itself*. New York, NY: Penguin Group.
- Dörnyei, Z., & Csizér, K. (2005). The effects of intercultural contact and tourism on language attitudes and language learning motivation. *Journal of Language and Social Psychology*, 24 (4), 327-357.
- Duyck, W., Depestel, I., Fias, W., & Reynvoet, B. (2008). Cross-lingual numerical distance priming with second-language number words in native- to third-language number word translation. *The Quarterly Journal of Experimental Psychology*, 61 (9), 1281-1290.
- Dworkin, G. (1988). *The theory and practice of autonomy*. New York: Cambridge University Press.

- Epstein, R., Schmidt, S. M., & Warfel, R. (2008). Measuring and training creativity competencies: Validation of a new test. *Creativity Research Journal*, 20 (1), 7-12.
- Errasti, M. P. (2003). Acquiring writing skills in a third language: The positive effects of bilingualism. *The International Journal of Bilingualism*, 7 (1), 27-42.
- Foss, D., & Hake, D. (1978). *Psycholinguistics: An introduction to the psychology of language*. Englewood Cliffs, NJ: Prentice-Hall.
- Fouser, R. J. (1995). A third self: pragmatic transfer in third language acquisition. *TEANGA: The Irish Yearbook of Applied Linguistics*, 15, 49-58.
- Fraser, S. (2007). Play in other language. *Theory into Practice*, 46 (1), 14-22.
- French, B. F., & Oakes, W. (2003). Measuring academic intrinsic motivation in the first year of college: Reliability and validity evidence for a new instrument. *Journal of the First-Year Experience*, 15 (1), 83-102.
- Gagné, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior*, 26, 331-362.
- Garcia, E., & Trujillo, A. (1979). A developmental study of Spanish-English production in Bilingual Children. *Journal of Educational Psychology*, 71 (2), 161-168.
- Gardner, H. (1991). *The unschooled mind: How children think & how schools should teach*. New York, NY: BasicBooks.
- Gardner, R. C. (2001). Language learning motivation: The student, the teacher, and the researcher. *Texas Foreign Language Education Conference*. Austin: University of Texas.
- Hakuta, K. (1986). *Mirror of language: The debate on bilingualism*. Basic Books.

- Heath, S. B., & Wolf, S. (2005). Focus in creative learning: drawing on art for language development. *Journal of American Medical Association*, 39 (1), 38-45.
- Heilman, K. M., Nadeau, S. E., & Beversdorf, D. O. (2003). Creative innovation: Possible brain mechanisms. *Neurocase*, 9 (5), 369-379.
- Heine, S. J., Kitayama, S., Lehman, D. R., Takata, T., Die, E., & Leung, C. (2001). Divergent consequences of success and failure in Japan and North America: An investigation of self-improving motivations and malleable selves. *Journal of Personality and Social Psychology*, 81, 599-615.
- Henry, J. (1991). Making sense of creativity. *Creative Management*, 1, 3-11.
- Hirsch, D. H., & Aschkenasy, N. (1982). Translatable structure, untranslatable poem: Psalm 2. *Modern Language Studies*, 12 (4), 21-34.
- Huitt, W. (2001). *Motivation to learn: An overview*. Retrieved October 20, 2009 from Educational Psychology Interactive: <http://chiron.valdosta.edu/whuitt/col/motivation/motivate.html>
- Hull, C. (1943). *Principles of behavior*. New York, NY: Appleton Century.
- Karnes, F. A., & Chauvin, J. C. (1985). *Leadership skills inventory: Administration manual and manual of leadership activities*. Aurora, NY: D.O.K Pub.
- Khatena, J., & Torrance, E. P. (1976). *Khatena-Torrance creative perception inventory*. Chicago, IL: Stoelting.
- Kolb, B., & Whishaw, I. Q. (2006). How do we hear, speak, and make music? In B. Kolb, & I. Q. Whishaw, *An Introduction to Brain and Behavior* (2nd Edition ed., pp. 306-341). New York, NY: Worth Publishers.

- Krashen, S. (1996). The case for narrowing listening. *Pergamon*, 24 (1), 97-100.
- Krashen, S., Scarella, R., & Long, M. (1982). *Child-adult differences in second language acquisition: Series on issues in second language research*. Rowley, MA: Newbury House Publishers.
- Krippendorff, K. (2004). Intrinsic motivation and human-centred design. *Theoretical Issues in Ergonomics Science*, 5 (1), 43-72.
- Kruglanski, A. W., Frideman, I., & Zeevi, G. (1971). The effects of extrinsic incentive on some quantitative aspects of task performance. *Journal of Personality*, 39, 606-617.
- Kumagai, Y., & Fukai, M. (2009). Towards the cultivation of critical thinking and creativity in Japanese language learning: Textbook revision project. *Japanese Language Learning in the World*, 19, 177-197.¹
- Kumar, V. K., Kemmler, D., & Holman, E. (1997). The Creativity Styles Questionnaire--Revised. *Creativity Research Journal*, 10, 51-58.
- Lepper, M. R., Greene, D., & Nisbett, R. E. (1973). Undermining children's intrinsic interest with extrinsic rewards: A test of the "overjustification" hypothesis. *Personality and Social Psychology Bulletin*, 28, 129-137.
- Leung, Y.-K. I. (2005). L2 vs. L3 initial state: A comparative study of the acquisition of French DPs by Vietnamese monolinguals and Cantonese-English bilinguals, *Bilingualism: Language and Cognition* 8 (1), 39-61.

¹ In Japanese: 日本語学習における批判性・創造性の育成への試み —— 「教科書書きかえ」プロジェクト, 『世界の日本語教育』19, 2009年3月。

- Martin, E. (2000, June 27). *Creativity in Organizations*. Retrieved October 4, 2009 from Suite101: <http://www.suite101.com/article.cfm/volunteerism/42389>
- Mayer, J. D., Faber, M. A., & Xu, X. (2007). Seventy-five years of motivation measures (1930–2005): A descriptive analysis. *Motivation and Emotion*, 31, 83-103.
- Mayesky, M. (2003). *How to foster creativity in all children*. New York, NY: Thomson Learning.
- Meeker, M., & Meeker, R. (2000). *Advanced assessment for creativie thinking*. Vida, OR: SOI Systems.
- Miller, G. A. (1956). The magical number seven, plus or minus two: Some limits on our capacity for proceesing information. *Psychological Review*, 63 (2), 81-97.
- Multilingualism*. (n.d.). Retrieved November 1, 2008 from Wikipedia: <http://en.wikipedia.org/wiki/Multilingualism>
- Myers, I. B., & Myers, P. B. (1980). *Gifts differing: Understanding personality type*. Mountain View, CA: Davies-Black Publishing.
- Nicerson, R. S. (1999). Enhancing creativity. In R. J. Sternberg, *Handbook of Creativity*. Cambridge University Press.
- Nikolov, M. (1999). ‘Why do you learn English?’ ‘Because the teacher is short.’ A study of Hungarian children’s foreign language learning motivation. *Language Teaching Research*, 3 (1), 33-56.
- Odlin, T. (2004). Review of cross-linguistic influence in third language acquisition: Psycholinguistic perspectives. *Studies in Second Language Acquisition*, 26 (3), 474-475.

- Ortiz, M., & Harwood, J. (2007, December). A social cognitive theory approach to the effects of mediated intergroup contact on intergroup.
- Owens, R. E. (1984). *Language development: A introduction* (2nd ed.). Columbus, OH: Merrill Publishing Company.
- Pelletier, L. G., Vallerand, R. J., Green-Demers, I., Blais, M. R., & Brière, N. M. (1996). Construction et validation de l'Échelle de motivation vis-à-vis les Loisirs (EML) [Towards a multidimensional motivational conception of leisure]. *Loisir et Société, 19*, 559-585.
- Piaget, J. (1952). *The origins of intelligence in children*. New York, NY: Viking.
- Pinker, S., & Bloom, P. (1990). Natural language and natural selection. *Behavioral and Brain Sciences, 13*, 707-784.
- Pintrich, P. R., & Schunk, D. H. (2002). Motivation in education. In M. P. Hall (Ed.), *Theory, research, and applications* (2nd Edition ed.). NJ: Pearson.
- Reiss, S. (2004). Multifaceted nature of intrinsic motivation: the theory of 16 basic desires. *Review of General Psychology, 8* (3), 179-193.
- Rivers, W. (1996, December 22-24). Self-directed language learning and third language learner, paper presented at the Annual Meeting of the American Council on the Teaching of Foreign Languages. Philadelphia, PA.
- Schiefele, U. (2001). The role of interest in motivation and learning. In J. M. Messick, *Intelligence and personality: Bridging the gap in theory and measurement* (pp. 163-194). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Schütz, R. (2007, July 2). *Stephen Krashen's Theory of Second Language Acquisition*.

Retrieved April 6, 2008 from <http://www.sk.com.br/sk-krash.html>

Seigler, R. S. (1998). *Children's thinking* (3rd Edition ed.). Upper Saddle River, New Jersey: Prentice Hall.

Seltzer, K., & Bentley, T. (1999). *The creative age*. London, UK: Demons.

Sharon, J. L. (1990). *Normal language acquisition*. Austin, TX: Proed.

Si, G., & Do, G. (2008). Second language orientation and self-determination theory.

Journal of Language and Social Psychology, 27 (1), 5-27.

Sideridis, G. D. (2001). The casual role of goal importance for the explanation of student study behavior: Cross validation with multiple samples. *Educational Psychology*, 21, 277-298.

Sideridis, G. D. (2002). Goal importance and students at risk of having language difficulties: An underexplored aspect of student motivation. *Journal of Learning Disabilities*, 35 (4), 343-356.

Sideridis, G. D., & Kaissidis-Rodafinos, A. (1998). Decomposition of the theories of reasoned action, planned behavior, and goal-importance for the explanation of study behavior in college. *Journal of Liberal Arts*, 4, 89-128.

Simonton, D. K. (1999). *Origins of genius: Darwinian perspectives on creativity*. New York, NY: Oxford University Press.

Singleton, D., & Lengyei, Z. (1995). *The age factor in second language acquisition*. Philadelphia, PA: Multilingual Matters.

- Sparks, R. L., Patton, J., Ganschow, L., Humbach, N., & Javorsky, J. (2008). Early first-language reading and spelling skills predict later second-language reading and spelling skills. *Journal of Educational Psychology, 100* (1), 162-174.
- Sparks, R., Ganschow, L., & Pohlman, J. (1989). Linguistic coding deficits in foreign language learners. *Annals of Dyslexia, 39*, 179-195.
- Stafford, C. A. (2007). Bilingualism, cognitive capacity and age: A computer-based study in L3 processing. *Dissertation Abstracts International Section A: Humanities and Social Sciences, 67* (9-A), 3383.
- Stamm, B. V. (2008). *Managing innovation, design and creativity* (2nd ed.). Hoboken, NJ: John Wiley & Sons Ltd.
- Stephanie, L. (2005). Who speaks "broken English"? US undergraduates' perceptions of non-native English. *International Journal of Applied Linguistics, 15* (2), 187-212.
- Taylor, I. A., & Fish, R. A. (1979). The Creative Disposition Scale: A Canadian validation. *Canadian Journal of Behavior Science, 11*, 95-97.
- Taylor, I., & Taylor, M. M. (1990). *Sycholinguistics: Learning and using language*. Englewood Cliff, UK: Prentice-Hall.
- Truhon, S. A. (1983). Playfulness, play, and creativity: A path analytic model. *The Journal of Genetic Psychology, 143*, 19-28.
- Urdan, T. (2003). Book review: Intrinsic motivation, extrinsic rewards, and divergent views of reality. *Educational Psychology Review, 15* (3), 311-325.
- Van den Noort, M. W., Bosch, P., & Hugdahl, K. (2006). Foreign language proficiency and working memory capacity. *European Psychologist, 11* (4), 289-296.

- Wallas, G. (1926). *The art of thought*. New York: Harcourt Brace Jovanovich.
- Wang, F. (2008). Motivation and English achievement: An exploratory and confirmatory factor analysis of a new measure for Chinese students of English learning. *North American Journal of Psychology*, 10 (3), 633-646.
- Wang, M., & Koda, K. (2007). Commonalities and differences in word identification skills among learners of English as a second language. *Language Learning*, 57, 201-222.
- Wikipedia. (n.d.). *Creativity*. Retrieved 10 2, 2009 from Wikipedia:
<http://en.wikipedia.org/wiki/Creativity>

APPENDIX A

Informed Consent Form

Department of Psychology
Fort Hays State University
Hays, KS
(913) 628-4405

Informed Consent

Study Name: Foreign language acquisition, motivation, and creativity

Faculty Researchers: Dr. Kitzis
Telephone Numbers: 785-628-4404
Student Researchers: Xixi Du

The Psychology Department at Fort Hays State University supports the practice of protection for human participants in research. Your willingness to help us is greatly appreciated.

You will be asked to complete a survey which contains about 50 questions and will take you about 15 minutes. The questions will ask you about how well you feel you have learned a foreign language, and about various aspects of your motivation and creativity. There will be no particular risks or discomforts that you may encounter. It is a completely voluntary study if you would like to participate in it.

This study has been reviewed to determine that it poses little or no risk of harm to you. However, in the unlikely event that you do feel any coercion, threat, or discomfort at any time during the study, you may choose to leave any specific item blank or withdraw with no further questions asked. If you choose to withdraw, you still will receive any extra credit or other payment promised to you in exchange for your participation.

Any information obtained from you will be kept strictly confidential. You may be assigned an arbitrary participation number to assist in data collection. We assure you that neither your name nor participation number will be associated in any way with any reportable results.

You will gain no benefits by participating in this study other than educational (or extra credit if it is offered by your instructor). The researchers are obliged to tell you as much as you care to know about the study after your part in the study is complete. If you would like a written summary of the results, please include your name and address in the space provided, and the researchers will send you a copy when it is available.

All persons who take part in this study must sign this consent form. Your signature in the space provided indicates that you have been informed of your rights as a participant, and you have agreed to participate on that basis.

With my signature, I affirm that: I am at least 18 years of age, have read and understood my rights and the study description on the other side of this page, and voluntarily agree to participate in this research study.

Participant's Signature Date

Email or Surface Mailing Address (**ONLY** if you want a written summary of results)

APPENDIX B

Foreign Language Acquisition Scale

How much do you agree with each of the following statements? Please circle the best answer, where 1 means “I agree strongly”, 2 means “I agree a little”, 3 means “I neither agree nor disagree”, 4 means “I disagree a little”, and 5 means “I disagree strongly”.

- | | | |
|----|---|--------------------------|
| 1 | <i>I feel comfortable attending class or lectures conducted</i> in a foreign language that I know. | Agree 1 2 3 4 5 Disagree |
| 2 | <i>I enjoy watching films or TV dramas without captions</i> in a foreign language that I know. | Agree 1 2 3 4 5 Disagree |
| 3 | <i>I like reading articles</i> in a foreign language that I know. | Agree 1 2 3 4 5 Disagree |
| 4 | <i>I like singing songs</i> in a foreign language that I know. | Agree 1 2 3 4 5 Disagree |
| 5 | <i>I enjoy listening to radio</i> in a foreign language that I know. | Agree 1 2 3 4 5 Disagree |
| 6 | <i>I often watch news</i> in a foreign language that I know. | Agree 1 2 3 4 5 Disagree |
| 7 | <i>I feel it is difficult to speak aloud</i> in a foreign language that I know. | Agree 1 2 3 4 5 Disagree |
| 8 | <i>I feel comfortable writing reports in my foreign language class</i> in a foreign language that I know. | Agree 1 2 3 4 5 Disagree |
| 9 | <i>I feel comfortable having a discussion with speakers</i> of a foreign language that I know. | Agree 1 2 3 4 5 Disagree |
| 10 | <i>I am looking forward to traveling to a country in which the official language</i> is a foreign language that I know. | Agree 1 2 3 4 5 Disagree |

APPENDIX C

Intrinsic Motivation Scale

How much do you agree with each of the following statements? Please circle the best answer, where 1 means “I agree strongly”, 2 means “I agree a little”, 3 means “I neither agree nor disagree”, 4 means “I disagree a little”, and 5 means “I disagree strongly”.

- | | | | | | | | | |
|----|---|-------|---|---|---|---|---|----------|
| 1 | I choose my college major by myself. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 2 | I enjoy learning because I want to know more about I what don't know. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 3 | I learn a foreign language just for fun. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 4 | I experience a lot of pleasure and satisfaction in learning new things. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 5 | I do things for the satisfaction I feel when I try to overcome challenges. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 6 | I like leisure time activities in which I can explore many different domains. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 7 | I like doing extra readings because it allows me to deepen my understanding of subjects that interest me. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 8 | I listen to my own needs when deciding how to use my leisure time. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 9 | I feel satisfied when I am trying to master a complex activity. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 10 | I am willing to try the unknown. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |

APPENDIX D

Creativity Scale

How much do you agree with each of the following statements? Please circle the best answer, where 1 means “I agree strongly”, 2 means “I agree a little”, 3 means “I neither agree nor disagree”, 4 means “I disagree a little”, and 5 means “I disagree strongly”.

- | | | | | | | | | |
|---|---|-------|---|---|---|---|---|----------|
| 1 | I like to challenge myself constantly with new and stimulating things. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 2 | I enjoy changing jobs and experiencing new cities. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 3 | I prefer adventurous vacations. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 4 | I enjoy writing, doing artwork or photographs, or singing in a band. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 5 | I am happiest when I am creating something new such as writing, scrapbooking, or cooking. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 6 | I like to dine at new fancy restaurants. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 7 | I like talking to different people because they can inspire me with new ideas. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 8 | I feel a thirst for adventure. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 9 | When solving a problem, I would rather follow a familiar approach than seek a new one. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |

APPENDIX E

Total Scale

Foreign Language Acquisition, Motivation, and Creativity

The survey contains two parts. First part includes some general questions and second part includes statements in which you choose the best answer.

Gender: Male Female

Age: _____

Year in school: Undergraduate Graduate None of above

Country of origin: _____

Years of foreign language classes/ self-taught: _____

TOFEL score (if available): _____

IELTS score (if available): _____

Language you understand and cycle the level of language (including your native language)

_____	Beginner	Experience	Fluent
_____	Beginner	Experience	Fluent
_____	Beginner	Experience	Fluent
_____	Beginner	Experience	Fluent
_____	Beginner	Experience	Fluent

How much do you agree with each of the following statements? Please circle the best answer, where 1 means “I agree strongly”, 2 means “I agree a little”, 3 means “I neither agree nor disagree”, 4 means “I disagree a little”, and 5 means “I disagree strongly”.

- | | | | | | | | | |
|----|--|-------|---|---|---|---|---|----------|
| 1 | <i>I feel comfortable attending class or lectures conducted</i> in a foreign language that I know. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 2 | I choose the college major by myself. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 3 | I like to challenge myself constantly with new and stimulating things. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 4 | <i>I enjoy watching films or TV dramas without captions</i> in a foreign language that I know. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 5 | I enjoy learning because I want to know more about I what don't know. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 6 | I enjoy changing jobs and experiencing new cities. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 7 | <i>I like reading articles</i> in a foreign language that I know. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 8 | I learn a foreign language just for fun. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 9 | I prefer adventurous vacations. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 10 | <i>I like singing songs</i> in a foreign language that I know. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 11 | <i>I enjoy listening to radio</i> in a foreign language that I know. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 12 | I experience a lot of pleasure and satisfaction in learning new things. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |
| 13 | I enjoy writing, doing artwork or photographs, or singing in a band. | Agree | 1 | 2 | 3 | 4 | 5 | Disagree |

14	I am happiest when I am creating something new such as writing, scrapbooking, or cooking.	Agree	1	2	3	4	5	Disagree
15	<i>I often watch news</i> in a foreign language that I know.	Agree	1	2	3	4	5	Disagree
16	I do things for the satisfaction I feel when I try to overcome challenges.	Agree	1	2	3	4	5	Disagree
17	<i>I feel it is difficult to speak aloud</i> in a foreign language that I know.	Agree	1	2	3	4	5	Disagree
18	I listen to my own needs when deciding how to use my leisure time.	Agree	1	2	3	4	5	Disagree
19	I like to dine at new fancy restaurants.	Agree	1	2	3	4	5	Disagree
20	When solving a problem, I would rather follow a familiar approach than seek a new one.	Agree	1	2	3	4	5	Disagree
21	I like doing extra readings because it allows me to deepen my understanding of subjects that interest me.	Agree	1	2	3	4	5	Disagree
22	<i>I feel comfortable having a discussion with speakers</i> of a foreign language that I know.	Agree	1	2	3	4	5	Disagree
23	I like talking to different people because they can inspire me with new ideas.	Agree	1	2	3	4	5	Disagree
24	I like leisure time activities in which I can explore many different domains.	Agree	1	2	3	4	5	Disagree
25	<i>I feel comfortable writing reports in my foreign language class</i> in a foreign language that I know.	Agree	1	2	3	4	5	Disagree
26	I feel a thirst for adventure.	Agree	1	2	3	4	5	Disagree
27	I feel satisfied when I am trying to master a complex activity.	Agree	1	2	3	4	5	Disagree

- 28 I am willing to try the unknown. Agree 1 2 3 4 5 Disagree
- 29 *I am looking forward to traveling to a country in which the official language is a foreign language that I know.* Agree 1 2 3 4 5 Disagree

APPENDIX F

Debriefing Form

Dear Research Participant,

During this study, you were asked to complete a survey about your language learning, motivation, and creativity. The purpose of the study was to find out the relationship between language learning achievement and motivation, and language learning achievement with creativity.

If you have any concerns about your participation or the data you provided, please feel free to discuss this with us. We will be happy to provide any information we can to answer questions you have about this study.

If you have questions about your participation in the study, please contact me, Xixi Du, (romancecedric@hotmail.com) or my faculty advisor, Dr. Kitzi (skitzis@fhsu.edu).

If you have questions about your rights as a research participant, please contact Dr. Janett Naylor (jmnaylor@fhsu.edu), Chair of the Psychology Department Ethics Committee. If you do not feel comfortable for any reason after doing this research, you may contact the Kelly Center for assistance (Kelly Center, Fort Hays State University, 600 Park Street, Hays, KS 67601, Phone: 785-628-4401).

Please again accept our appreciation for your participation in this study.

APPENDIX G

Concept Validity (Original Scales)

Concept Validity

We would like you to rate on a scale of 1 to 5 how well you think each of the following questions match the definition provided for the three subscales of interest, where 1 means a very strong match and 5 means strongly not matching.

Foreign Language Acquisition Scale

Definition: Participants' own perception of foreign language acquisition. The comfort and confidence level when they are using the foreign language that they are learning. A learner's implicit, internalized knowledge of the rules of the language.

How much do you think the question Matches with the prior definition? Please circle the best answer, where 1 means “Match strongly”, 2 means “Match a little”, 3 means “Neither Match nor Not Matching”, 4 means “Not Matching a little”, and 5 means “Not Matching strongly”.

- | | | | | | | | | |
|----|--|-------|---|---|---|---|---|-----|
| 1 | <i>I feel comfortable attending class or lectures conducted</i> in a foreign language that I know. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 2 | <i>I enjoy watching films or TV dramas without captions</i> in a foreign language that I know. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 3 | <i>I like reading articles</i> in a foreign language that I know. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 4 | <i>I like singing songs</i> in a foreign language that I know. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 5 | <i>I enjoy listening to radio</i> in a foreign language that I know. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 6 | <i>I often watch news</i> in a foreign language that I know. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 7 | <i>I feel it is difficult to speak aloud</i> in a foreign language that I know. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 8 | <i>I feel comfortable writing reports in my foreign language class</i> in a foreign language that I know. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 9 | <i>I would prefer to write notes in my native language than</i> in a foreign language that I know. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 10 | <i>I seldom read a newspaper</i> in a foreign language that I know. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 11 | <i>I prefer to read translated version of novels, which were originally written</i> in a foreign language that I know. | Match | 1 | 2 | 3 | 4 | 5 | Not |

- | | | | | | | | | |
|----|---|-------|---|---|---|---|---|-----|
| 12 | <i>I feel comfortable having a discussion with speakers of a foreign language that I know.</i> | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 13 | <i>I am looking forward to traveling to a country in which the official language is a foreign language that I know.</i> | Match | 1 | 2 | 3 | 4 | 5 | Not |

Intrinsic Motivation Scale

Definition: Comes from rewards inherent to a task or activity itself. The enjoyment of a puzzle or the love of doing the task. Having fun, doing something for its own sake, enjoying the time, or being deeply involved in the activity.

How much do you think the question Matches with the prior definition? Please circle the best answer, where 1 means “Match strongly”, 2 means “Match a little”, 3 means “Neither Match nor Not Matching”, 4 means “Not Matching a little”, and 5 means “Not Matching strongly”.

- | | | | | | | | | |
|----|---|-------|---|---|---|---|---|-----|
| 1 | I don't like to begin new activities because I cannot do most things very well. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 2 | I choose the college major by myself. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 3 | I enjoy learning because I want to know more about I what don't know. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 4 | I learn a foreign language just for fun. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 5 | I experience a lot of pleasure and satisfaction in learning new things. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 6 | I do things for the satisfaction I feel when I try to overcome challenges. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 7 | I like leisure time activities in which I can explore many different domains. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 8 | I like doing extra readings because it allows me to deepen my understanding of subjects that interest me. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 9 | I listen to my own needs when deciding how to use my leisure time. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 10 | I feel satisfied when I am trying to master a complex activity. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 11 | I am willing to try the unknown. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 12 | I have no idea what to decide when I have to make decisions. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 13 | I feel in control in my life. | Match | 1 | 2 | 3 | 4 | 5 | Not |

- 14 I don't like to do leisure learning because it is too much work. Match 1 2 3 4 5 Not
- 15 I don't enjoy my leisure time activities unless they involve competition. Match 1 2 3 4 5 Not

Creativity Scale

Definition: Looking for novelty, new experiences, and different combinations or reconnections. Using something in novel ways. Good at divergent thinking while also good at synthesizing ideas into a single concept.

How much do you think the question Matches with the prior definition? Please circle the best answer, where 1 means "Match strongly", 2 means "Match a little", 3 means "Neither Match nor Not Matching", 4 means "Not Matching a little", and 5 means "Not Matching strongly".

- | | | | | | | | | |
|----|---|-------|---|---|---|---|---|-----|
| 1 | I like to challenge myself constantly with new and stimulating things. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 2 | I enjoy changing jobs and experiencing new cities. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 3 | I prefer adventurous vacations. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 4 | I plan to follow in my father's or mother's footsteps. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 5 | I enjoy writing, doing artwork or photographs, or singing in a band. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 6 | I am afraid to take a position with which others will Not. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 7 | I am happiest when I am creating something new such as writing, scrapbooking, or cooking. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 8 | It is important for me to look and act like my friends. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 9 | I like to dine at new fancy restaurants. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 10 | I like talking to different people because they can inspire me with new ideas. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 11 | I feel a thirst for adventure. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 12 | I would like to be engaged in a challenging job. | Match | 1 | 2 | 3 | 4 | 5 | Not |
| 13 | When solving a problem, I would rather follow a familiar approach than seek a new one. | Match | 1 | 2 | 3 | 4 | 5 | Not |

14 It is hard to get me interested in most things. Match 1 2 3 4 5 Not