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An Initial Psychometric Evaluation of the Korean Version of the Matson Evaluation of Social Skills with Youngsters-II (K-Messy-II)

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AN INITIAL PSYCHOMETRIC EVALUATION OF THE KOREAN VERSION OF THE MATSON EVALUATION OF SOCIAL SKILLS WITH YOUNGSTERS-II (K-MESSY-II)

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TABLE OF CONTENTS

ABSTRACT

Social skills impairment in autism spectrum disorder (ASD) is often considered a hallmark of the disorder. Impairments in social skills impede the development of meaningful social relationships in individuals with ASD. As children get older, social relationships and environments become more complex, further increasing social skills impairments and distress. Although social skill training has received a lot of attention in the last decade, more reliable and valid social skills measures that are adapted to use in the ASD population are needed. Given that social norms and expectations differ across cultures, more culturally valid measures are needed. The *Matson Evaluation of Social Skills with Youngsters-II* (*MESSY-II*) is one of the most researched social skills measures that have been used internationally. To date, there are a limited number of social skills ratings scales in South Korea. Therefore, the current study examined the factor structure and psychometric properties of the Korean version of the *MESSY-II* (*K-MESSY-II*). In addition, potential differences among the factors with respect to age cohorts in Korean children and adolescents with ASD were examined. Finally, the cultural relevancy of the *K-MESSY-II* items was assessed. This study demonstrated that the *K-MESSY-II* is a psychometrically sound measure that may be used to enhance evaluation and treatment of social skills in children and adolescents, including those with ASD in South Korea.

CHAPTER 1. INTRODUCTION

Autism spectrum disorder (ASD) is a lifelong neurodevelopmental disorder that is currently characterized by persistent deficits in social interaction and communication, as well as the presence of stereotyped and repetitive behaviors (Fodstad, Matson, Hess, & Neal; 2009; Lord & Luyster, 2006; Tidmarsh & Volkmar, 2003). Although ASD is reported to affect all racial, ethnic, and socioeconomic groups, ASD research and access to services in Asian countries including South Korea are limited compared to other North American and European countries (Grinker, 2007). South Korea's first population-based ASD prevalence study in 2011 estimated high prevalence of ASD (Kim et al., 2011). Despite increased prevalence and recognition, ASD is still highly stigmatized in South Korea.

Although ASD can be identified and reliably diagnosed as early as two years of age (Lord, 1995; Samango-Sprouse et al., 2015; Stone et al., 1999), there generally is an overall delay in receiving a diagnosis (Wiggins, Baio, & Rice, 2006). The lack of ASD services as well as the stigma associated with the disorder in Asian countries (e.g., South Korea; Chang & Hsu, 2007; Chung, Jang, & Adams, 2014; Lin, Yen, Li, & Wu, 2005; McCabe, 2007) may further delay children from receiving an accurate diagnosis. This means that children with ASD are not getting appropriate treatment, and their families are waiting longer than necessary without support or understanding their children's difficulties. This delay is unfortunate because research has demonstrated that best outcomes result from early identification and intervention (Horovitz, Matson, Turygin, & Beighley, 2012; Howard, Sparkman, Cohen, Green, & Stanislaw, 2005).

One step toward increasing awareness of ASD in South Korea is the development of culturally valid assessment tools. Research has identified cultural differences in parental report of ASD symptoms (Matson et al., 2011). Some ASD diagnostics measures, including the *Autism Diagnostic Observation Schedule, Second Edition* (*ADOS-2*), *Autism Diagnostic Interview-*

Revised (*ADI-R*), and the *Childhood Autism Rating Scale, Second Edition* (*CARS-2*), have been translated into Korean and are widely used. Other questionnaires such as the *Behavior Assessment System for Children, Second Edition* (*BASC-2*) and *Social Communication Questionnaire* (*SCQ*; a screener typically used with the *ADI-R* and *ADOS*) have been recently translated into Korean and validated (Song et al., 2011). However, there is limited research on social skills assessment and intervention in individuals with ASD in South Korea. Social norms, expectations, and beliefs differ across cultures, and more research is needed to determine how these different cultures impact the development of social skills, which is a central feature of ASD. Therefore, the aim of the current study was to examine psychometric properties of the Korean version of the *Matson Evaluation of Social Skills with Youngsters-II (K-MESSY-II*). If proven to be a psychometrically sound instrument, the *K-MESSY-II* may be used to better assess and treat social skills of Korean children with ASD in both research and clinical settings.

CHAPTER 2. AUTISM SPECTRUM DISORDER (ASD)

Diagnostic Criteria

For more than a decade, the *Diagnostic and Statistical Manual, Fourth Edition-Text Revised* (*DSM-IV-TR*; American Psychiatric Association [APA], 2000) was utilized to diagnose ASD; it included five heterogeneous pervasive developmental disorders (PDDs): autistic disorder; pervasive developmental disorder, not otherwise specified (PDD-NOS); Asperger's disorder, Rett's disorder; and childhood disintegrative disorder (CDD). Using the *DSM-IV-TR*, a total of six or more items from three domains (i.e., socialization, communication, and restricted and repetitive behavior) were needed to meet criteria for autistic disorder. Some limitations of the *DSM-IV-TR* criteria included inconsistent distinction across autism subtypes and validity of certain diagnoses (i.e., CDD; APA, 2011). As an effort to make the ASD diagnosis more specific, reliable, and valid, significant modifications to the diagnostic criteria for ASD were included in the fifth edition of the *DSM* (*DSM-5*), published in 2013. These changes included merging of a set of PDD diagnoses (i.e., autistic disorder, Asperger's disorder, and PDD-NOS) into one umbrella term, "ASD," removal of Rett's syndrome as a separate disorder, and subsuming CDD under a broader ASD category. Moreover, the new criteria were divided into two domains, social communication/interaction and restricted and repetitive behaviors, instead of the three domains included in the *DSM-IV-TR*. In order to meet diagnostic criteria under the *DSM-5*, the following symptoms must be present in the social communication/interaction domain: (1) difficulties in reciprocating social or emotional interaction, (2) problems maintaining relationships, and (3) nonverbal communication problems. In addition, two of the four symptoms must be present in the restricted and repetitive behavior domain: (1) stereotyped or repetitive speech or motor movements; (2) excessive adherence to routines, ritualized behavior,

or resistance to change; (3) abnormal restricted interest; and (4) abnormal reactivity to sensory input or atypical sensory interest (APA, 2013). The *DSM-IV-TR* stated that these delays had to occur prior to 3 years of age; however, the *DSM-5* removed this age onset and stated that the symptoms must be present "early in the developmental period." Additionally, for each domain, the severity levels based on the individual's perceived need for support is reported in the *DSM-5* diagnoses using a three-point scale, rating from level 1 requiring the least support to level 3 requiring very substantial support. Finally, specifiers including "with or without intellectual impairments," "with or without language impairments," and "associated with a known medical or genetic condition or environmental factor," are now included in the *DSM-5*.

Although the improved diagnostic criteria in the *DSM-5* may result in increased specificity, a series of studies consistently suggested that the number of children diagnosed under the *DSM-5* will decrease compared to the *DSM-IV-TR*, mostly affecting the PDD-NOS diagnosis (Gibbs, Aldridge, Chandler, Witzlsperger, & Smith, 2012; Kulage, Smaldone, & Cohn, 2014; McPartland, Reichow & Volkmar, 2012; Worley & Matson, 2012). The *DSM-5* included a statement that those with a well-established *DSM-IV-TR* diagnosis of autistic disorder, Asperger's disorder, or PDD-NOS can retain the diagnoses to address the concerns of these individuals losing their diagnoses and services. However, concerns remain for undiagnosed individuals and families who would have met former diagnostic criteria but do not meet the criteria under the *DSM-5*. It was proposed that a new communication disorder, social communication disorder (SCD), might capture these children who would have formerly been diagnosed with PDD-NOS; however, studies have found that only a minority of individuals with PDD-NOS qualify for a diagnosis of SCD (Kulage et al., 2014). Furthermore, it is unclear how eligibility for services by insurance companies is affected. Given that accurate and reliable

diagnosis is the first step in determining an effective treatment plan to ensure that individuals receive adequate services, consistency in ASD diagnosis is crucial (Kulage et al., 2014). Ongoing research is needed to continue examining the impact of the implementation of the *DSM-5* to further establish consistency of diagnosis patterns and to ensure that individuals who require assistance receive adequate services. Although there has not been much research using different diagnostic criteria with Asian populations, one study recently evaluated whether Korean children could be validly diagnosed with ASD based on *DSM-5* and found moderate to high diagnostic validity (Kim et al., 2016).

Prevalence of ASD

The first epidemiological study of autism in 1966 estimated that approximately 4.5 in 10,000 children had autism (Lotter, 1966). Since the 1960s, ASD prevalence rates have been increasing dramatically. Due to the increasing prevalence rate, ASD undoubtedly has become one of the most researched disorders (Baron-Cohen et al., 2009; Center for Disease Control and Prevention (CDC), 2012; Chakrabarti & Fombonne, 2001). In the 1990s, the autism prevalence rate was estimated to be 20 per 10,000 (Wing, 1993). In the early 2000s, autism prevalence considerably increased to 6.5 per 1,000 (about 1 in 150 children; Bertrand et al., 2001; Chakrabararti & Fombonne, 2001; Fombonne, 2003). The reported prevalence rate has continued to increase steadily, with a rate of 1 in 125 in 2004 and a rate of 1 in 88 in 2008. Currently, 1 in 68 children in the United States is reported have ASD (CDC, 2016). Over 2 million individuals in the U.S. are reportedly diagnosed with ASD. Although there currently is not a single known cause of ASD, researchers have suggested a number of factors that may account for this dramatic increase, including greater public awareness, broadening diagnostic criteria, environmental factors, earlier detection, better diagnostic tools, and overuse of ASD

diagnoses (Leonard et al., 2010; Matson & Kozlowski, 2010; Wing & Potter, 2002). ASD prevalence is increasing at an alarming rate, and more research is needed to narrow down which factors are attributing to the increase.

CHAPTER 3. ASD IN ASIA

ASD Prevalence in Asia

Although ASD affects individuals of all ethnic, racial, and socioeconomic backgrounds (Baird et al., 2000; Bertrand et al., 2001; Chien, Lin, Chou, & Pesus, 2011; Gillberg, Cederlund, Lamberg, & Zeijlon, 2006; Kim et al., 2011), the prevalence rate in Asia is less well known. More discrepant prevalence rates have been reported in Asian countries where the concept of ASD and ASD research are relatively new compared to Western countries (Sun & Allison, 2010). Sun and Allison (2010) reviewed 26 epidemiology studies from six Asian countries from 1971 to 2008 and reported considerably lower and variable prevalence rates ranging from .32/10,000 to 250/10,000. Large methodology differences (e.g., diagnostic methods) were noted between studies. Despite the discrepancies, these studies suggested that prevalence rates in Asian countries were higher than previously believed (Sun & Allison, 2010).

With the increase in the ASD prevalence rate, there have also been increased ASD recognition and awareness in Asian countries, resulting in more ASD research as well. Recent research has reported a similar increase in ASD prevalence in Asian countries (Chien et al., 2011; Kim et al., 2011). In Taiwan, Chien and colleagues (2011) examined the prevalence rate of ASD using the National Health Insurance data. Using a population-based sample of 268,753 children and adolescents under 18 years of age, the authors found increasing trends in ASD prevalence from 1.79 to 28.72 per 10,000 from 1996 to 2005. The annual incidence of autism in Taiwan also increased from .91 to 4.41 per 10,000 per year from 1997 to 2005 (Chien et al., 2011). The authors noted that since 96% of the Taiwanese population belonged to the National Health Insurance program, the presented data closely represented the community rates of ASD. In 2011, South Korea's first population-based ASD prevalence study estimated the prevalence in

South Korea to be alarmingly high at 2.6% (Kim et al., 2011). This study involved direct testing because the researchers believed that strictly reviewing records would not yield accurate estimates. The authors believed that many Korean children with ASD may not have been receiving services for cultural reasons (e.g., stigma), thus not appearing in records (Grinker et al., 2012; Kim et al., 2011). Although the authors noted that their prevalence calculations may have been overestimated due to their participation rate, it is still undeniable that the ASD prevalence rate in South Korea is higher than previously believed. The authors further noted that two-thirds of the identified ASD cases were mainstreamed without previously established diagnoses and attended regular classes without support (Kim et al., 2011), demonstrating a limited knowledge about ASD. Given the lack of ASD prevalence research in Mainland China whose population exceeds 1.3 billion, Sun and colleagues (2015) recently conducted a study to establish more accurate prevalence rates using a comparable diagnostic method (e.g., standardized instruments). The authors found the preliminary prevalence estimate of ASD in Mainland China to be 119 per 10,000, similar rates reported in Western countries (Sun et al., 2015).

While recent ASD prevalence research has been conducted in Asian countries (Chien et al., 2011; Kim et al., 2011; Sun et al., 2015), all these studies reported that the use of different methodologies in the studies was a limitation. More rigorous screening is needed in order to produce more accurate ASD prevalence estimates and ultimately better identify and provide adequate support for those individuals who are currently undetected and undiagnosed. Other factors, such as perception and acceptance of the disorder and availability of adequate assessment services, may also influence these discrepancies (Tseng, 1997).

Cultural Beliefs

In many Asian countries, parents of children with intellectual and developmental disabilities (IDD) may avoid seeking support due to the associated stigma. Ethnographic studies interviewing mothers in China found that mothers blamed themselves for having a child with a disability (Holroyd, 2003; Lam & Mackenzie, 2002). Some attributed the disability to sins from their past life or punishment for the wrongdoings of their ancestors. As described in various folk beliefs, some mothers reported that a disability was caused by the activities they engaged in during pregnancy (e.g., attending a funeral, digging a hole; Holroyd, 2003; Lam & Mackenzie, 2002). Due to cultural beliefs about the cause of disability, having a child with a disability may be viewed as the family's failure or the end of the family's bloodline. As a result, many families in these studies did not disclose their children's diagnoses nor did they seek support (Ghosh & Magana, 2009; Lam & Mackenzie, 2002; Liu, 2005). Many Chinese families with children with disabilities lack social support, as they have never sought help from others, including family members, friends, or professionals (Chang & Hsu, 2007; Shek and Tsang, 1993).

Similar findings were reported in an ethnographic study that investigated engagement and participation in the ASD epidemiological research in South Korea (Grinker et al., 2012). Researchers found that Korean parents with children with ASD feared that an ASD diagnosis would make their children's life, career, and marriage prospects more difficult. Some even reported that having a family member with ASD would make marriage opportunities more difficult for other family members without a disability. Further, parents with or without a child with ASD reported that having a child with ASD would negatively affect the parents' careers (e.g., denial of raises and promotion). Some even believed that families with a child with ASD would be disadvantaged when selling a house by receiving less money (Grinker et al., 2012).

Due to the significant stigma associated with ASD, more stringent confidentiality procedures than typical Institutional Review Board standards were needed for participants in research (Grinker et al., 2012). Additionally, ASD symptoms were not viewed as problematic unless they impacted children's academic performance. It was also noted that Korean parents rejected the pervasiveness of the disorder; rather than understanding ASD as a global developmental disorder, they viewed ASD as a discrete social or communication deficit. By not accepting the pervasiveness of ASD deficits, these parents believed that their children could be "normal" once the discrete area of development was treated (Grinker et al., 2012). Although cultural beliefs should not be generalized to everyone who shares the same culture, it is important to note the impact that cultural beliefs have on the perception and attitudes toward a disability, which may also influence treatment decisions (Ghosh & Magana, 2009).

Service Access in Asia

Early intensive behavioral intervention (EIBI), a treatment based on the principles of applied behavior analysis (ABA), has been shown to produce meaningful outcomes for individuals with ASD (Eikeseth, Klintwall, Jahr, & Karlsson, 2012; Peters-Scheffer, Didden, Korzilius, & Sturmey, 2011; Reichow, Barton, Boyd, & Hume, 2012). Therefore, early detection and enrollment in these programs are crucial for young children with ASD. However, overall treatment knowledge and services in Asian countries are limited compared to other Western countries (Chung et al., 2014; Lin, Orsmond, Coster, & Cohn, 2011; Yangqing, 2006).

EIBI is typically provided by clinicians holding a Board Certified Behavior Analyst (BCBA) certification, a graduate-level certification in behavior analysis. Individuals may also hold a Board Certified Assistant Behavior Analysis (BCaBA) certification, an undergraduate-level certification; those individuals with BCaBAs can provide services under the supervision of

a graduate-level or doctoral-level BCBA (Behavior Analyst Certification Board, 2017). As of January 2017, there was a combined total of 40 BCBAs and BCaBAs in South Korea, 77 in China, 15 in Japan, 2 in Vietnam, and 16 in Taiwan. To provide a comparison, just in California, there were 4026 registered BCBAs and BCaBAs. As evident in the number of registered behavior analysts, one of the biggest obstacles to providing quality services in Asian countries is the difficulty in finding appropriate service providers. Generally, ABA services are limited due to a lack of systematic support from communities and governments in Asian countries (Chung et al., 2014). Since ABA services are intensive by nature, without systematic training and financial support, it is difficult to sustain these services. For the purpose of this paper, service availability in South Korea will be primarily discussed.

In China, it was reported that only 4.5 % children with IDD received special education in six provinces (China Statistics Press, 2003). Autism was first diagnosed in China in 1982 (Tao, 1987), approximately 40 years after Leo Kanner's first description of the disorder (Kanner, 1943). Although awareness has increased since then, there reportedly still are professionals, especially in remote areas, who are not familiar with the disorder (McCabe, 2007). The lack of knowledge and awareness was reported to be even greater among teachers. In a qualitative study, McCabe (2007) reported that access to specialized services in China was significantly limited, and many children with ASD were not accepted into general education or special education settings because teachers reportedly did not understand autism (McCabe, 2007; McCabe, Wu, & Zhang, 2005). Additionally, with classroom ratios of approximately 40 to 70 students to one teacher, individualized support for those with special needs were simply not feasible (McCabe, 2007). The first programs for autism in China began in the early 1990s; to this day, the limited number of professionals, schools, and programs/services remain a huge

challenge for children with ASD and their families. While similar struggles are faced throughout Asian countries, for the purposes of this paper, service availability in South Korea will be primarily discussed.

In South Korea, access to special education for children with disabilities is mandatory; however, a previous survey showed that less than 50% of children who were entitled to receive special education were actually enrolled in special education programs (Seo, 1997). Although the Korean Special Education for Individuals with Disabilities and Others Law (2007) increased the number of special education classrooms in schools, obstacles remain, especially given the shortage of trained staff (Kang-Yi, Grinker, & Mandell, 2013). Kang and colleagues (2013) explained that the relative youth of the child psychiatry field in South Korea may be one of the reasons for the lack of ASD services. There currently are only two medical schools in South Korea that offer a fellowship in child psychiatry (Kang et al., 2013); As of 2013, Seoul National University Hospital was the only academic medical hospital with certified clinicians to administer the ADOS. While the Act on the Promotion of Education for the Handicapped (APEH), a law ensuring services for children with disabilities, was revised in 2007, current services are limited to assistance (e.g., respite care, vouchers for limited time treatment, and food stamps) and parents are faced with the financial burden (Chung et al., 2014).

The Korean Society for Child and Adolescent Psychiatry published the first ASD treatment guideline in South Korea (Koo et al., 2007), and ABA has started receiving more attention. However, despite research suggesting that ABA is the most effective treatment for ASD, other therapies, including art, music, play, and massage therapy, are still the most frequently used treatment in South Korea (Chung et al., 2014; Ju, Choi, & Nam, 2007; Lee, 2008). There currently are several ABA clinics in South Korea including the Seoul Metropolitan

Children's Hospital. However, due to a lack of training and a limited number of trained clinicians, the quality of these clinics cannot be guaranteed (Chung et al., 2014). While there are a couple graduate programs for ABA in South Korea, they have not been formally accredited (Chung et al., 2014).

More recently, significant system and policy changes have been made in South Korea to improve treatment of IDD including ASD. In 2012, the South Korean Ministry of Health and Welfare finalized the Support Plan for Persons with Developmental Disabilities to improve support policies for individuals with IDD (Ministry of Health and Welfare, 2012). First, this policy included plans to establish a right protection system to eradicate abuse and exploitation of individuals with IDD. Second, plans to establish a system to improve early diagnosis and intervention were put in place, as well as a program to screen high-risk infants. Research and behavioral treatment clinics were established at Seoul National Hospital, one of the largest and most prestigious national psychiatric hospitals in South Korea. Third, to improve quality of lives of caregivers, plans were introduced to provide extra support services for individuals with IDD and counseling services for caregivers. Finally, health and income support services were improved to ease the financial burden of the families. Additionally, plans were established to create more jobs that were appropriate for individuals with IDD. More recently, the Act on the Protection of Rights and Support for Persons with Developmental Disabilities was enacted and enforced in 2015 to further protect and serve those with IDD and to develop more behavioral treatment centers (Ministry of Health and Welfare, 2015). The overall availability of quality treatment/service providers is still limited in South Korea; however, recent progress in system and policies to enhance the treatment of IDD including ASD is encouraging. Continued

systematic support is needed to increase awareness of the importance of early intervention and availability of quality of services.

CHAPTER 4. SOCIAL SKILLS

Social skills are defined as interpersonal behaviors that help individuals function in society. Impairments in social skills may be related to a broad range of factors including attention-deficit/hyperactivity disorder (ADHD; Bagwell, Molina, Pelham, & Hoza, 2001), IDD (Matson & Wilkins, 2007), juvenile delinquency (Roff, Sell, & Golden, 1972), social withdrawal (Chung et al., 2007), and other challenging behaviors (Fox, Keller, Grede, & Bartosz, 2007; Webster-Stratton, Reid, & Hammond, 2001). The degree to which individuals are able to establish and maintain interpersonal relationships predict adequate cognitive, academic, psychological, and emotional functioning (Kupersmidt, Coie, & Dodge, 1990; Webster-Stratton & Reid, 2004). Thus, social skills have been researched extensively over the years for children with and without IDD. For the purposes of this paper, social skills in children with ASD will be the primary focus.

ASD and Social Skills

Social skills impairment in ASD is often considered a hallmark of the disorder (Parks, 1983;Volkmar et al., 1987). In his first description of autism, Kanner (1943) noted that one of the most fundamental characteristics of the disorder was children's "inability to relate themselves in the ordinary way to people and situations" (p.242). Since Kanner's original work, a substantial body of research has confirmed that social skills deficits indeed are distinctive characteristics of ASD (Ozonoff & Miller, 1995; Rumsey, Rapoport, & Sceery, 1985; White, Keonig, & Scahill, 2007). From early development, children with ASD have difficulty interacting with others and experience social impairments, including difficulties adjusting behavior to different social contexts, initiating and maintaining social interactions, taking other

people's perspectives, and sharing enjoyment. In addition, children with ASD may exhibit deficits in communicative behaviors used for social interaction.

Researchers have suggested that social skills impairments may result in more detrimental outcomes, such as negative peer interactions, peer rejection, poor academic performance, and other psychopathology (Bellini, 2006; Tantam, 2000), and increased social anxiety (Welsh, Park, Widaman, & O'Neil, 2001). Social anxiety may in turn lead to further social withdrawal (e.g., fewer friendships and poor social support; Bellini, 2006; La Greca & Lopez, 1998), thus continuing the viscous cycle of social skills deficits and social anxiety. Therefore, effective social skills training should be an integral part of treatment for individuals with ASD. Thorough assessment of social skills impairment is necessary to guide treatment planning to help individuals reach their maximum potential and to establish meaningful social relationships.

Methods of Social Skills Assessment

Social skills assessment methods can be divided into two categories. One assessment method is for diagnostic purposes and used to determine the existence of social skills deficits (Gresham & Elliot, 1984; Hops & Greenwood, 1981). The other assessment method is for treatment purposes and is used for planning and evaluating interventions (Gresham & Elliot, 1984).

Sociometric Techniques

Developed by Moreno (1934), sociometric techniques measure social relationships. Two of the most frequently used sociometric techniques include peer nomination and peer ranking. The peer nomination technique involves children categorizing peers using certain non-behavioral dimensions (e.g., best friends, work partners, acquaintances, etc.) and measuring acceptance and rejection from a peer group (Asher & Hymel, 1981; Gresham & Elliot, 1984). The peer ranking

method entails children or teachers placing rankings on peers based on certain non-behavioral or behavioral criteria (e.g., talks the least, most sensitive, etc.). The ranking procedures were found to have good correspondence to behaviors observed in naturalistic settings (Gresham & Elliot, 1984). Although sociometric techniques have been identified as effective in assessing social skills treatment outcomes (Gresham & Elliot, 1984), they may not be the most effective tools for assessing overall social skills deficits in children with ASD.

Behavioral Role Play

Using role play to rehearse how certain situations (i.e., individually tailored situations to elicit certain responses) should be handled has become a hallmark of assessment in social skills research (Bellack, 1979; Matson & Wilkins, 2007). Advantages of behavioral role play (BRP) include assessing important social skills that do not occur frequently, representing actual behavioral enactment of a skill, and being able to control settings more tightly (Gresham & Elliot, 1984). BRP can also be used as screeners to evaluate treatment effects (Matson & Wilkins, 2007). However, researchers have found BRP to have poor validity in predicting performance in naturalistic settings (La Greca & Santogrossi, 1980; Matson, Esveldt-Dawson, & Kazdin, 1983; Van Hasselt, Hersen, & Bellack, 1981).

Behavioral Interviews

Although behavioral interviews are effective in identifying maintaining functions of behavior and have good reliability and validity (Witt & Elliott, 1983), this approach has not been empirically studied and requires more attention (Gresham & Elliot, 1984). Furthermore, beyond communication deficits, many children with ASD also have comorbid disorders including intellectual disability, ADHD, and other psychopathologies, which may make interviews more challenging than other methods.

Naturalistic Observations

Naturalistic observation of social skills has the best face validity (Asher & Hymel, 1981), as it allows for a functional analysis of behavior to yield useful information for intervention (Gresham & Elliot 1984). Naturalistic observations of socially oriented activities can be considered as a more naturalistic extension of role-played scenes (Matson & Wilkins, 2007). Significant relationships between behaviors that were observed in natural settings and socially valued status (i.e., sociometric status) were found (Gresham 1981a, 1981b; Putallaz & Gottman, 1981). For children with ASD, naturalistic social situations have been used to assess operationally defined target behaviors (i.e., appropriate social skills). During naturalistic social observations, social skills information can be gathered either in-vivo or via video observation, and these observations are scored using coding scales. Anderson and colleagues (2004) assessed social skills of 10 children with ASD by observing their free play and social interaction (i.e., exchanges that were not directed by adults and were not structured activities). The authors used the Parten scale (1981) and categorized children's free play (i.e., unoccupied behavior, solitary independent play, onlooker, parallel activity, associative play, and cooperative or organized supplementary play). Additionally, an observation system that coded social interactions was used to measure reciprocal interactions and sharing with peers and adults (Ballard, 1981). Children's play and social interactions were recorded using a 10 second interval-sampling procedure and event recording system, respectively. Inter-observation agreement was collected as well. Naturalistic observation may be a better assessment tool for children with ASD than previously mentioned assessments (e.g., role play, interviews) due to factors including motivation and level of functioning.

Rating Scales

Standardized social skills rating scales may be the most cost effective, time-efficient, and systematic method to evaluate observable, discrete behaviors. Undoubtedly, it has become the most widely used assessment method for social skills (Erdley, Nangle, Burns, Holleb, & Kaye, 2010; Stinnett, Havey, & Oehler-Stinnet, 1994). While there are an overwhelming number of standardized scales to measure social skills in typically developing children (Matson & Wilkins, 2009), social skills assessments specifically developed for those with ASD are limited. This is likely because attention has been focused on developing more diagnostic instruments for ASD rather than focusing an individual core symptom (Dixon, Tarbox, & Najdowski, 2010). Diagnostic instruments that focus on assessing the overall, more stable symptoms indicative of ASD are useful to help make a clinical diagnosis. While they may also be used to guide initial treatment planning, more specific instruments are needed to target a specific domain and to develop individualized treatment plans. For example, a broad diagnostic tool may detect social deficits but because it does not assess for specific impairments, it might be difficult to develop a treatment plan. For the purposes of this study, scales that can be used to measure social skills in children with ASD will be discussed.

ASD Social Skills Rating Scales

Children's Social Behavior Questionnaire (Lutejin, Jackson, Volkmar, & Minderaa, 1998).

The *Children's Social Behavior Questionnaire* (*CSBQ*) is a 96-items questionnaire for caregivers of children ages 4 to 18 years old, which was designed to describe a broad range of PDD features. The updated version of the *CSBQ* (Lutejin, Lutejin, Jackson, Volkmar, & Minderra, 2000) consists of 5 scales: Acting-Out Behaviors, Social Contract Problems, Social Insight Problems, Anxious/Rigid Behaviors, and Stereotypical Behaviors. The *CSBQ* is reported

to have good psychometric qualities. A satisfactory level of inter-rater reliability was observed for all subscales (CSBQ Total Score ICC= .83, Acting-Out scale ICC= .75, Social Contract Problems ICC= .85, Social Insight Problems ICC= .73, Anxious/Rigid Behaviors ICC = .64, Stereotypical ICC = .72). Test-retest reliability for all subscales except for the Stereotypical Behaviors scale was high (*CSBQ* Total Score ICC= .90, Acting-Out Behaviors ICC= .85, Social Contract Problems ICC= .87, Social Insight Problems ICC= .62, Anxious/Rigid Behaviors ICC= .85, Stereotypical Behaviors ICC= .32). The internal consistency of the scale was high, and the five scales of the *CSBQ* had high correlations with other scales including the *Child Behavior Checklist* (*CBCL*) and the *Autism Behavior Checklist* (*ABC*). The *CSBQ* has been used to compare social skills in children with PDD-NOS and ADHD, and the results demonstrated that although both diagnostic groups had difficulties executing appropriate social skills, the nature and extent of the deficits were distinguishable between groups (Lutejin, Serra et al., 2000). In 2006, the *CSBQ* was further revised; the scale was reduced to 49 items and was comprised of 6 factors: Behavior/Emotion not Optimally Tuned to the Social Situation, Reduced Contact and Social Interest, Stereotyped Behavior; Fear or and Resistance to Changes; Orienting Problems in Time, Place, or Activity; and Difficulties in Understanding Social Information (Hartman, Luteijin, Serra, & Minderaa, 2006). For clinical purposes, the *CSBQ* is a useful tool for describing the severity and patterns of social deficits and providing more detailed social skills evaluations than other diagnostic tools (de Bildt et al., 2005, Hartman et al., 2006).

Preschool and Kindergarten Behavior Scales, Second Edition (Merrell & Popinga, 1994).

The *Preschool and Kindergarten Behavior Scales, Second Edition* (*PKBS-2*) is a multi-rater rating scale designed to assess social skills and socio-emotional problems behaviors in young children ages 3 to 6 old. The *PKBS-2* is a 76-item scale consisting of two main domains:

Social Skills (SS) and Problem Behavior (PB). The Social Skills domain is made up of three subscales: Social Cooperation, Social Interaction, and Social Independence. The *PKBS-2* has adequate internal consistency, test-retest reliability, and convergent validity (Bracken, Keith, & Walker, 1994; Jentzsch & Merrell, 1996; Merrell, 2008; Watson, 1998). The *PKBS-2* may have the potential utility as a screener for individuals with ASD as it demonstrated sensitivity to ASD group membership (Hoffend, 2011), but more research is warranted.

PDD Behavior Inventory (Cohen & Sudhalter, 1999)

The *PDD Behavior Inventory* (*PDDBI*) is a parent or teacher-completed rating scale designed to measure both adaptive and maladaptive behaviors, often used to measure treatment effects in children with a PDD (i.e., autistic disorder, Asperger disorder, PDD-NOS, or CDD; Cohen, Schimidt-Lackner, Romanczyk, & Sudhalter, 2003). The *PDDBI* consists of 10 subscales that were designed to independently address different types of adaptive and maladaptive behaviors (Cohen et al., 2003). The two subscales that measure social skills include Social Pragmatic Problems and Social Approach Behaviors. The Social Pragmatic Problems subscale assesses how individuals approach others as well as their awareness of social issues, and the Social Approach Behaviors subscale assesses nonverbal social behaviors. These two social skills subscales are found to have high correlations with the social subscales of the Vineland Adaptive Behavior Scale, a measure of adaptive behavior (Cohen, 2003).

Social Responsiveness Scale (Constantino & Gruber, 2005)

The *Social Responsiveness Scale* (*SRS*) measures autistic traits in children and adolescents ages 4 to 18 years old. The *SRS* consists of 65 items using a Likert scale (0=not true to 3=almost always true) and can be completed by a parent or teacher in 20 minutes. The *SRS* specifically measures social awareness, social information processing, and capacity for

reciprocal social responses. The *SRS* has good reliability and correlates highly with the *ADI-R*. However, since the *SRS* was primarily developed to be used as a diagnostic instrument, the scale lacks psychometric evaluations in regards to measuring social skills (Dixon et al., 2010).

Social Skills Rating System (Gresham & Elliot, 1990).

The *Social Skills Rating System* (*SSRS*) is one of the most widely used, norm-referenced assessments to measure social behaviors in preschool, elementary, and secondary students (Carney & Merrell, 2002; Demaray et al., 1995). Each questionnaire is rated on a 3-point Likert scale and can be completed in 15 to 25 minutes by parents or teachers. The *SSRS* focuses on measuring Social Skills, Problem Behaviors, and Academic Competence. The Social Skills scale consists of five subscales: Cooperation, Assertion, Responsibility, Empathy, and Self-Control. The *SSRS* demonstrated adequate internal consistency, *r*=.82-.94, and test-retest reliability, r=.75-.88. Validity of the *SSRS* is demonstrated across many studies (Gresham & Elliot, 1990; Rich, Sepherd, & Nangle, 2008; Walker & McConnell, 1988). The *SSRS* has been translated into many languages, including Persian (Shahim, 2001; 2004), Dutch (Van der Oord et al., 2005), Spanish (Jurado, Cumba-Aviles, Collazo, & Matos, 2006), and Korean (Moon, 2003). The *SSRS* has been widely used with children with typical development and individuals with ASD (Koning & Magill-Evans, 2001; Macintosh & Dissanayake, 2006); however, more research evaluating psychometric properties using ASD populations are needed (Dixon et al, 2010).

Matson Evaluation of Social Skills with Youngsters (Matson, 1988).

The *Matson Evaluation of Social Skills with Youngsters* (*MESSY*) is a rating scale that was specifically designed to assess both appropriate and inappropriate social skills in children and adolescents. The *MESSY* was initially developed in 1983 to assess social skill deficits in children (Matson, Rotatory, & Hessel, 1983). The *MESSY* self-report form consisted of 62 items

and had 5 factors (i.e., Appropriate Social Skills, Inappropriate Assertiveness, Impulsive/Recalcitrant, Overconfident, Jealous/Withdrawal, and Miscellaneous Items). The *MESSY* teacher-report form consisted of 64 items and had 2 factors (i.e., Inappropriate Assertiveness/Impulsiveness, Appropriate Social Skills).

In addition to assessing social skills in typically developing children, the *MESSY* has also been researched in other populations with various impairments, including intellectual disabilities (Matson & Barrett, 1982), depression (Helsel & Matson, 1984), hearing and visual impairments (Matson, Heinze, Helsel, Kapperman, & Rotatori, 1986; Matson, Macklin, & Helsel, 1985; Raymond & Matson, 1989), anxiety disorder (Strauss, Lease, Kazdin, Dulcan, & Last, 1989), ASD (Matson, Stabinsky-Compton, & Sevin, 1991), and bipolar disorder (Goldstein, Miklowitz, & Mullen, 2006).

The *MESSY* has also been researched internationally for years. Specifically, it has been translated into different languages including Japanese (Matson & Ollendick, 1988), Chinese (Chou, 1997), Dutch (Prins, 1997), Hindi (Sharma, Sigafoos, & Carroll, 2000), Spanish (Mendez, Hildalgo, & Ingles, 2002), Hebrew (Pearlman-Avnion & Eviator, 2002), French (Verté, Roeyers, & Buysse, 2003), Portuguese (Teodoro, Käppler, Rodrigues, Freitas, & Haase, 2005), Turkish (Bacanli & Erdoğan, 2003), and Slovakian (Vasil'ová and Baumğartner, 2004). Additionally, many of these translated measures were researched to establish local psychometrics and norms, thus making it a valid and reliable tool outside of the United States. For example, the Chinese translation of the Appropriate Social Skills subscale of the *MESSY* demonstrated good reliabilities and validities (Chou, 1997). The psychometrics properties of the Spanish translation of the *MESSY* was studied by Mendez and colleagues (2002) who found the translation to have satisfactory results (α= .88; Mendez et al., 2002). See Table 1 for comparison of *MESSY* studies.

The *MESSY* has also been translated into Hindi (Sharma et al., 2000). The study included children and adolescents with visual impairments in India, and the results indicated good reliability of the Hindi version of the *MESSY*.

In 2010, the *MESSY-II* was developed by revisiting the original *MESSY*'s psychometric properties and factor structure; features of the *MESSY-II* include updates to the factor structure, cut-off scores, and score profiles for different age cohorts. According to the *MESSY-II* manual, the *MESSY-II* can be used for a number of purposes. First, the *MESSY-II* can be used as a part of an assessment battery at school, especially when a child is not doing well in school. The factor scores (impairment severity cut offs) can help determine which children need additional support. Also, since the items are specific enough to serve as target behaviors for intervention, the *MESSY-II* can be used to evaluate effects of intervention programs; that is, if the intervention is improving certain social skills, the *MESSY-II* may detect these improvements when the measure is re-administered. Although the *MESSY* was not developed specifically to measure social skills in individuals with ASD, it has been normed for both typically developing children and those with ASD (Matson, Compton, & Sevin, 1991). Matson and colleagues (2013) evaluated the psychometrics properties of the *MESSY* for children with ASD and found the *MESSY* to have excellent internal consistency (alpha coefficient at .90) and split-half reliability (.93), and moderate inter-rater reliability (r=. 51). Therefore, the *MESSY-II* can be used to evaluate social skills of children with ASD. Furthermore, the *MESSY-II* can be used in conjunction with educational programs and for research purpose.

Table 1: Comparison of the MESSY studies

Author(s), Date	Language	Translation Method	Participants	Factor Structure	Reliability	Validity
Bacanli & Erdogan, 2003	Turkish	No translation information provided	180 students in a secondary school in Ankara between the ages of 12 to 14	Principal component analysis; yielded 2 factors (i.e., Negative Social Behaviors, Positive Social Behaviors)	Internal consistency coefficients (.68-.85); satisfactory test-retest reliability (r=.74-.77)	Moderate correlation (r=.32) between the MESSY and Social Skills Scale; small correlation (r=.27) between the MESSY and the Teacher Rating Form
Chou, 1997 * Appropriate social skills subscale only	Chinese	The appropriate social skills subscale of the *MESSY* was translated by a professional translator and checked by a bilingual person; back-translated the Chinese version into English; discrepancies discussed and resolved	191 children and adolescents between the ages of 11 to 18 years old	N/A	Internal consistency coefficients (.83-.89)	Satisfactory; 0.34-0.54
Mendez et al. 2002	Spanish	The *MESSY* was translated by a native Spanish speaker with a translation degree, English specialization, and with a knowledge of clinical psychology; checked by another bilingual native English speaker with a Spanish studies degree	634 students between the ages of 12 to17 years old	Principal axis with varimax; yielded 4 factors accounting for 33.28% of the total variance:Aggressiveness/Antisocial, Social Skills/Assertiveness, Conceit/Haughtiness, Loneliness/Social Anxiety	Internal consistency coefficients range from (.63-.91)	Inappropriate social behavior negatively correlate with assertive and prosocial behavior and positively with aggressiveness and asocial behavior

(Table Cont)

Author(s), Date	Language	Translation Method	Participants	Factor Structure	Reliability	Validity
Sharma et al., 2002	Hindi	No translation information provided.	200 students between the ages of 6 to 16; all had visual impairments	Principal component factor analysis with varimax; yielded 5 factors (i.e., Appropriate Social Skills, Inappropriate Assertiveness, Overconfident, and Aggressive/Impulsive; Loneliness)	Internal consistency coefficients (.65-.87)	N/A
Teodoro et al., 2005	Portugue-se	The *MESSY* was translated by three native speakers; modified by two other Brazilians	382 children between the ages of 7 to 15 years old	Principal component with Oblimin rotation; yielded 4 factors (i.e., Aggressive/Antisocial Behavior, Social Skills/Assertiveness, Conceit/Haughtiness, Loneliness/Social Anxiety) that explained 29.7% of the total variance.	Internal consistency coefficients (.47-.85)	Some associations with the Family Identification Test

Social Skills Research Trend in South Korea

Though research is limited, social skills intervention for ASD has undergone some preliminary study in South Korea. Shin and colleagues (2014) examined social skills research and intervention trends in individuals with ASD in South Korea and other countries from 2000 to 2013. The authors evaluated social skills intervention in five different categories based on a review conducted by Simpson (2005). The categories included: interpersonal relationship strategies, cognitive-based methods, skill-based methods and environmental supports, physiological/biological/neurological treatments, and unclassified methods. Each of these categories will be discussed in turn.

Interpersonal Relationship Strategies

The interpersonal relationship approach originated from the concept that those with ASD lacked nurturing from their parents (Shin et al., 2014; Simpson et al., 2005). Intervention methods surround the idea that those with ASD have deficits in emotional bonding. Interventions based on this approach include holding therapy, gentle teaching, Son-Rise Program, DIR Floortime, play therapy, and animal-assisted therapy (Shin et al., 2014; Simpson et al., 2005). Overall, there is little to no research to suggest that these interventions are effective in ASD treatment (Fox, Dunlop, & Buschbaker, 2000; Greenspan & Wieder, 2000; Gustein & Sheely, 2002; McKinney, Dustin, & Wolff, 2001; Waterhouse, 2000).

Cognitive-Based Methods

The cognitive-based approach involves individuals monitoring their own behaviors and performances, strengthening appropriate responses, and regulating inappropriate responses (Shin et al., 2014; Simpson et al., 2005). Strategies in this model promote independent behavior through self-monitoring, self-regulation, and self-verbalization. Interventions using this

approach include: Cognition Behavior Modification (CBM); social stories; video-modeling; Situation, Options, Consequences, Choices, Strategies, Simulations (SOCCSS); Stop, Observe, Deliberate, Act (SODA); and Life Skills and Education for Students with Autism and Other Pervasive Behavioral Challenges (LEAP) program (Shin et al., 2014; Simpson et al., 2005). Research suggests that many cognitive-based interventions are evidence-based or promising practices (e.g., LEAP, CBM, social stories).

Skill-Based Methods and Environmental Supports

This approach focuses on developing and maintaining the functional demonstration of specific skills. This model directly assesses performance in areas that are related to symptoms of ASD and subsequently targets specific skills with the goal to improve functioning. Some of the interventions in this model include: Picture Exchange Communication System (PECS), applied behavior analysis (ABA)/ discrete trial training (DTT), assistive technology, and Pivotal Response Training (PRT), incidental teaching, augmentative and alternative communication (ACC). Many of these skill-based programs are empirically validated or have emerging evidence of efficacy and utility (e.g., ABA, DTT, PRT, PECS, incidental teaching, ACC).

Physiological/Biological/Neurological Treatments

This method includes pharmacology, sensory integration, auditory integration training, megavitamin therapy, and dietary supplements. Other than pharmacology, other treatments such as sensory integration, auditory integration, and other dietary treatments lack evidentiary support in ASD treatment.

Unspecified Treatment.

Unspecified treatments include art therapy, music therapy, and eurhythmy therapy and are usually not considered evidence-based treatments for ASD.

Overall, trends in social skills intervention research in South Korea have shifted over time. Research on unspecified interventions, such as music and art therapy, was most common from 2000 to 2004 in South Korea (Shin et al., 2014). From 2003 to 2012, cognitive-based interventions were researched steadily. Most recently, more research has been conducted on play therapy and social stories. The greatest evidentiary support has been established for interventions from the interpersonal relationship strategies, cognitive-based methods, and skill-based methods and environmental supports models (e.g., Lego therapy, cognitive-behavioral treatment, Program for the Education and Enrichment of Relational Skills [PEERS], computer-based intervention), which were most commonly researched in other countries (Shin et al., 2014). One of the most notable differences in research trends in South Korea is that unspecified treatments, such as art and music therapy, have been continuously researched and implemented despite having a lack of evidence to support their use (Shin et al., 2014).

Social Skills Rating Scales in South Korea

For the purposes of this paper, a separate literature review was conducted using the most widely used Korean databases, including Research Information Sharing Service, Korean Information Service System, and DBpia, to identify the different social skills measures being used in South Korea. A search was conducted using the terms: *autism spectrum disorder* and *social skills*. The search initially produced a list of 166 journal articles. Abstracts were reviewed and articles that studied social skills in individuals with ASD were included, and reviews, meta-analyses, and duplicate studies were excluded from this review. This resulted in a total of 36

studies. Journal articles are thoroughly reviewed and only studies that included a rating scale to assess social skills were included. This resulted in ten studies. Of those ten studies, seven studies used the *SSRS* (Gresham & Elliot, 1990). As previously discussed, the *SSRS* is a widely used standardized questionnaire that was developed to assess children's social behaviors. One study used the *Vineland Social Maturity Scale* (Doll, 1953). The *Vineland Social Maturity Scale* was designed to measure social competence and includes eight categories of behavior: self-help, general, self-help eating, self-help dressing, locomotion, occupation, communication, self-direction, and socialization; this test is no longer available and was designed to focus more on broader adaptive skills. One study (Hong & Lee, 2007) used the *Social Maturity Test* (Kim, 1985), and another study used a measure by Wasserman and Plutchik (1973); however, not much information about these measures was provided.

This literature review suggests that social skills research is generally limited in South Korea. Furthermore, few social skills ratings scales are currently being used in South Korea, with the *SSRS* being the most frequently used scale. Although the *SSRS* has been used to examine social skills in children with ASD, its psychometric properties have not been evaluated within this population. It is evident that more studies are needed to develop and evaluate the reliability and validity of social skills rating scales for use with individuals with ASD in South Korea. Given that the *MESSY-II* is a well-developed scale to measure social skills construct and has been used widely used internationally, the Korean version of the *MESSY-II* (*K-MESSY-II*) may be a promising social skills tool in South Korea.

CHAPTER 5. PURPOSE

The aim of the current study was to evaluate the psychometric properties of the *K-MESSY-II*. Social skills in children and adolescents with ASD from the United States and South Korea have been previously compared using the *MESSY-II* (Matson et al., 2012). Although their mean scores fell in the same impairment level, indicating no clinically significant differences, the authors found that children and adolescents in the United States exhibited significantly more inappropriate and appropriate social skills compared to those from South Korea (Matson et al., 2012). Some of the appropriate social skills included walking up to people to start conversations, smiling at familiar people, and looking at people when they are speaking. The authors suggested that these differences may be due to different social norms; what is considered socially appropriate or inappropriate may be different across cultures. For example, eye contact is considered an important social skill in Western cultures; however, in some Asian cultures, making direct eye contact, especially to elders, is considered inappropriate. Therefore, parents in South Korea might rate their children's lack of eye contact as less concerning than parents in other Western cultures. Further, in Western cultures, making good eye contact is considered an important treatment goal; the same may not be the case in other cultures where eye contact is not considered an important social skill. Additionally, differences in reporting style may contribute to these discrepancies. Research shows that mothers from the United States typically reported more problem behaviors when compared to mothers from South Korea (Chung et al., 2011).

To date, the *K-MESSY-II* has not been standardized in South Korea. Given cultural differences, the *K-MESSY-II* should be evaluated to determine if it is a culturally valid measure. There are a limited number of social skills ratings scales in South Korea, and if found to be psychometrically sound, the *K-MESSY-II* may be used in both research and clinical settings to

enhance evaluation and treatment of social skills in children, including those with ASD, in South Korea. The current paper was divided into four separate studies. Study 1 assessed the factor structure and internal consistency of the *K-MESSY-II*. Study 2 further studied reliability and validity of the *K-MESSY-II*. Given that social skills can affect progress across development and the need to develop normative data by specific cohorts, the *MESSY-II* included score profiles for different age cohorts (toddlers from ages 2 to 5, children from 6-9, and adolescents from 10-16) for both typically developing children and children with ASD. Similarly, Study 3 examined potential differences among the factors with respect to age cohorts in Korean children and adolescents with ASD. Finally, Study 4 assessed cultural relevancy of the *K-MESSY-II* items.

CHAPTER 6. STUDY 1

Method

Participants

The study's participants were recruited from several clinics and schools in Seoul metropolitan areas or via websites, organizations, and conferences (e.g., those for children with ASD). The data were obtained via the Department of Psychology at Yonsei University in South Korea. Both clinical and nonclinical participants were included since there is evidence that the factor structure of psychopathology is robust across individuals with and without diagnoses (Matson, Boisjoli, Hess, & Wilkins, 2010; O'Connor, 2002; Posserud et al., 2008). In addition, a more heterogeneous sample is recommended when conducting a factor analysis to prevent a restricted range in the measures, correlation among variables, and low estimates of factor loadings (Fabrigar, Wegner, MacCallum, & Strahan, 1999).

The initial sample included 468 Korean children and adolescents. Of those, 12 were removed due to insufficient data. A total of 456 Korean children and adolescents between the ages of 2 and 18 years old served as participants in the current study. Of these participants, 281 participants made up the typically developing (TD) group, and 175 participants made up the atypically developing (AD) group. Of the AD group, 103 had ASD, 18 had global developmental delay (GDD), 15 had intellectual disability (ID), 15 had learning disorders, 12 had Attention-Deficit/Hyperactivity Disorder (ADHD), 2 had language disorders, 1 had comorbid ASD and ID, 1 had comorbid ADHD and learning disorders, and 8 had other diagnoses. For 56 of the participants with ASD, ASD diagnoses were made in clinical settings using a comprehensive assessment battery that included the *Autism Diagnostic Interview-Revised (ADI-R)* and the *Autism Diagnostic Observation Schedule* (*ADOS*). For all remaining

participants, diagnoses were obtained via parent report; per parent report, diagnoses were made using a comprehensive assessment battery, behavioral observation, and developmental/medical history by psychiatrists. Participants' demographic information can be found in Table 2-3. See Table 4 for a breakdown of diagnoses within the AD group.

Table 2. Demographic Characteristics.

	Total Sample (N= 456)
Age (years)	
Means (SD)	8.05(3.86)
Range	2-18
Gender	
Male	274 (60.1%)
Female	182 (39.9%)

Table 3. Demographic Characteristics by Diagnostic Group.

	TD (n=281)	AD (n=175)
Age (years)		
Mean (SD)	7.42 (3.63)	9.04 (4.01)
Range	2-17	2-18
Gender		
Male	139 (49.5%)	135 (77.1%)
Female	142 (50.5%)	40 (22.9%)

Note: TD=typically developing group; AD=atypically developing group

Table 4. Diagnoses of Atypically Developing Group.

Diagnosis	Atypically Developing Group (n=175)
ASD	103
Global developmental disability	18
Learning disorders	15
Intellectual disability	15
ADHD	12
Others	8
Language disorders	2
ASD+ID	1
ADHD+ learning disorders	1

Measures

The Korean version of the Matson Evaluation of Social Skills with Youngsters (*K-MESSY-II;* See Appendix A). As previously mentioned in the Social Skills Rating Scales subsection of this paper, the *MESSY-II* is a rating scale that was designed to assess both appropriate and inappropriate social skills in children and adolescents. The *MESSY-II* is typically administered to adults who know the child well (e.g., parents, teachers, and other caretakers). The administration time for the *MESSY-II* is approximately 10 to 25 minutes. The *MESSY-II* consists of 57 items and yields two factors that are related to inappropriate social skills (i.e., Factor 1 Hostile and Factor 3 Inappropriately Assertive) and one factor related to appropriate social skills (Factor 2 Adaptive/Appropriate; Matson et al., 2010). *The MESSY-II* is reported to have a strong internal consistency, ranging from .84 to .93 (Matson et al., 2010). In addition, excellent split-half reliability and moderate inter-rater reliability were demonstrated (Matson, Horovitz, Mahan, & Fodstand, 2013). Significant correlations were reported between the *MESSY-II* and the adaptive subscales of the *Behavior Assessment Scale for Children, Second Edition* (*BASC-2*; Reynolds & Kamphause, 2004, Matson et al., 2010). For the current study, the Korean version of the *MESSY-II* (*K-MESSY-II)* was administered. The *MESSY-II* was translated into Korean in 2012 (Matson et al., 2012); however, its psychometric properties have not been studied. See the Procedure section for more details on the translation procedure.

Procedure

A back-translation procedure was used for translating the *MESSY-II* into Korean (Brislin, 1970). First, a Korean-English bilingual graduate student in clinical psychology translated the *MESSY-II* into Korean. Then, the translated Korean *MESSY-II* was back translated into English by another bilingual graduate student. The backtranslated *MESSY-II* and the original *MESSY-II*

were then compared to make modifications. A docotral-level professor in Korean literature and linguistics edited the revised version of the *K-MESSY-II,* which was then reviewed and finalized by the psychology research team at Yonsei University.

Prior to assessment, the parents or legal guardians of participants were informed about the purpose of the current study, the procedures involved in participating (e.g., completing the scales), the possible risks and discomforts, and the potential benefits of participating in the study. Once informed consent (Appendix B) from caregivers were obtained, a battery of rating scales including the *K-MESSY-II, Korean version of the SRS* (*K-SRS*), and the Korean version of the *Social Skills Improvement System* (*SSIS;* Social Skills domain only) were administered to caregivers of the participants.

The study was granted approval by the Yonsei University Institutional Review Board (IRB; #7001988-201707-HR-216-02; See Appendix C) and was exempted from the Louisiana State University IRB (E9991; See Appendix D).

Statistical Analyses

Study 1 inspected the factor structure of the *K-MESSY-II*. Because the goal of the current study was to explore the data using a different language and population, the exploratory factor analysis was used instead of a confirmatory factor analysis. The same philosophy has been applied in other translation psychometric studies (Bienstein & Nussbeck, 2009; Dixon, Jang, Chung, Jung, & Matson, 2013; Mendez et al., 2002; Teodoro et al., 2005). The Principal axis factors (PAF) with varimax rotation was chosen as the factor extraction model because the current sample was not normally distributed, $p < .05$; the PAF method does not adhere to any distributional assumptions (Costello & Osborne, 2009).

Although there are several general "rules of thumb" in terms of minimum sample sizes in factor analyses (Cattell 1978; Garson, 2008; Goruch, 1974; Hatcher, 1994; Kline, 1979), the recommendations vary greatly across studies. For example, Kass and Tinsley (1979) recommended at least 5 participants per variable. Tabachnick and Fidell (2007) recommended having at least 300 cases. However, there is little statistical research on this issue (MacCallum, Widaman, Zhang, & Hong, 1999). Guadagnoli and Velicer (1988) suggested that the absolute magnitude of factor loadings was the most important factor in determining the stability of a factor analysis. Furthermore, MacCallum and colleagues (1999) have emphasized the importance of a larger sample size only with lower commonalities. This study indicated that with all commonalities above 0.6, samples of fewer than 100 participants were adequate, and with communalities in the .5 ranges, samples between 100 to 200 were adequate (MacCallum et al., 1999). The Kasier-Meyer-Olkin (KMO) is another measure to assess sampling adequacy. Hutcheson and Sofroniou (1999) described that the KMO values between 0.5 to 0.7 were considered mediocre, values between 0.7 to 0.8 were good, values between 0.8 to 0.9 were great, and values above 0.9 were superb (Hutcheson & Sofroniou, 1999).

The suitability of the PAF for the sample was assessed prior to analysis. The correlation matrix was inspected to ensure that all variables had at least one correlation coefficient greater than 0.3. Then the sampling adequacy of the current sample was examined using the KMO and the Bartlett's test of sphericity.

The optimal factor structure of the *K-MESSY-II* was determined using parallel analysis. Parallel analysis extracts eigenvalues from random datasets that parallel the actual data set and compare the eigenvalues derived from the actual data and those from the random data (O'Connor, 2000). Parallel analysis is known to be a superior procedure than the eigenvalues-

greater-than-one rule or the examination of the scree plot only (Cliff, 1988; O'Connor, 2000; Zwick & Velicer, 1982, 1986). Many researchers do not recommend relying on the eigenvalues-greater-than-one rule alone, as it typically overestimates the number of components or on the scree plot alone, as it is not always reliable to determine the number of factors (Costello & Osborne, 2009; Field, 2009; O'Connor, 2000). Therefore, parallel analysis procedure was conducted using SPSS syntax (O'Connor, 2000) available at https://people.ok.ubc.ca/brioconn/nfactors/nfactors.html. Items with a factor loading greater than .30 were retained for each factor (Field, 2009). Additionally, items were applied to the factor with the greatest factor loading.

Then, the reliability of the *K-MESSY-II* was examined by calculating the internal consistency of the total score and each factor. Split-half reliability was calculated separately for each factor. Furthermore, the item-total statistics was calculated to examine the fit of each item to its respective factor.

Hypothesis

A study analyzing the psychometric properties of the Spanish version of the *MESSY* yielded four factors (Mendez et al., 2002; i.e., aggressiveness, assertiveness, conceit, and loneliness). Another study examined psychometric properties of the *MESSY* using Brazilian children and adolescents and yielded the same four factors with good internal consistency (Teodoro et al., 2005). These international studies resulted in more factors than the original *MESSY* study; however, the authors concluded that the factor structure was made up of two broad factors (i.e., appropriate social skills and inappropriate social skills) for both studies. Based on previous literature, it is hypothesized that the factor structure of the *K-MESSY-II* may yield more factors than the original *MESSY*; however, it is expected that the factor structure will be grouped together into two large factors (i.e., appropriate and inappropriate social skills).

Results

The PAF analysis was run on the 57 *K-MESSY-II* questions. The suitability was assessed prior to analysis. Inspection of the correlation matrix showed that all variables had at least one correlation coefficient greater than 0.3. The overall KMO was 0.94 (superb according to Field, 2009), verifying the sampling adequacy for the analysis, and all KMO values for individual variables were greater than 0.9, which is well above the acceptable limit of 0.5 (Field, 2009). Bartlett's test of sphericity was statistically significant $p < .0005$, indicating that the data was likely factorizable.

Results of the parallel analysis revealed five components; however, only two items loaded on the fifth factor, thus a 4-factor solution was retained in the final analysis. This 4-factor solution was also supported by a visual inspection of the scree plot (Cattell, 1996; see Figure 1). The 4-component solution explained 50.39% of the total variance. The 21 items that clustered on Factor 1, "Adaptive and Appropriate, " primarily included prosocial behaviors and accounted for 24.76 % of the variance. Factor 2, "Aggressive and Hostile," accounted for 18.56% of the variance and included 20 hostile and threatening behaviors. Factor 3, "Overconfident," accounted for 4.04% of the variance and was comprised of 10 items related to the desire to stand out as well as feelings of conceit or arrogance. Factor 4, "Passive Aggressive" accounted for 2.85% of the variance and included 6 items pertaining to behaviors characterized by avoidance of direct confrontation or inappropriate assertiveness. All items met the criteria of .30 and were retained in the measure. Table 5 shows the factor loadings for each item after rotation.

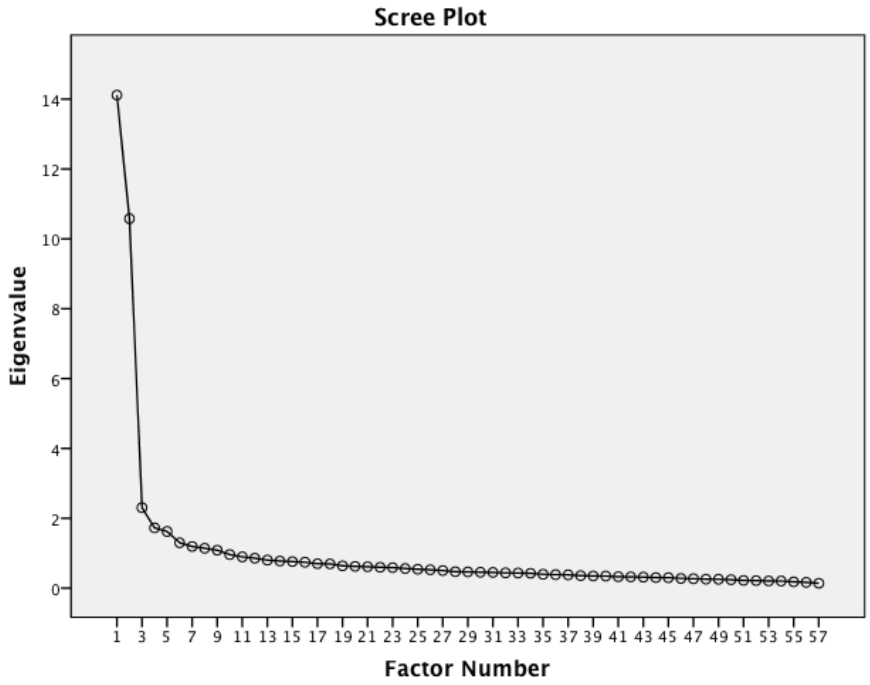

Figure 1. Scree plot of eigenvalues.

Table 5. Factor Loadings for the *K-MESSY-II*.

Items	Factor 1	Factor 2	Factor 3	Factor 4
41. Feels good if he/she helps others.	.805			
50. Joins in games with other children.	.792			
34. Works well on a team.	.791			
51. Plays by the rules of a game.	.788			
40. Asks if he/she can be of help.	.779			
10. Helps a friend who is hurt.	.779			
47. Feels sorry when he/she hurts others.	.762			
56. Asks others how they are, what they have been doing, etc.	.722			
28. Smiles at people he/she knows.	.717			
19. Says "thank you" and is happy when someone does something for him/her.	.707			
26. Looks at people when they are speaking.	.702			
33. Thinks good things are going to happen.	.695			

(Table Cont)

Items	Factor 1	Factor 2	Factor 3	Factor 4
25. Sticks up for friends.	.682			
59. Is friendly to new people he/she meets.	.680			
39. Calls people by their names.	.670			
54. Does nice things for others who are nice to him/her.	.658			
45. Asks questions when talking with others.	.656			
37. Takes care of others' property as if it were his/her own.	.604			
42. Defends self.	.539			
44 Tries to be better than others	.489			
55 Tries to get others to do what he/she wants	.367			
21. Hurts others' feelings on purpose (tries to make people sad).		.771		
23. Makes fun of others.		.756		
17. Picks on people to make them angry.		.713		
60. Hurts others to get what he/she wants.		.690		
63. Hurts others' feelings when teasing them.		.661		
11. Gives other children dirty looks.		.599		
2. Threatens people or acts like a bully.		.589		
22. Is a sore loser.		.578		
43. Always thinks something bad is going to happen.		.576		
24. Blames others for own problems.		.561		
16. Lies to get what he/she wants.		.557		
62. Thinks that winning is everything.		.535		
52. Gets into fights a lot.		.521		
32. Thinks people are picking on him/her when they are not.		.511		
64. Wants to get even with someone who hurts him/her.		.469		

(Table Cont)

Items	Factor 1	Factor 2	Factor 3	Factor 4
46. Feels lonely.		.441		
57. Stays with others too long (wears out welcome)		.434		
7. Takes or uses things that are not his/hers without permission.		.406		
61. Talks a lot about problems or worries.		.389		
38. Speaks too loudly.		.321		
14. Always wants to be first.			.609	
30. Acts as if he/she is better than others.			.598	
27. Thinks he/she knows it all.			.526	
49 Likes to be the leader			.507	
13. Picks out other children's faults/mistakes.			.505	
36. Brags too much when he/she wins.			.500	
12. Feels angry or jealous when someone else does well.			.465	
8. Brags about self.			.449	
4. Is bossy (tells people what to do instead of asking).			.440	
53. Is jealous of other people.			.400	
5. Gripes or complains often				.526
29. Is stubborn.				.526
3. Becomes angry easily.				.498
48. Gets upset when he/she has to wait for things.				.485
15. Breaks promises.				.453
6. Speaks (breaks in) when someone else is speaking.				.383

All factors had high levels of internal consistency, as determined by a Cronbach's alpha;

values higher than 0.7 are typically considered to constitute a good level of internal consistency (DeVillis, 2003; Kline, 2005). The overall alpha coefficient for the *K-MESSY-II* was excellent at .94. Factor 1 had an internal consistency of .95 (*M*=65.66; *SD*=17.80). Factor 2 had an internal consistency of .92 (*M*=36.11; *SD*=12.18). Factor 3 had an internal consistency of .88 (*M*=21.80; *SD*= 7.83), and factor 4 had an internal consistency of .77 (*M*=14.82; *SD*=4.59).

Split-half reliability using Guttman split-half coefficients was calculated separately for each subscale. All factors had suitable to high levels of reliability. Factor 1 had split-half reliability at .91, factor 2 at .90, factor 3 at .85, and factor 4 at .79.

Also, item-total statistics were conducted for all four factors. All correlations were larger than .30 in the corrected item-total correlation column, indicating that all items adequately belonged in their respective subscales. In addition, Cronbach's alpha scores did not result in a substantial increase in the alpha if deleted, thus all items appeared to be worthy of retention. Table 6-9 show item-total statistics for all items across each factor.

Table 6. Item-Total Statistics for Factor 1

Factor 1	Mean (SD)	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
10	3.12 (1.23)	.76	.95
19	3.44 (1.21)	.68	.95
25	2.66 (1.19)	.66	.95
26	3.32 (1.15)	.68	.95
28	3.46 (1.16)	.70	.95
33	3.03 (1.10)	.69	.95
34	3.11 (1.23)	.77	.95
40	2.84 (1.22)	.76	.95
41	3.56 (1.21)	.80	.95
47	3.50 (1.22)	.73	.95
50	3.28 (1.26)	.78	.95

(Table Cont)

Factor 1	Mean (SD)	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
51	3.31 (1.25)	.77	.95
56	2.64 (1.23)	.69	.95
59	2.90 (1.19)	.65	.95
39	3.56 (1.19)	.66	.95
37	2.71 (1.22)	.60	.95
42	3.01 (1.11)	.56	.95
44	2.73 (1.18)	.53	.95
45	3.12 (1.18)	.68	.95
54	3.69 (1.16)	.65	.95
55	2.69 (1.13)	.39	.95

Table 7. Item-Total Statistics for Factor 2

Factor 2	Mean (SD)	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
2	1.44 (.76)	.55	.91
7	1.82 (1.03)	.41	.91
11	1.39 (.80)	.58	.91
16	1.88 (1.03)	.60	.91
17	1.73 (.96)	.71	.91
21	1.45 (.79)	.69	.91
22	1.38 (.81)	.54	.91
23	1.52 (.84)	.69	.91
24	1.91 (1.03)	.65	.91
32	1.94 (1.09)	.57	.91
38	2.44 (1.18)	.41	.92
43	1.81 (.98)	.59	.91
46	2.18 (1.14)	.50	.91
52	1.97 (1.01)	.60	.91
57	1.92 (1.10)	.42	.91

(Table Cont)

Factor 2	Mean (SD)	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
60	1.56 (.90)	.67	.91
61	2.22 (1.10)	.42	.91
62	1.84 (1.07)	.64	.91
63	1.73 (.97)	.70	.91
64	1.99 (1.09)	.57	.91

Table 8. Item-Total Statistics for Factor 3

Factor 3	Mean (SD)	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
4	1.85 (1.03)	.59	.87
8	1.91 (1.03)	.63	.87
12	1.99 (1.07)	.62	.87
13	2.29 (1.11)	.60	.87
14	2.31 (1.28)	.61	.87
27	2.35 (1.11)	.60	.87
30	2.09 (1.09)	.73	.86
36	2.28 (1.19)	.64	.87
49	2.52 (1.22)	.55	.88
53	2.23 (1.07)	.58	.87

Table 9. Item-Total Statistics for Factor 4

Factor 4	Mean (SD)	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
3	2.27 (1.08)	.59	.72
5	2.22 (1.06)	.69	.70
6	2.37 (1.13)	.47	.75
15	2.07 (1.13)	.41	.76
29	3.09 (1.19)	.47	.75
48	2.80 (1.19)	.51	.74

Discussion

An exploratory factor analysis of the *K-MESSY-II* yielded a 4-factor solution. Factor 1,

"Adaptive and Appropriate," was very similar to its equivalent factor in the *MESSY-II* (i.e., Factor 2 "Adaptive/Appropriate"), including only two more items (i.e., item 44 "tries to be better than others," item 55 "tries to get others to do what he/she wants"). These two items were not regarded as adaptive/appropriate social skills in the *MESSY-II*. This difference may be explained by an extreme focus on educational achievement and success in South Korea; average South Korean students work up to 13 hours a day (including various educational programs and private cram classes after school) and do not get adequate sleep due to academic demands and stress (Lee & Larson, 2000; Yang, Kim, Patel, & Lee, 2005). A common saying among Korean high school seniors is "Pass with four, fail with five," meaning that if one sleeps more than 4 hours while preparing for the college entrance exam, one will most likely fail the exam (Lee & Larson, 2000). Since the college entrance exam is extremely competitive, classwork mostly focuses on memorizing and studying problems that may appear on the exam (Chung, Kim, Lee, Kwon, & Lee, 1993; Lee & Larson, 2000). As such, the climate of Korean schools across all grades encourages competition among students. Due to this highly competitive educational culture in South Korea, behaviors such as "trying to be better than others" and "trying to get others to do what he/she wants" may be perceived as adaptive social skills in South Korea.

The remaining items fell into three factors (i.e., Factor 2 "Aggressive and Hostile," Factor 3 "Overconfident," and Factor 4 "Passive Aggressive"), rather than the two inappropriate factors found in the original *MESSY-II* study (i.e., Hostile and Inappropriately Assertive); though items across all of three factors were related to inappropriate social skills. As hypothesized, the current study yielded more factors than the original *MESSY-II* study; however, the four extracted factors were broadly related to two large factors, appropriate/adaptive and inappropriate social skills.

Regarding reliability, internal consistency reliability was found to be high for all factors (.77-.95). In addition, high split-half reliability for all factors was revealed (.79-.91).

The sample for the current study was heterogeneous, comprised of typically developing children and children with various diagnoses including ASD, as recommended by existing literature when conducting a factor analysis (Fabrigar et al., 1999; O'Connor, 2000). However, approximately two-thirds of the clinical sample's diagnoses obtained by parental report, which is a limitation of the current study. It may be valuable to replicate the current study, confirming the accuracy of the participants' diagnoses rather than relying on parental report only. Additionally, the current study used an exploratory factor analysis that was designed to explore a dataset (Costello & Osborne, 2009). Therefore, future researchers should use a confirmatory factor analysis to verify that the 4-factor structure is the most appropriate factor structure for the *K-MESSY-II*.

CHAPTER 7. STUDY 2

Method

Participants

Part 1. A subset of the sample in Study 1 was administered the Korean version of the *SRS* (*K-SRS*) in addition to the *K-MESSY-II* in order to examine correlations between the *K-MESSY-II* factors and the *K-SSIS* subscales. A total of 224 caregivers of Korean children and adolescents completed the *K-SSIS* and the *K-MESSY-II*, of whom 118 were in the TD group and 106 in the AD group. A breakdown of demographic information can be found in Table 10-11. See Table 12 for a breakdown of diagnoses for the AD group.

Table 10. Demographic Characteristics.

	Total Sample (N= 224)
Age (years)	
Means (SD)	10.91(3.21)
Range	5-18
Gender	
Male	148 (66.1%)
Female	76 (33.9%)

Table 11. Demographic Characteristics by Diagnostic Group.

	TD (n=118)	AD (n=106)
Age (years)		
Mean (SD)	10.67 (2.77)	11.18 (3.64)
Range	5-17	5-18
Gender		
Male	60 (50.8%)	88 (83.0%)
Female	58 (49.2%)	18 (17.0%)

Note: TD=typically developing group; AD=atypically developing group

Table 12. Diagnoses of Atypically Developing Group.

Diagnosis	Atypically Developing Group (n=106)
ASD	71
Global developmental disability	4

(Table Cont)

Diagnosis	Atypically Developing Group (n=106)
Learning disorders	11
Intellectual disability	9
ADHD	6
Others	3
Language disorders	1
ADHD+ learning disorders	1

Part 2. An additional subset of the sample in Study 1 was administered the *K-SRS* in addition to the *K-MESSY-II* in order to examine correlations between the *K-MESSY-II* factors and the *K-SRS* subscales. This subset included 449 caregivers of Korean children and adolescents, of whom 281 were in the TD group and 168 were in the AD group. A breakdown of demographic information can be found in Table 13-14. Table 15 provides a breakdown of diagnoses in the AD group.

Table 13. Demographic Characteristics.

	Total Sample (N= 449)
Age (years)	
Means (SD)	8.02 (3.87)
Range	2-18
Gender	
Male	270 (60.1%)
Female	179 (39.9%)

Table 14. Demographic Characteristics by Diagnostic Group.

	TD (n=281)	AD (n=168)
Age (years)		
Mean (SD)	7.43 (3.63)	9.01 (4.05)
Range	2-17	2-18
Gender		
Male	139 (49.5%)	131 (78.0%)
Female	142 (50.5%)	37 (22.0%)

Note: TD=typically developing group; AD=atypically developing group

Table 15. Diagnoses of Atypically Developing Group.

Diagnosis	Atypically Developing Group (n=168)
ASD	96
Global developmental disability	18
Learning disorders	15
Intellectual disability	15
ADHD	12
Others	8
Language disorders	2
ADHD+ learning disorders	1
ASD+ID	1

Part 3. 71 participants from the original sample in Study 1 served as participants in Study 2 to examine test-retest reliability of the *K-MESSY-II*. Of the participants, 42 made up the TD group and 29 made up the AD group. A breakdown of demographic information can be found in Table 16-17. Table 18 provides diagnostic information for the AD group.

Table 16. Demographic Characteristics.

	Total Sample (N= 71)
Age (years)	
Means (SD)	7.45 (3.91)
Range	3-17
Gender	
Male	46 (64.8%)
Female	25 (35.2%)

Table 17. Demographic Characteristics by Diagnostic Group.

	TD (n=42)	AD (n=29)
Age (years)		
Mean (SD)	7.33 (4.10)	7.62 (3.69)
Range	3-16	3-17
Gender		
Male	21 (50.0%)	25 (86.2%)
Female	21 (50.0%)	4 (13.8%)

Note: TD=typically developing group; AD=atypically developing group

Table 18. Diagnoses of Atypically Developing Group.

Diagnosis	Atypically Developing Group (n=29)
ASD	18
Global developmental disability	4
Learning disorders	5
ADHD	1
Others	1

Measures

K-MESSY-II. See the Measures section of Study 1 for a description of the *K-MESSY-II.*

K-SRS. As discussed in the Social Skills Rating Scales subsection of this paper, the *SRS* is a 65-item questionnaire that was designed to measure ASD symptoms in children and adolescents (Constantino & Gruber, 2005). The *SRS* consists of five subscales (i.e., Social Awareness, Social Cognition, Social Communication, Social Motivation, and Autistic Mannerism). The *SRS* has been translated into Korean (*K-SRS*) and was found to have adequate reliability and validity (Cheon et al., 2016).

K-SSIS. The *SSIS* is a norm-referenced measure designed to evaluate social skills, problem behaviors, and academic competence (Gresham & Elliot, 2008). The *SSIS* is the revised version of the *SSRS*. The *SSIS* assesses individuals from 3 to 18 years of age and can be competed by parents and teachers in less than 25 minutes. The *SSIS* consists of three domains: Social Skills, Problem Behaviors, and Academic Competence. The parent form consists of Social Skills and Problem Behavior domains. Social Skills domain is made up of seven subscales (i.e., communication, cooperation, assertion, responsibility, empathy, engagement, and self-control). The Problem Behaviors domain consists of five subscales (i.e., externalizing, bullying, hyperactivity/impulsivity, internalizing, and autism spectrum). The *SSIS* is rated on a 4-point Likert scale (0 = never, 1 = sometimes, 2 = often, 3 = almost always) on frequency as

well as a 3-point Likert scale (0 = not important, 1 = important, 2 = critical) on severity. The *SSIS* was translated into several different languages including Korean (*K-SSIS*; Gresham, Elliot, Vance, & Cook, 2011). Psychometrically superior assessment results (e.g., higher internal consistency) were demonstrated using the *SSIS* over the *SSRS* (Gresham et al., 2011).

Procedure

See the Procedure section of study 1 for a description of how the measures were administered for part 1 and part 2 of the study 2. For part 3, 71 participants from the original sample received a retest administration of the *K-MESSY-II* following a 2-week delay in order to examine the test-retest reliability of the *K-MESSY-II*.

Statistical Analysis

Part 1-2. Pearson correlation coefficients were calculated between the *K-MESSY-II* factors and the *K-SRS* and *K-SSIS* subscales. Assumptions related to Pearson's correlation coefficients were tested (e.g., linear relationship, assumption of bivariate normality). According to the a priori analysis using G*Power (Erdfelder, Faul & Buchner, 1996), a total sample size of 84 was needed based on a two-tailed Pearson's correlation with the power at .80, significance level at .05, and a medium effect size of .30 (Hinkle, Wiersma, & Jurs, 2003),

Part 3. Pearson correlation coefficients were computed to assess the stability of the *K-MESSY-II* factors.

Hypothesis

Based on the existing literature showing that the *MESSY-II* has high correlations with other social skills measures (Matson et al., 2010; Mendez et al., 2002; Teodoro et al., 2005), the *K-MESSY-II* factor related to appropriate social skills was expected to have high correlations with the subscale of the *K-SRS* (i.e., Social, Cognition, Social Communication) and the *K-SSIS*

(i.e., Communication, Cooperation, Assertion, Responsibility, Empathy, Engagement, and Self-control) assessing appropriate social interactions.

Results

Part 1

Factor 1 (Adaptive/Appropriate) of the *K-MESSY-II* had strong negative correlations with the *K-SRS* subscales; negative correlations were due to the reverse scoring of the *K-SRS* (i.e., higher scores indicate more severe deficits in social skills). There were small to moderate correlations between the total inappropriate scores of the *K-MESSY-II* and the *K-SRS* subscales; all were positively correlated as expected. Table 19 displays the Pearson correlation coefficients between the *K-MESSY-II* factors and the *K-SRS* subscales.

Table 19. Correlations between the *K-MESSY-II* Factors and the *K-SRS* Subscales.

	Social Cognition	Social Awareness	Social Communication	Social Motivation
Appropriate social skills (Factor 1)	-.61**	-.69**	-.70**	-.56**
Total inappropriate social skills (Factors 2-4)	.28**	.17**	.23**	.25**

**Correlation is significant at the 0.01 level.

Part 2

There were strong positive correlations between all subscales of the *K-SSIS* and Factor 1 of the *K-MESSY-II*. The total inappropriate social skills score of the *K-MESSY-II* was negatively correlated with four *K-SSIS* subscales (i.e., Communication, Cooperation, Responsibility, and Empathy) and positively correlated with three *K-SSIS* subscales (i.e., Assertion, Engagement, and Self-Control).

Table 20. Correlations between the *K-MESSY-II* Factors and the *K-SSIS* Subscales.

	Communic-ation	Cooperation	Assertion	Responsi-bility	Empathy	Engage-ment	Self-Control
Appropriate social skills (Factor 1)	.80**	.63**	.80**	.69**	.78**	.79**	.70**
Total inappropriate social skills (Factors 2-4)	-.02	-.14*	.10	-.12	-.02	.16*	.06

**Correlation is significant at the .01 level.
*Correlation is significant at the .05 level.

Part 3

Pearson product-moment correlation coefficients were computed to assess stability over time for the factors of the *K-MESSY-II*. High reliability was obtained for all factors (range= .66-.91, p <.01).

Table 21. Test-Retest Reliability of the *KMESSY-II* Factors

Factors	Pearson r
Factor 1	0.91
Factor 2	0.82
Factor 3	0.75
Factor 4	0.66

Discussion

As expected, the adaptive and appropriate social skills construct (Factor 1) of the *K-MESSY-II* was validated. There were strong positive correlations between Factor 1 of the *K-MESSY-II* and the subscales of the *K-SSIS* that measured prosocial behaviors. There also were strong negative correlations between Factor 1 of the *K-MESSY-II* and the subscales of the *K-SRS* that measured inappropriate social responsiveness.

In addition, the total inappropriate social skills score of the *K-MESSY-II* was negatively correlated with all *K-SRS* subscales as expected. The total inappropriate social skills score of the *K-MESSY-II* was negatively correlated with many of the *K-SSIS* subscales except for the Assertion, Engagement, and Self-Control subscales. However, the correlations between the total inappropriate social skills score of the *K-MESSY-II* and the other rating scales were not as strong or consistent as those found for the appropriate social skills (Factor 1) of the *K-MESSY-II*.

Test-retest reliability indicated that the *K-MESSY-II* has good stability over a 2-week period.

Overall, the *K-MESSY-II* demonstrated good reliability and validity. Findings of the current study are consistent with existing literature demonstrating that the *MESSY-II* is highly correlated with other measures that assess social skills. As previously discussed, only a few social skills scales are currently being utilized in South Korea, at least in the research setting. Results of the current study suggest that the *K-MESSY-II* has sound psychometric properties, thus the *K-MESSY-II* may be a promising tool to evaluate social skills in South Korea in both research and clinical settings.

CHAPTER 8. STUDY 3

Method

Participants

Part 1. The same TD sample from Study 1 served as participants in the current study (N=281). See the Participants section of Study 1 for more details. The sample was divided into three age cohorts, consistent with the *MESSY-II* study (Matson, Kozlowski, et al., 2011). Demographic information across age cohorts is presented in Table 22.

Table 22. Demographic Characteristics.

Age Cohort (n)	Mean Age (SD)	Male/Female Frequency
2-5 (119)	4.27 (.64)	53/66
6-9 (84)	7.21 (1.15)	45/39
10-18 (78)	12.46 (2.20)	41/37

Part 2. The same ASD sample from Study 1 served as participants in the current study (N=103). See the Participants section of Study 1 for more details on the ASD group. Demographic information is presented in Table 23.

Table 23. Demographic Characteristics.

Age Cohort (n)	Mean Age (SD)	Male/Female Frequency
2-5 (16)	4.81 (.40)	14/2
6-9 (42)	7.24 (1.08)	36/6
10-18 (45)	13.64 (2.35)	39/6

Measures

K-MESSY-II. See the Measures section of Study 1 for a description of the *K-MESSY-II.*

Procedure

See the Procedure section of Study 1.

Statistical Analyses

A multivariate analysis of variance (MANOVA) was computed, with age cohorts as independent variables and the factors of the *K-MESSY-II* as dependent variables, to determine if there were significant differences with respect to age cohorts. Follow-up analyses of variance (ANOVAs) were conducted in the event there were significant differences. According to the G*Power (Erdfelder et al., 1996), a sample size of 196 was required with the power at .80, significance level at .05, medium effect size (.25), and with four factors.

Hypothesis

The results of studies examining age differences in the *MESSY* vary. Mendez et al. (2002) found only one factor (i.e., loneliness) to have a statistically significant age difference where older adolescents demonstrated higher scores than younger children. Significant differences between age cohorts were found in the *MESSY-II* (Matson, Kozlowski, Neal, Worley, & Fodstad, 2011). Specifically, for the TD group, the 2- to 5-year age cohort had significantly lower scores than the older age cohorts (i.e., 6- to 9-year, 10- to16-year) on the hostile and adaptive/appropriate factors. On the inappropriately assertive factor, the 2- to 5-year age cohort had significantly higher scores than the 6- to 9-year age cohort. Cutoff scores were computed using the mean and standard deviation of the factors for each age cohort (i.e., no/minimal impairment, moderate impairment, severe impairment). The utility of the cutoff scores were tested using a group of children with ASD; all three age cohorts fell within the no/minimal impairment category on the hostile and inappropriately assertive factors, and all three age cohorts averaged within the severe impairment range on the adaptive factor (Matson, Kozlowski, et al., 2011). Bacanli and Erdogan (2003) found that Turkish children's negative social behaviors

decreased based on age. However, the Brazilian version of the *MESSY* did not find any age differences (Teodoro et al, 2005).

Social skills research and access to services are generally limited in South Korea. Because social skill deficits often lead to social isolation, further exacerbating social skill impairments, ASD symptoms may worsen with age without treatment. In addition, as older children become more aware of their social deficits, social skill impairments may increase as children approach adolescence (Bhatia, Rajender, Malhotra, Kanwal, & Chaudhary, 2010). Therefore, it was hypothesized that older Korean children with ASD would have more inappropriate social skills deficits compared to younger children with ASD.

Results

Part 1

Typically developing group. A MANOVA was computed with age cohort as an independent variable and the factors of the *K-MESSY-II* as dependent variables. Factor means and standard deviations are shown in Table 23. Preliminary assumption checking revealed that there was homogeneity of variance-covariance matrices, as assessed by Box's M test of equality of covariance matrices (p= .23). Pillai's Trace was used since it is more robust when sample sizes are unequal. The 6- to 9-year age cohort had lower scores than the other age cohorts (i.e., 2- to 5-year age cohort, 10- to 18-year age cohort) on four factors, but the mean scores were generally comparable across all age groups. The 2- to 5-year age cohort had lower scores on the Adaptive/Appropriate and Passive Aggressive factors than the 10- to 18-year age cohort, but the mean scores were comparable.

There was a statistically significant difference between the age cohorts on the combined dependent variables, F (8, 552) = 2.14, $p < .05$; Pillai's Trace = .060; partial η^2 = .03. However,

follow-up univariate ANOVAs did not show statistically significant differences between dependent variables.

Table 24. Factor Means and Standard Deviations for Typically Developing Group by Age Cohort.

Age cohort	Factor	Mean (SD)
2-5	1. Adaptive/Appropriate	72.87 (13.83)
	2. Hostile	35.87 (10.89)
	3. Overconfident	23.67 (6.69)
	4. Passive Aggressive	14.24 (4.26)
6-9	1. Adaptive/Appropriate	71.43 (15.08)
	2. Hostile	34.33 (10.31)
	3. Overconfident	21.62 (6.34)
	4. Passive Aggressive	13.40 (4.31)
10-18	1. Adaptive/Appropriate	75.33 (13.40)
	2. Hostile	35.71 (11.27)
	3. Overconfident	22.28 (6.93)
	4. Passive Aggressive	14.86 (4.29)

Part 2

ASD group. A one-way MANOVA was computed with age cohorts as independent variables and the factors of the *K-MESSY-II* as dependent variables. Factor means and standard deviations are shown in Table 24. Preliminary assumption checking revealed that there was homogeneity of variance-covariance matrices, as assessed by Box's M test of equality of covariance matrices (p= .172). Pillai's Trace was used since it is more robust when the sample sizes are unequal. The 2- to 5-year age cohort had lower scores than the older age cohorts (i.e., 6- to 9-year age cohort, 10- to 18-year age cohort) on all four factors. The 6- to 9-year age cohort had lower scores on the Adaptive/Appropriate and Overconfident factors than the 10-to18-year age cohort but had higher scores on the Hostile and Passive Aggressive factors.

However, these differences were not statistically significant on the combined dependent variables, F (8, 196) = 1.01, p >.05; Pillai's Trace = .08; partial η^2 = .042.

Table 25. Factor Means and Standard Deviations for ASD Group by Age Cohort.

Age Cohort	Factor	Mean (SD)
2-5 (16)	1. Adaptive/Appropriate	46.06 (13.31)
	2. Hostile	31.19 (11.60)
	3. Overconfident	15.88 (8.12)
	4. Passive Aggressive	14.12 (3.65)
6-9 (42)	1. Adaptive/Appropriate	47.14 (14.63)
	2. Hostile	34.81 (12.01)
	3. Overconfident	18.55 (8.99)
	4. Passive Aggressive	16.36 (4.60)
10-18 (45)	1. Adaptive/Appropriate	48.13 (14.45)
	2. Hostile	33.93 (10.44)
	3. Overconfident	19.56 (10.01)
	4. Passive Aggressive	14.80 (5.22)

Discussion

For TD children and adolescents, the mean scores across all four factors for the youngest age cohort was lower than those for the older age cohorts; however, these differences were not statistically significant. Also, there were no significant differences across age cohorts for the ASD group. As previously discussed, existing *MESSY* studies show inconsistent results regarding age differences. Findings of the current study did not replicate the age differences found in the United States version of the *MESSY-II* and were consistent with the Brazilian *MESSY*.

As hypothesized, older Korean children with ASD had higher scores on inappropriate social skills factors (i.e., Hostile, Overconfident, and Passive Aggressive). In other words, older Korean children had more inappropriate social skills; however, these differences were not

statistically significant. One limitation of the current study is that no data on treatment history were collected; social skills training or other relevant interventions may have positive effects on social skill deficits in children with ASD (Landa, Holman, O'Neil, & Stuart, 2011; Ozonoff & Miller, 1995; Reichow & Volkmar, 2010). Future researchers should consider replicating age differences for TD and ASD children and adolescents and further investigate different sources of variation that may affect the dependent variable. Specifically, future researchers should consider examining treatment effects on the *MESSY-II* scores.

CHAPTER 9. STUDY 4

Method

Participants

Participants were recruited from local churches and organizations in Los Angeles or via Korean websites. A total of 38 individuals participated in the study. Those who did not complete the survey (n=2) and those who did not meet the inclusion criteria discussed below (n=3) were removed from the sample. The final sample was comprised of 33 Korean adults, between the ages of 27 to 72 years old, residing in Southern California (*M*= 41.67, *SD*=13.20). The sample included 19 females (57.6%).

Measures

The *K-MESSY-II* Cultural Relevancy Survey (See Appendix E)**.** The survey asked participants to rate how culturally relevant each *K-MESSY-II* item was for Korean children and adolescents on a 5-point Likert scale (1= not relevant at all, 2= a little relevant, 3=somewhat relevant, 4= relevant, 5=very relevant). A 5-point scale was selected in order to obtain a diverse measurement of opinions, as the intensity of participant's opinions/beliefs may vary. Subgroup differences may be difficult to observe using a 2- or 3-point scale (Dohn, Jimenez-Mendez, Pozo, Cabrera & Dohn, 2014). Existing literature had demonstrated that five alternatives increase the variance of the scores as compared to three alternatives, thus improving the psychometric properties (e.g., reliability and validity) of the measure (Muniz, Garcia-Cueto, & Lozano, 2005).

Procedure

Potential participants were initially informed about the study's purpose and procedures via online recruitment announcements and email correspondence and were given the opportunity to volunteer to participate. In order to meet inclusion criteria, participants had to be: (a) Korean

adults of at least 18 years of age, (b), able to read Korean, and (c) knowledgeable and familiar with Korean culture (i.e., have lived in South Korea for at least 10 years). Participants who met the inclusion criteria received consent forms and were informed about the purpose of the current study, the procedures involved in participating (e.g., completing the scales), the possible risks and discomforts and the potential benefits of participating in the study. In addition, they were instructed what to do in the event that they no longer wanted to participate in the study. The principal investigator answered any outstanding questions, and the principal investigator's contact information was provided. The consent form (See Appendix F) indicated that the act of continuing on to complete the survey constituted consent to participate in the study. Participants had the option to complete the survey via mail or online. All participants received a follow-up phone call/email to ensure that they had received the survey and had the opportunity to ask any further questions.

The modification for administration of and waive consent for online surveys was approved (See Appendix G and H).

Statistical Analyses

To obtain a summary of the distribution of the responses, the median was calculated to find the value that is in the middle of the distribution, and the interquartile range (IQR) was calculated to measure whether the responses were clustered or scattered across the range of responses.

Results

The median for all 57 *K-MESSY-II* items was between 2 (a little relevant) and 4 (relevant). Table 26 shows the median and the IQR for each item. Overall, the participants' ratings were distributed across all 5 points (i.e., 1= not relevant at all, 2= a little relevant, 3=

somewhat relevant, 4= relevant, 5= very relevant). See Appendix I for the response distribution of each item. Although the results do not suggest consensus on particular responses, the majority of items (n=42; 73.7%) had more than 80% of participants indicating a range of relevance from 2 (a little relevant) to 5 (very relevant): item 3 (93.9%), item 4 (84.8%), item 5 (93.9%), item 6 (90.0%), item 10 (100%), item 12 (81.8%), item 13 (87.9%), item 14 (81.8%), item 19 (100%), item 23 (87.9%), item 24 (81.8%), item 25 (97.0%), item 26 (100%), item 27 (87.9%), item 28 (100%), item 29 (97%), item 30 (84.8%), item 33 (100%), item 34 (97.0%), item 36 (87.9%), item 37 (84.4%), item 38 (93.9%), item 39 (100%), item 40 (90.9%), item 41 (100%), item 42 (97%), item 44 (100%), item 45 (97.0%), item 46 (97.0%), item 47 (100%), item 48 (93.9%), item 49 (87.9%), item 50 (97.0%), item 51 (90.9%), item 52 (90.0%), item 54 (100%), item 55 (97.0%), item 56 (84.8%), item 57 (81.8%), item 59 (93.9%), item 61 (97.0%), and item 64 (90.9%).

For the remaining 15 items, less than 80% of participants indicated a varying range of relevance. In other words, there were higher rates of 1 (not relevant at all) responses on the following items: item 2 (39.4% provided "not relevant at all" responses), item 7 (30.3%), item 8 (24.2%), item 11 (33.3%), item 15 (21.2%), item 16 (27.3%), item 17 (21.2%), item 21 (27.3%), item 22 (33.3%), item 32 (21.2%), item 43 (24.2%), item 53 (21.2%), item 60 (33.3%), item 62 (27.3%), and item 63 (24.2%).

Table 26. Median and IQR for all survey items

Items	Median	IQR
2. Threatens people or acts like a bully.	3	3
3. Becomes angry easily.	4	3
4. Is bossy (tells people what to do instead of asking).	3	4

(Table Cont)

Items	Median	IQR
5. Gripes or complains often	4	2
6. Speaks (breaks in) when someone else is speaking.	4	2
7. Takes or uses things that are not his/hers without permission.	3	3
8. Brags about self.	3	3
10. Helps a friend who is hurt.	3	1
11. Gives other children dirty looks.	3	2
12 Feels angry or jealous when someone else does well.	3	2
13. Picks out other children's faults/mistakes.	3	2
14. Always wants to be first.	3	2
15. Breaks promises.	3	2
16. Lies to get what he/she wants.	3	3
17. Picks on people to make them angry.	3	2
19. Says "thank you" and is happy when someone does something for him/her.	3	1
21. Hurts others' feelings on purpose (tries to make people sad).	2	2
22. Is a sore loser.	2	3
23. Makes fun of others.	3	2
24. Blames others for own problems.	3	3
25. Sticks up for friends.	4	1
26. Looks at people when they are speaking.	3	2
27. Thinks he/she knows it all.	3	2
28. Smiles at people he/she knows.	4	2
29. Is stubborn.	4	2
30. Acts as if he/she is better than others.	3	2
32. Thinks people are picking on him/her when they are not.	3	1
33. Thinks good things are going to happen.	3	1
34. Works well on a team.	3	2

(Table Cont)

Items	Median	IQR
36. Brags too much when he/she wins.	4	2
37. Takes care of others' property as if it were his/her own.	2	2
38. Speaks too loudly.	3	3
39. Calls people by their names.	4	2
40. Asks if he/she can be of help.	3	1
41. Feels good if he/she helps others.	4	2
42. Defends self.	4	3
43. Always thinks something bad is going to happen.	3	3
44. Tries to be better than everyone else.	4	2
45. Asks questions when talking with others.	2	2
46. Feels lonely.	4	1
47. Feels sorry when he/she hurts others.	4	2
48. Gets upset when he/she has to wait for things.	4	1
49. Likes to be the leader	3	2
50. Joins in games with other children.	3	1
51. Plays by the rules of a game.	3	2
52. Gets into fights a lot.	3	2
53. Is jealous of other people.	3	2
54. Does nice things for others who are nice to him/her.	4	2
55. Tries to get others to do what he/she wants.	3	2
56. Asks others how they are, what they have been doing, etc.	3	2
57. Stays with others too long (wears out welcome)	3	2
59. Is friendly to new people he/she meets.	3	2
60. Hurts others to get what he/she wants.	3	2
61. Talks a lot about problems or worries.	3	2
62. Thinks that winning is everything.	3	4

(Table Cont)

Items	Median	IQR
63. Hurts others' feelings when teasing them.	3	3
64. Wants to get even with someone who hurts him/her.	3	2

Discussion

Overall, participants indicated a varying range of cultural relevance for the majority of *K-MESSY-II* items. Higher rates of "not relevant at all" responses were indicated on 15 items. It is noteworthy that all 15 items were related to inappropriate social skills. More specifically, 12 items belonged to Factor 2 (Hostile), 2 items to Factor 3 (Overconfident), and 1 item to Factor 4 (Passive Aggressive). In other words, many of the social skills that are not regarded as "appropriate" behaviors, manners, or attitudes towards other people were perceived as less culturally relevant. This may be explained by Confucianism, a philosophy that emphasizes proper behavior and morality as the basis of society, which has a strong influence on how people think, behave, and communicate in many East Asian countries including South Korea (Tamai & Lee, 2002). Existing literature suggests that "altruism," a compassionate attitude and tendency to contribute to the welfare of others, was emphasized in Korean culture (Tamai & Lee, 2002). Ten items (10, 19, 26, 28, 33, 39, 41, 44, 47, 54) did not receive a score of 1 (not relevant at all) from any participants. Interestingly, these 10 items were all related to appropriate social skills (Factor 1), including items that emphasize "self-sacrificing" behaviors to help others (e.g., feels good if he/she helps others, helps a friend who is hurt, feels sorry when he/she hurts others, does nice things for others who are nice to him/her). The Korean translation of the item 39 (calls people by their names) includes reference to individuals who are older than the speaker; since the Korean language is unique in having its own language-specific honorifics, this social skill may indicate politeness and deference to others, especially one's elders.

As previously mentioned, some *K-MESSY-II* items related to inappropriate social skills were not perceived as highly culturally relevant as compared to other more appropriate social skills. It should be noted that although these items may not be perceived as "culturally relevant," they still have important value. Many of these items reflect deficits in social skills that are particularly relevant to individuals with ASD. For example, these items include "takes or uses things that are not his/hers without permission," "brags about self," "breaks promises," "thinks people are picking on them when they are not," and "thinks that winning is everything." These behaviors may be a result of deficits in social interaction and communication or rigidity, which are primary characteristics of ASD.

It should be noted that since the current study had a small sample size, interpretation will not go beyond speculation and should be done with caution. Although participants were very familiar with Korean culture (i.e., had to have lived in South Korea more than 10 years to participate), and they were instructed to consider Korean culture in Korea, their current status (i.e., currently residing in South Korea) may potentially impact their responses. In addition, participants were asked to rate the cultural relevancy of each item based on Korean culture in South Korea; therefore, these results may not be relevant for Korean Americans. It may be valuable to further evaluate whether these items are regarded as culturally relevant for Korean Americans who are familiar with both Korean and American cultures. Nevertheless, it may be concluded with caution that all *K-MESSY-II* items have value for Korean children and adolescents despite their varying degree of perceived "cultural relevancy," as they include a wide range of both appropriate and inappropriate social skills.

CHAPTER 10. CONCLUSION

Although social skills impairment in ASD is considered one of the most fundamental characteristics of the disorder, social skills research, reliable assessment tools, and effective interventions are generally limited in South Korea. Social skills deficits are not isolated and often are related to other problems with communication, relationships with others, and challenging behaviors (Matson et al., 2010). Therefore, reliably identifying social skills strengths and deficits for both typically and atypically developing individuals is crucial in order to provide necessary training to help individuals reach their maximum potential. As previously discussed, the *MESSY-II* is a rating scale that assesses both appropriate and inappropriate social skills in children and adolescents in clinical and nonclinical samples, which can be used to assess and monitor progress of individuals participating in intervention programs for social skills. The *MESSY-II* has been translated into different languages including Korean; however, the psychometric properties of the *K-MESSY-II* have not yet been studied. Therefore, the goals of the current studies were to examine the factor structure of the *K-MESSY-II* and evaluate its psychometric properties. The current research will contribute to the field of assessment tool development for social skills. More specifically, given that only a few social skills rating scales are currently being researched in South Korea, the current research will provide support for the use of another reliable instrument.

The factor structure of the *K-MESSY-II* yielded 4 factors. The *K-MESSY-II* yielded one factor related to adaptive and appropriate social skills, consistent with the *MESSY-II*. Although, rather than two inappropriate factors as in the *MESSY-II* (i.e., Hostile and Inappropriately Assertive), the *K-MESSY-II* yielded three inappropriate factors (i.e., Aggressive and Hostile, Overconfident, Passive Aggressive). Factor 2 of the *K-MESSY-II* (Aggressive and Hostile)

included items that were related to antagonistic behaviors that are acted out toward other people (e.g., hurts others' feelings on purpose, makes fun of others, picks on people to make them angry, hurts others to get what he/she wants, hurts others' feelings when teasing them, threatens other people or acts like a bully, blames others for own problems, gets into fights a lot). Factor 3 (Overconfident) included items that were related to the desire to stand out and behaving overly conceited (e.g., always wants to be first, acts as if he/she is better than others, thinks he/she knows it all, likes to be the leader, brags too much when he/she wins, feels angry or jealous when someone else wins, brags about self). Factor 4 (Passive Aggressive) included items that were related to unfriendly behaviors. In a sense, these behaviors were not as "aggressive" as those described in Factor 2 but may be characterized by indirect resistance or avoidance of direct confrontation (e.g., gripes or complains often, is stubborn, becomes angry easily, breaks promises).

The current study included a more heterogeneous sample (both nonclinical and clinical with various psychopathologies) than previous literature (O'Connor, 2000). The lack of heterogeneity in the samples of the other *MESSY/MESSY-II* studies may partially explain the different number of factors identified in the current study. Although the *K-MESSY-II* resulted in one more factor than the *MESSY-II*, all *MESSY-II* items were retained in the *K-MESSY-II*. It may be concluded that the *K-MESSY-II* was broadly made up of two larger factors (i.e., appropriate and inappropriate social skills), which is consistent with other *MESSY/MESSY-II* studies. Overall, the *K-MESSY-II* demonstrated good reliability and validity (i.e., high internal consistency, high correlations with other rating scales, high test-retest reliability). Furthermore, the current study examined potential differences among the factors with respect to age cohorts and found no statistically significant differences. Finally, the cultural relevancy survey

suggested that the *K-MESSY-II* items related to appropriate social skills were regarded as more culturally relevant than the inappropriate social skills items. Despite the potential limitations that were previously discussed in Study 4, it may be concluded that all *K-MESSY-II* items have value as they assess a wide range of appropriate and inappropriate social skills.

In conclusion, the current studies demonstrate that the *K-MESSY-II* is a psychometrically sound measure that warrants further use in both research and clinical settings; the *K-MESSY-II* is a promising tool that may enhance evaluation and treatment of social skills in children and adolescents, including those with ASD, in South Korea.

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APPENDIX A: K-MESSY-II

K-Messy-II

이 설문지는 사회적 행동을 측정하는 것입니다. 해당되는 상황에서 아동이 얼마나 자주 각각의 행동을 보이는지 평가하여 주십시오. 좋은 답을 고르지 마시고, 실제로 각 행동이 일어나는 빈도를 평가하여 주시기 바랍니다.

문 항	전혀 아니다	조금 그렇다	보통 이다	대체로 그렇다	아주 그렇다
1. 다른 사람들을 웃긴다. (농담이나 웃기는 이야기를 한다.	1	2	3	4	5
2. 사람들을 위협하고 약한 사람을 못살게 군다.	1	2	3	4	5
3. 쉽게 화를 낸다.	1	2	3	4	5
4. 우두머리 행세를 한다. (부탁하지 않고 명령조로 이야기한다)	1	2	3	4	5
5. 자주 투덜거리거나 불평한다.	1	2	3	4	5
6. 다른 사람이 말하고 있을 때 끼어 든다.	1	2	3	4	5
7. 허락 없이 다른 사람의 물건을 가져오거나 사용한다.	1	2	3	4	5
8. 자신에 대해 지나치게 자랑한다.	1	2	3	4	5
9. 화가 났을 때 손으로 때리거나 주먹으로 친다.	1	2	3	4	5
10. 다친 친구를 돕는다.	1	2	3	4	5
11. 다른 아이들을 경멸하는 듯한 표정을 보인다.	1	2	3	4	5
12. 다른 사람이 잘 할 때 화내거나 질투한다.	1	2	3	4	5
13. 다른 아이들의 잘못/실수를 짚어낸다.	1	2	3	4	5
14. 항상 첫째가 되고 싶어한다.	1	2	3	4	5
15. 약속을 지키지 않는다.	1	2	3	4	5
16. 원하는 것을 얻기 위해 거짓말 한다.	1	2	3	4	5
17. 다른 사람을 놀려서 화나게 한다.	1	2	3	4	5
18. 사람들에게 다가가 대화를 시작한다.	1	2	3	4	5
19. 다른 사람이 자기를 위해 무언가를 해주면 “감사합니다” 라고 말하며 기뻐한다.	1	2	3	4	5
20. 사람들에게 말하기를 두려워 한다.	1	2	3	4	5
21. 고의로 다른 사람들의 감정을 상하게 한다.	1	2	3	4	5
22. 희망없는 패배자이다.	1	2	3	4	5
23. 남들을 놀린다.	1	2	3	4	5
24. 나의 문제를 남 탓으로 돌린다.	1	2	3	4	5
25. 친구 편에 선다.	1	2	3	4	5
26. 사람들이 말할 때 쳐다본다.	1	2	3	4	5
27. 자신이 모두 다 안다고 생각한다.	1	2	3	4	5
28. 아는 사람들에게 미소 짓는다.	1	2	3	4	5
29. 고집이 세다.	1	2	3	4	5

30. 다른 사람보다 우월한 것처럼 행동한다.	1	2	3	4	5
31. 감정을 표현한다.	1	2	3	4	5
32. 실제로는 아닌데 다른 사람들이 자기를 놀린다고 생각한다.	1	2	3	4	5
33. 좋은 일들이 일어날 거라고 생각한다.	1	2	3	4	5
34. 팀원으로써 협동한다.	1	2	3	4	5
35. 남들을 방해하는 소리를 낸다. (트림, 코 훌쩍이기 등)	1	2	3	4	5
36. 이기면 지나치게 자랑한다.	1	2	3	4	5
37. 남의 물건을 자기 것처럼 신경 써 다룬다.	1	2	3	4	5
38. 너무 크게 이야기한다.	1	2	3	4	5
39. 다른 사람들을 부를 때 호칭이나 이름을 사용한다.	1	2	3	4	5
40. 자신이 도움이 될 수 있는지 물어본다	1	2	3	4	5
41. 남을 도와줄 때 기분 좋아한다.	1	2	3	4	5
42. 자신을 방어한다	1	2	3	4	5
43. 항상 안좋은 일이 생길 것이라 생각한다	1	2	3	4	5
44. 남들보다 뛰어나려고 노력한다.	1	2	3	4	5
45. 다른 사람과 이야기할 때 질문을 한다.	1	2	3	4	5
46. 외로워 한다.	1	2	3	4	5
47. 다른 사람들을 다치게 하면 미안해 한다.	1	2	3	4	5
48. 기다려야 할 때 짜증을 낸다.	1	2	3	4	5
49. 리더가 되기를 좋아한다.	1	2	3	4	5
50. 다른 아이들과 게임에 함께 참여한다.	1	2	3	4	5
51. 게임의 규칙을 잘 지키며 논다.	1	2	3	4	5
52. 많이 싸운다.	1	2	3	4	5
53. 다른 사람들을 질투한다.	1	2	3	4	5
54. 자신에게 잘해주는 사람에게 잘 해준다.	1	2	3	4	5
55. 자신이 원하는 것을 남들이 하도록 만든다.	1	2	3	4	5
56. 다른 사람에게 어떻게 지냈는지 안부를 묻는다.	1	2	3	4	5
57. 사람들이 같이 너무 오래 있는다. (너무 오래 있어서 싫어할 정도로)	1	2	3	4	5
58. 필요 이상으로 설명한다.	1	2	3	4	5
59. 새롭게 만나는 사람들에게 친절하다.	1	2	3	4	5
60. 자신이 원하는 것을 얻기 위해 남에게 해를 입힌다	1	2	3	4	5
61. 문제나 걱정에 대한 이야기를 많이한다.	1	2	3	4	5
62. 이기는 것이 전부라고 생각한다.	1	2	3	4	5
63. 다른 사람을 놀릴 때 감정을 상하게 만든다.	1	2	3	4	5
64. 자신에게 해를 가하면 갚고자 한다	1	2	3	4	5

APPENDIX B: THE CONSENT FORM FOR STUDY 1

연구참여자 설명문
(인간대상 연구용)
(ver. 1.0)

연구과제명: MATSON의 아동 사회기술 평가(MESSY) 한국판 표준화 연구

연구책임자 (성명/소속) : 정경미 (연세대학교 심리학과)
전화번호 : 02-2123-7536

본 연구는 아동, 청소년의 사회성을 측정하는 척도, MESSY를 한국판으로 표준화 하는 연구입니다. 귀하는 본 연구에 참여할 것인지 여부를 결정하기 전에, 설명문과 동의서를 신중하게 읽어보셔야 합니다. 이 설명문에서는 이 연구가 왜 수행되며, 무엇을 수행하는지에 대해 설명하고 있습니다. 또한 언제든지 귀하가 이 연구 참여를 중단할 수 있음을 설명하고 있습니다.

이 연구를 수행하는 정경미 연구책임자 또는 노지영 연구원이 귀하에게 이 연구에 대해 설명해 줄 것입니다. 이 연구는 자발적으로 참여 의사를 밝히신 분에 한하여 수행될 것입니다. 다음 내용을 신중히 읽어보신 후 참여 의사를 밝혀 주시길 바라며, 필요하다면 가족이나 친구들과 의논해 보십시오.

만일 어떠한 질문이 있다면 담당 연구원이 자세하게 설명해 줄 것입니다.

귀하의 서명은 귀하가 본 연구에 대해 그리고 위험성에 대해 설명을 들었음을 의미하며, 이 문서에 대한 귀하의 서명은 귀하께서 자신(또는 법정대리인)이 본 연구에 참가를 원한다는 것을 의미합니다.

1. 연구의 배경과 목적

사회적 기술이란, 한 개인이 주어진 환경과 상호작용하고 균형과 조화를 유지하기 위해 필요한 행동 기술로, 사회적 관계 내에서 개인이 유능하게 행동할 수 있도록 하는 능력을 의미한다(문성원, 2013). 아동의 사회적 기술은 다른 사람과 사회적인 관계를 맺도록 하며, 이를 통해 사회적인 가치를 얻는 등 개인의 성장에 긍정적인 영향을 주기 때문에 매우 중요하다(김용석, 홍지영, 2007). 그러나 아직 우리나라에서는 아동들의 사회적 기술 증진을 위한 체계적인 지침이 마련되어 있지 않다(문성원, 2013). 특히 발달 장애가 있는 아동들은 대부분 사회적 기술 습득에 어려움을 경험하고 있다(Zager,

2005). 사회 기술이 부족한 발달 장애 아동들은 성인이 되어서도 학업, 직업, 독립적인 생활 등에서 문제를 겪으며(Whitma & DeWitt, 2011), 아동들의 부모는 큰 양육 스트레스를 경험하고 낮은 삶의 질을 보고하고 있다(김민희, 정경미, 서동수, 변희정, & 이민영, 2011).

따라서 발달 장애 아동들을 포함하여 사회적 기술 습득에 어려움이 있는 아동들에 대한 적절한 개입의 필요성이 강조된다. 사회 기술에 대한 개입을 위해서는 이를 정확하게 평가하는 것이 먼저 이루어져야 한다. 지금까지 일반적으로 많이 사용되고 있는 아동들의 사회 기술 평가 방법은 사회 상황을 제시하고 어떤 행동을 하는지 살펴보는 행동 관찰이다(Matson & Wilkins, 2007). 그러나 행동 관찰은 많은 시간이 필요하여 다수의 아동들을 대상으로 실시하기에 한계가 있고 신뢰도와 타당도가 확립되기 어렵다는 단점이 있다(Van Hasselt, Hersen, & Bellack, 1981). 그 대안으로 척도를 통해 간편하게 아동들의 사회 기술을 평가하는데, 그 중 정상 발달 아동 뿐만 아니라 발달 장애 아동을 대상으로 사회성을 평가하는 가장 대표적인 타당화된 척도가 MATSON EVALUATION OF SOCIAL SKILLS WITH YOUNGSTERS (이하 MESSY)이다(Matson & Wilkins, 2007).

MESSY는 정상 발달 아동을 대상으로 개발되었으나, 연구를 통해 지적장애(Matson & Barrett,1982) 및 자폐증(Matson, Compton & Sevin, 1991)아동에게도 사용할 수 있게 개발되었다. 최근 Matson & Wilkins(2007)는 고찰 논문을 통해 MESSY가 발달장애 아동을 대상으로 사회 기술을 평가하기에 적합함을 보여주었다. 그러나 아직 국내에는 발달장애 아동의 사회 기술을 측정할 수 있는 국내의 표준화된 척도가 개발되지 않아 이들의 사회성 관련 연구나 평가에 제한이 있다. 따라서 본 연구는 아동들에 대한 사회성 연구 및 임상 평가, 치료에 유용하게 사용될 수 있도록 MESSY를 표준화하고자 한다.

2. 연구 참여 대상

만 4-18세로, 한 단어 이상 자발적인 발화가 가능한 아동, 청소년의 보호자 550명이 참여할 것입니다.
그 중, 자폐 스펙트럼 장애 진단을 받은 아동, 청소년의 보호자는 200명, 자폐 스펙트럼 장애 진단을 받지 않은 아동, 청소년의 보호자는 350명이 참여할 것입니다.

3. 연구방법

만일 귀하가 참여의사를 밝혀 주시면 다음과 같은 과정이 진행될 것입니다. 귀하는 총 15분 정도 소요되는 설문 문항에 응답하시게 될 것입니다.

먼저, 신체 건강 상태에 관한 질문지에 응답해주신 후 총 세 가지의 설문, MESSY, SRS, SSIS 의 모든 문항에 응답해주시기 바랍니다. 단, 만 4-7세 아동의 보호자인 경우에는 SSIS 설문을 제외한 MESSY, SRS 설문만 응답해주시면 됩니다.

응답을 완료하신 후 원하시는 경우에 한하여 약 2주 후 설문 재응답이 진행될 것입니다. 이는 약 2주 후 문자로 안내될 것이며, 동일한 설문이 진행됩니다.

4. 연구 참여 기간

귀하는 본 연구를 위해 한 차례 설문 응답을 요청받으며, 모든 문항 응답에 약 15분이 소요될 것입니다.
만약, 귀하가 2주 후 설문 재응답을 원하시는 경우 다시 한 번 더 요청드릴 수 있으며, 이 또한 15분 소요될 것입니다.

5. 연구 참여 도중 중도탈락

귀하는 연구에 참여하신 후에도 언제든지 도중에 그만 둘 수 있습니다. 만일 귀하가 연구에 참여하는 것을 그만두고 싶다면 담당 연구원이나 연구책임자에게 즉시 말씀해 주십시오.

6. 부작용 또는 위험요소

본 연구에서 예상되는 부작용이나 위험요소는 없으나, 만일 귀하가 불쾌감이나 위험을 경험하게 된다면 언제든지 참여를 중단하실 수 있습니다. 만일 연구 참여 도중 발생할 수 있는 부작용이나 위험 요소에 대한 질문이 있으시면 담당 연구원에게 즉시 문의해 주십시오..

7. 연구 참여에 따른 이익

본 연구에 참여하실 경우 휴대전화 문자로 4100원 상당의 기프티콘이 지급될 것입니다.
2주 후, 설문 재응답에 참여하시는 경우 동일한 기프티콘이 추가적으로 지급될 것입니다.

8. 연구에 참여하지 않을 시 불이익

귀하는 본 연구에 참여하지 않을 자유가 있습니다. 또한 귀하가 본 연구에 참여하지 않아도 귀하에게는 어떠한 불이익도 없습니다.

9. 상해에 대한 보상

본 연구에 참여하는 것으로 인한 가능한 상해가 예상되지 않으므로 상해에 대한 보상은 준비되어 있지 않습니다.

10. 개인정보와 비밀보장

본 연구의 참여로 귀하에게서 수집되는 개인정보는 연락처, 아동의 생년월일, 아동의 건강 관련 정보, 설문내용입니다. 이 정보는 연구를 위해 3년간 사용되며 수집된 정보는 개인정보보호법에 따라 적절히 관리됩니다. 또한 연구로부터 얻어진 연구대상자에 관한 정보는 잠금장치가 있는 컴퓨터에 보관되며 참여 연구원만이 접근 가능합니다. 연구를 통해 얻은 모든 개인 정보의 비밀 보장을 위해 최선을 다할 것입니다. 만일 귀하의 요청이 있을 경우 귀하의 정보는 모두 즉시 폐기됩니다.

이 연구에서 얻어진 정보는 학회지나 학회에 공개될 수 있으나 귀하의 연락처 및 개인을 식별할 수 있는 개인 정보는 사용되지 않을 것입니다. 그러나 만일 법이 요구하면 귀하의 개인정보는 제공될 수 있습니다. 또한 모니터 요원, 점검요원, 생명윤리심의위원회는 연구대상자의 비밀보장을 침해하지 않고 관련 규정이 정하는 범위 안에서 본 연구의 실시 절차와 자료의 신뢰성을 검증하기 위해 연구결과를 직접 열람할 수 있습니다.

귀하가 본 동의서에 서명하는 것은 이러한 사항에 대하여 사전에 알고 있었으며 이를 허용한다는 동의로 간주될 것입니다.

연구 종료 후 연구관련 자료(참여 중지 및 철회 자료 포함)는 이후 3년간 보관되며 이후 폐기될 것입니다.

11. 연구 문의

본 연구에 대해 질문이 있거나 연구 중간에 문제가 생길 시 다음 연구 담당자에게 언제든지 연락하십시오.

연구담당자 성명: 노지영 전화번호: 02-2123-7536

연구참여자로서 귀하의 권리에 대하여 문제가 발생된 경우에는 연구자에게 말씀하시거나 다음의 번호로 문의하실 수 있습니다. 본 연구는 연세대학교 생명윤리위원회에서 윤리적, 과학적으로 승인된 연구입니다.

연세대학교 생명윤리위원회

☎ 02-2123-5143

연 구 참 여 자 동 의 서

연구제목 : MATSON의 아동 사회기술 평가(MESSY) 한국판 표준화 연구

아래의 내용을 읽으시고 내용을 완전히 이해하시면 네모 칸에 표시하여 주십시오.

□ 본인은 이 설명문을 읽었고, 내용을 충분히 이해합니다.

□ 본인은 자세하게 설명을 듣고 궁금한 사항에 대해 질문을 하였고 적절한 답변을 들었습니다.

□ 본인은 자발적으로 이 연구에 참여합니다.

□ 본인은 연구기간 중 언제라도 중도에 연구참여를 거부하거나 중단할 수 있습니다. 또 본인은 이 연구참여를 중단하더라도 본인에게 어떠한 불이익도 없다는 것을 알고 있습니다.

□ 본인은 자유로운 의사에 따라 연구참여를 요청하여 설명문 사본 1부를 수령 합니다.

연구참여자의 성명	서명	날짜 (년/월/일)
설명한 연구자의 성명	**서명**	**날짜 (년/월/일)**

APPENDIX C: YONSEI UNIVERSITY IRB APPROVAL

Protocol Review Evaluation

Protocol Title	**The Standardizational Study for the MATSON EVALUATION OF SOCIAL SKILLS WITH YOUNGSTERS (MESSY) in Korean Version**		
Chief Researcher	**Name**	**Organization**	**Position**
	Kyong-mee Chung	**Psychology**	**Professor**

Date of Review	2017. 07. 17	**Approval Number**	7001988-201707-HR-216-02
Target under Review	☐ Research protocol (New) ■ Research Protocol (Complemented/Revision) ☐ Research protocol (Change) ☐ Continuing Review of approved protocol ☐ Completion Report ☐ Misc. :		
Review Result	■ Approval ☐ Approval with modification(s) ☐ Exemption Review with modification(s) ☐ Complementation ☐ Return		
Effective Approval Period	2017. 07. 17. ~ 2018. 07. 17. (12 months)		
Opinion and Comment on Review Result	The purpose of this study is to standardize the Korean version of the MESSY questionnaire. The research questionnaire (15 minutes) will be conducted on the parents of children with or without ASD (N=550) on online or offline. The board has advised the researcher to provide thorough explanation and cautions about the study and acquire voluntary participant consents before proceeding with the study. As the study is scientifically and ethically appropriate, with sufficient understandings of midway withdrawl and prediction bias, the board approves the research with the stated protocol. Any changes in the number of research participants and/or questionnaire items should be submitted for approval. Please submit the research completion report within one month of the completion of the study. The project management will be concluded only after a report of results (submitted paper or results report) is submitted within 18 months after the submission of the research completion report.		

2017. 08. 16 .

Yonsei University Institutional Review Board

APPENDIX D: LOUISIANA UNIVERSITY IRB EXEMPTION

ACTION ON EXEMPTION APPROVAL REQUEST

Institutional Review Board
Dr. Dennis Landin, Chair
130 David Boyd Hall
Baton Rouge, LA 70803
P: 225.578.8692
F: 225.578.5983
irb@lsu.edu | lsu.edu/irb

TO: Jina Jang
Psychology

FROM: Dennis Landin
Chair, Institutional Review Board

DATE: July 27, 2016

RE: **IRB#** E9991

TITLE: The Korean version of the Matson Evaluation of Social Skills for Youngsters-II (MESSY-11)

New Protocol/Modification/Continuation: New Protocol

Review Date: 7/26/2016

Approved X **Disapproved**_____

Approval Date: 7/26/2016 **Approval Expiration Date:** 7/25/2019

Exemption Category/Paragraph: 4a

Signed Consent Waived?: N/A

Re-review frequency: (three years unless otherwise stated)

LSU Proposal Number (if applicable):

Protocol Matches Scope of Work in Grant proposal: (if applicable)

By: Dennis Landin, Chairman _____

PRINCIPAL INVESTIGATOR: PLEASE READ THE FOLLOWING –
Continuing approval is CONDITIONAL on:

1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU's Assurance of Compliance with DHHS regulations for the protection of human subjects*
2. Prior approval of a change in protocol, including revision of the consent documents or an increase in the number of subjects over that approved.
3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination.
4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.
5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants, including notification of new information that might affect consent.
6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.
7. Notification of the IRB of a serious compliance failure.
8. **SPECIAL NOTE: When emailing more than one recipient, make sure you use bcc. Approvals will automatically be closed by the IRB on the expiration date unless the PI requests a continuation.**

**All investigators and support staff have access to copies of the Belmont Report, LSU's Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at http://www.lsu.edu/irb*

APPENDIX E: K-MESSY-II CULTURAL RELEVANCY SURVEY

K-Messy-II (Cultural Relevancy Survey)

이 설문지는 아동과 청소년의 (2-18살) 사회적 행동을 측정하는 것입니다. 각 문항이 설명하는 한국 아동/청소년의 사회적 행동이 한국 문화와 얼마나 관련이 있는지 평가해 주세요. This survey measures social skills in children and adolescents (2-18 years). Rate how culturally relevant each item is for Korean children/adolescents to Korean culture.
설문자 나이 (Age): 날짜 (Date): 설문자 성별 (Gender): 남 여 사는 지역 (Place of residence):

문 항	전혀 관련 있지 않다	조금 관련있다	보통 관련 있다	대체로 관련있다	아주 관련 있다
1. 다른 사람들을 웃긴다. (농담이나 웃기는 이야기를 한다).	1	2	3	4	5
2. 사람들을 위협하고 약한 사람을 못살게 군다.	1	2	3	4	5
3. 쉽게 화를 낸다.	1	2	3	4	5
4. 우두머리 행세를 한다. (부탁하지 않고 명령조로 이야기한다)	1	2	3	4	5
5. 자주 투덜거리거나 불평한다.	1	2	3	4	5
6. 다른 사람이 말하고 있을 때 끼어 든다.	1	2	3	4	5
7. 허락 없이 다른 사람의 물건을 가져오거나 사용한다.	1	2	3	4	5
8. 자신에 대해 지나치게 자랑한다.	1	2	3	4	5
9. 화가 났을 때 손으로 때리거나 주먹으로 친다.	1	2	3	4	5

10. 다친 친구를 돕는다.	1	2	3	4	5
11. 다른 아이들을 경멸하는 듯한 표정을 보인다.	1	2	3	4	5
12. 다른 사람이 잘 할 때 화내거나 질투한다.	1	2	3	4	5
13. 다른 아이들의 잘못/실수를 짚어낸다.	1	2	3	4	5
14. 항상 첫째가 되고 싶어한다.	1	2	3	4	5
15. 약속을 지키지 않는다.	1	2	3	4	5
16. 원하는 것을 얻기 위해 거짓말 한다.	1	2	3	4	5
17. 다른 사람을 놀려서 화나게 한다.	1	2	3	4	5
18. 사람들에게 다가가 대화를 시작한다.	1	2	3	4	5
19. 다른 사람이 자기를 위해 무언가를 해주면 “감사합니다” 라고 말하며 기뻐한다.	1	2	3	4	5
20. 사람들에게 말하기를 두려워 한다.	1	2	3	4	5
21. 고의로 다른 사람들의 감정을 상하게 한다.	1	2	3	4	5
22. 희망없는 패배자이다.	1	2	3	4	5
23. 남들을 놀린다.	1	2	3	4	5
24. 나의 문제를 남 탓으로 돌린다.	1	2	3	4	5
25. 친구 편에 선다.	1	2	3	4	5
26. 사람들이 말할 때 쳐다본다.	1	2	3	4	5
27. 자신이 모두 다 안다고 생각한다.	1	2	3	4	5
28. 아는 사람들에게 미소 짓는다.	1	2	3	4	5
29. 고집이 세다.	1	2	3	4	5
30. 다른 사람보다 우월한 것처럼 행동한다.	1	2	3	4	5
31. 감정을 표현한다.	1	2	3	4	5
32. 실제로는 아닌데 다른 사람들이 자기를 놀린다고 생각한다.	1	2	3	4	5
33. 좋은 일들이 일어날 거라고 생각한다.	1	2	3	4	5
34. 팀원으로써 협동한다.	1	2	3	4	5

35. 남들을 방해하는 소리를 낸다. (트림, 코 훌쩍이기 등)	1	2	3	4	5
36. 이기면 지나치게 자랑한다.	1	2	3	4	5
37. 남의 물건을 자기 것처럼 신경 써 다룬다.	1	2	3	4	5
38. 너무 크게 이야기한다.	1	2	3	4	5
39. 다른 사람들을 부를 때 호칭이나 이름을 사용한다.	1	2	3	4	5
40. 자신이 도움이 될 수 있는지 물어본다.	1	2	3	4	5
41. 남을 도와줄 때 기분 좋아한다.	1	2	3	4	5
42. 자신을 방어한다.	1	2	3	4	5
43. 항상 안좋은 일이 생길 것이라 생각한다	1	2	3	4	5
44. 남들보다 뛰어나려고 노력한다.	1	2	3	4	5
45. 다른 사람과 이야기할 때 질문을 한다.	1	2	3	4	5
46. 외로워 한다.	1	2	3	4	5
47. 다른 사람들을 다치게 하면 미안해 한다.	1	2	3	4	5
48. 기다려야 할 때 짜증을 낸다.	1	2	3	4	5
49. 리더가 되기를 좋아한다.	1	2	3	4	5
50. 다른 아이들과 게임에 함께 참여한다.	1	2	3	4	5
51. 게임의 규칙을 잘 지키며 논다.	1	2	3	4	5
52. 많이 싸운다.	1	2	3	4	5
53. 다른 사람들을 질투한다.	1	2	3	4	5
54. 자신에게 잘해주는 사람에게 잘 해준다.	1	2	3	4	5
55. 자신이 원하는 것을 남들이 하도록 만든다.	1	2	3	4	5
56. 다른 사람에게 어떻게 지냈는지 안부를 묻는다.	1	2	3	4	5
57. 사람들이 같이 너무 오래 있는다. (너무 오래 있어서 싫어할 정도로)	1	2	3	4	5
58. 필요 이상으로 설명한다.	1	2	3	4	5
59. 새롭게 만나는 사람들에게 친절하다.	1	2	3	4	5
60. 자신이 원하는 것을 얻기 위해 남에게 해를 입힌다	1	2	3	4	5

61. 문제나 걱정에 대한 이야기를 많이한다.	1	2	3	4	5
62. 이기는 것이 전부라고 생각한다.	1	2	3	4	5
63. 다른 사람을 놀릴 때 감정을 상하게 만든다.	1	2	3	4	5
64. 자신에게 해를 가하면 갚고자 한다	1	2	3	4	5

이 설문에는 포함되지는 않았지만 한국문화에 관련된 사회적 행동이 있습니까? 있다면 아래 공간에 써주세요. (Are there any other social skills that are relevant to Korean culture that were not included in this survey? If so, please write them in the space below.)

_____

APPENDIX F: THE CONSENT FORM FOR STUDY 4

K-MESSY-II Survey Consent Form

1. Study Title: The Korean Version of the Matson Evaluation of Social Skills for Youngsters-II (MESSY-II)
2. Performance Sites: Churches, organizations, and internet websites.
3. Contact: Jina Jang, M.A., 909-815-0565; Johnny Matson, PhD., 225-578-8745
4. Purpose of Study: The aim of the current study is to develop and evaluate the psychometric properties of the Korean version of the Matson Evaluation of Social Skills for Youngsters-II (MESSY-II). As part of the current study, a brief survey will be completed. The survey asks the raters to rate each item on its cultural relevancy/importance.
5. Participant Inclusion Criteria: Adults (older than 18) who can read Korean and understand Korean culture who reside either in South Korea or in the United States; participants recruited via websites or organizations; **Exclusion Criteria:** Participants who cannot read Korean; participants who are not familiar with Korean culture; participants unable or unwilling to provide informed; **Maximum number of subjects:** 50
6. Study Procedures: The survey evaluating the cultural relevancy of the K-MESSY-II items will be completed by the sample of 50 adult participants. Participants will receive information about the study and given an opportunity to volunteer through informational mail-outs via at church, clinic, organization, etc or online recruitment advertisement via websites. Participants will receive consent forms, which indicate that consent is given by continuing the survey. Participants will be given the survey via mail-outs or online. All participants who receive the survey via mail/online will receive a follow-up phone call/email to ensure that they have received the survey and have the opportunity to ask questions. This survey will take approximately 10 minutes for each participant.
7. Benefits: If proven to be a psychometrically sound instrument, the Korean version of the MESSY-II may be used to enhance evaluation and treatment of social skills with children with developmental disabilities in South Korea.
8. Risks/Discomforts: There is a small possibility of disclosure of personal information associated with this study. There are no other known risks resulting from participating in this study.
9. Measures taken to reduce risk: All participants will be given participant numbers. All data collected will be stored in reference to this number only. There will be one (1) master list which will list patient number by participant number to provide a means by which participants can choose to remove their data from the data set after participation. No personally identifiable information will be asked.
10. Right to refuse: Participation is voluntary. Participants may change their mind and withdraw from the study at any time before the conclusion of the study without penalty or loss of any benefit to which they may otherwise be entitled.
11. Privacy: This study is confidential. Data will be kept confidential unless release is legally compelled.
12. Financial information: There is no cost to the participant and no payment will be provided for participation.

13. Withdrawal: There are no consequences for terminating participation in this study, which will last approximately 10 minutes in duration for each participant. To withdraw from the study, participants must inform the principle investigator of their desire to do so before the end of the study.
14. Removal: A participant's data may be removed from the study if it is discovered that there were errors in administration of any measure for that particular participant.

K-MESSY-II Survey Consent Form – Detach this page, complete, and return

The study has been described to me and all my questions have been answered. I may direct additional questions regarding study specifics to the investigators by contacting Jina Jang at 909-815-0565 or jinajang87@gmail.com.

If I have questions about subject's rights or other concerns, I can contact Dr. Dennis Landin, Chairman, LSU Institutional Review Board, (225) 578-8692. I agree to participate in the study described above and give consent by continuing the survey.

Please fill out the following contact information

A research assistant will contact you to obtain additional information and answer any questions you may have before mailing the survey or sending email link to survey.

Telephone number(s) where informant can be reached:

_____

Best time of day to be contacted:

_____

Mailing Address:

_____

Email Address:

_____

Circle to indicate your preference for the question below:

Internet **Mail** Would you prefer to be mailed the survey in paper with a prepaid envelope included OR receive an Internet link via email to the survey to complete the survey electronically on the internet?

APPENDIX G: THE IRB MODIFICATION FOR ADMINISTRATION

ACTION ON EXEMPTION APPROVAL REQUEST

Institutional Review Board
Dr. Dennis Landin, Chair
130 David Boyd Hall
Baton Rouge, LA 70803
P: 225.578.8692
F: 225.578.5983
irb@lsu.edu
lsu.edu/research

TO: Jina Jang
Psychology

FROM: Dennis Landin
Chair, Institutional Review Board

DATE: April 28, 2017

RE: **IRB#** E9991

TITLE: The Korean version of the Matson Evaluation of Social Skills for Youngsters-II (MESSY-11)

New Protocol/Modification/Continuation: Modification

Brief Modification Description: Administer survey

Review date: 4/28/2017

Approved X **Disapproved** _____

Approval Date: 4/28/2017 **Approval Expiration Date:** 7/15/2019

Re-review frequency: (three years unless otherwise stated)

LSU Proposal Number (if applicable):

Protocol Matches Scope of Work in Grant proposal: (if applicable)

By: Dennis Landin, Chairman _____

PRINCIPAL INVESTIGATOR: PLEASE READ THE FOLLOWING –
Continuing approval is CONDITIONAL on:

1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU's Assurance of Compliance with DHHS regulations for the protection of human subjects*
2. Prior approval of a change in protocol, including revision of the consent documents or an increase in the number of subjects over that approved.
3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination.
4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.
5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants including notification of new information that might affect consent.
6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.
7. Notification of the IRB of a serious compliance failure.
8. **SPECIAL NOTE: Make sure you use bcc when emailing more than one recipient. Approvals will automatically be closed by the IRB on the expiration date unless the PI requests a continuation.**

**All investigators and support staff have access to copies of the Belmont Report, LSU's Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at http://www.lsu.edu/irb*

APPENDIX H: THE IRB MODIFICATION TO WAIVE CONSENT

ACTION ON EXEMPTION APPROVAL REQUEST

Institutional Review Board
Dr. Dennis Landin, Chair
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TO: Jina Jang
Psychology

FROM: Dennis Landin
Chair, Institutional Review Board

DATE: May 11, 2017

RE: **IRB#** E9991

TITLE: The Korean version of the Matson Evaluation of Social Skills for Youngsters-II (MESSY-11)

New Protocol/Modification/Continuation: Modification

Brief Modification Description: Waive consent for online survey.

Review date: 5/11/2017

Approved X **Disapproved** _____

Approval Date: 5/11/2017 **Approval Expiration Date:** 7/25/2019

Re-review frequency: (three years unless otherwise stated)

LSU Proposal Number (if applicable):

Protocol Matches Scope of Work in Grant proposal: (if applicable)

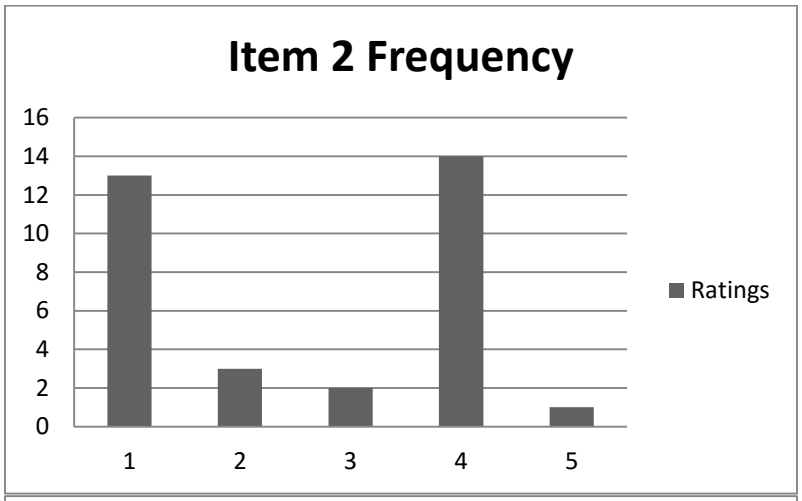
By: Dennis Landin, Chairman _____

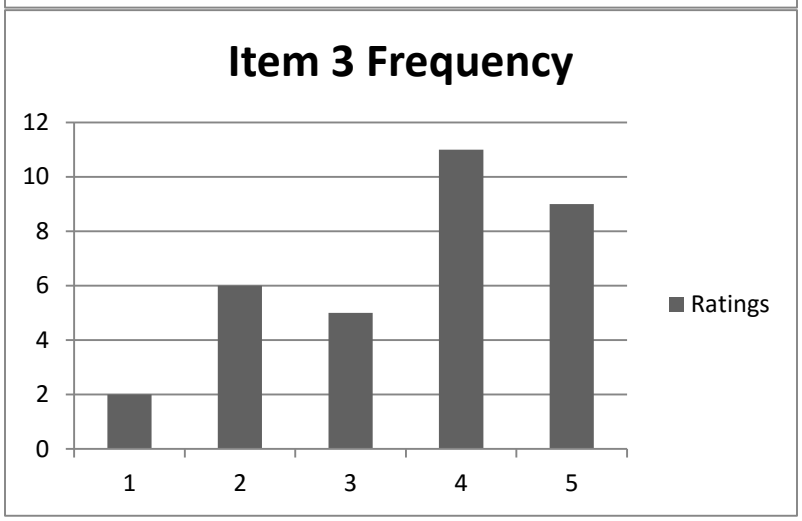
PRINCIPAL INVESTIGATOR: PLEASE READ THE FOLLOWING –
Continuing approval is CONDITIONAL on:

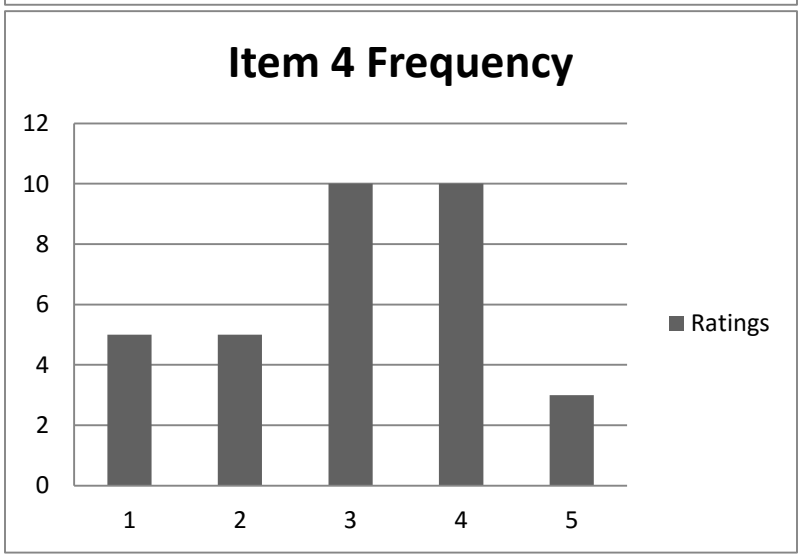
1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU's Assurance of Compliance with DHHS regulations for the protection of human subjects*
2. Prior approval of a change in protocol, including revision of the consent documents or an increase in the number of subjects over that approved.
3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination.
4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.
5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants including notification of new information that might affect consent.
6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.
7. Notification of the IRB of a serious compliance failure.
8. **SPECIAL NOTE: Make sure you use bcc when emailing more than one recipient. Approvals will automatically be closed by the IRB on the expiration date unless the PI requests a continuation.**

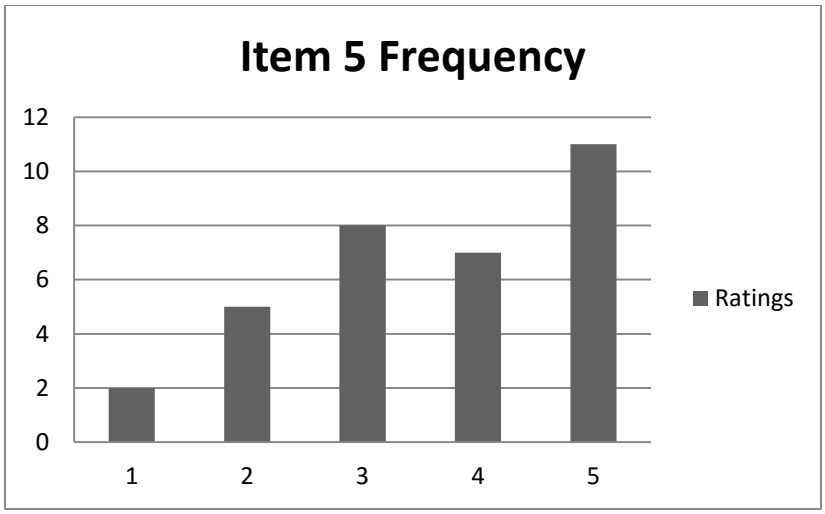
**All investigators and support staff have access to copies of the Belmont Report, LSU's Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at http://www.lsu.edu/irb*

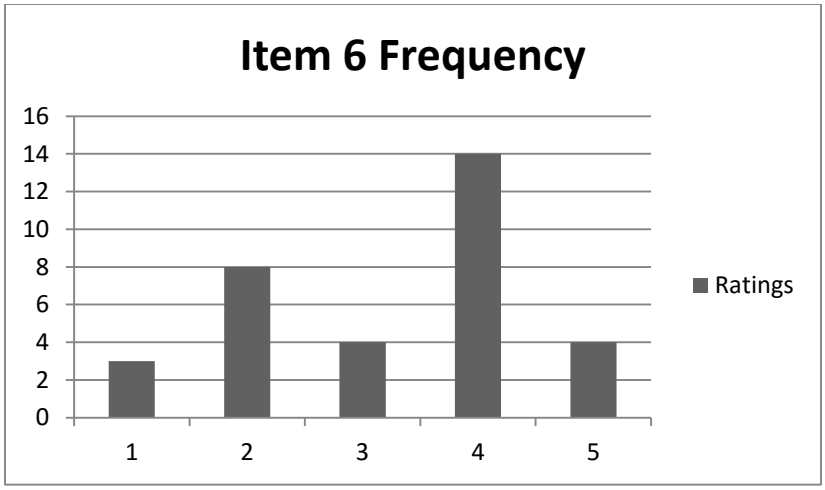
APPENDIX I: RESPONSE DISTRIBUTION OF THE K-MESSY-II SURVEY ITEMS

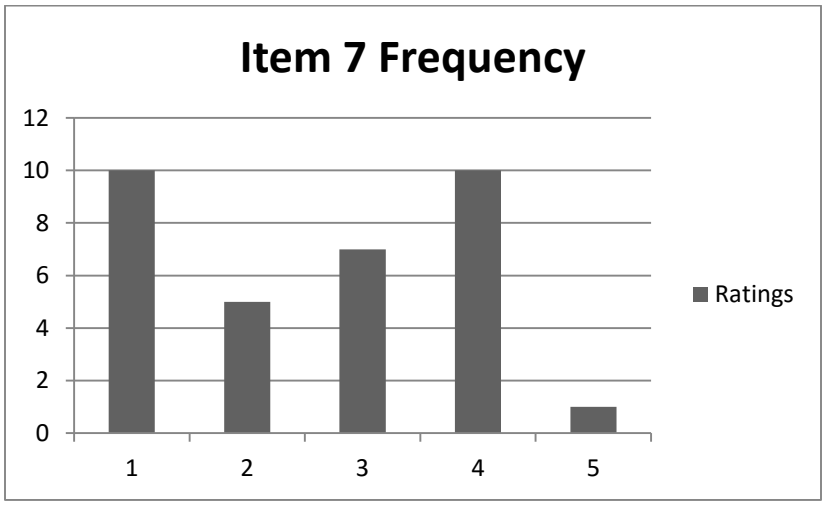


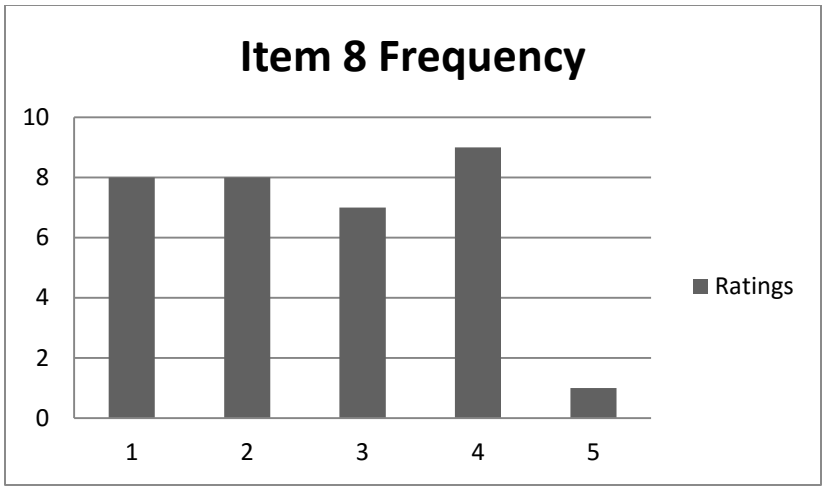


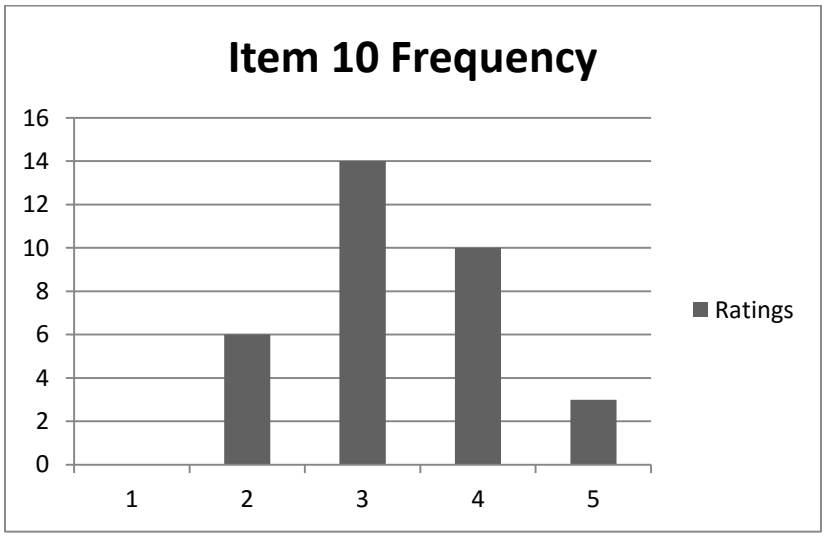


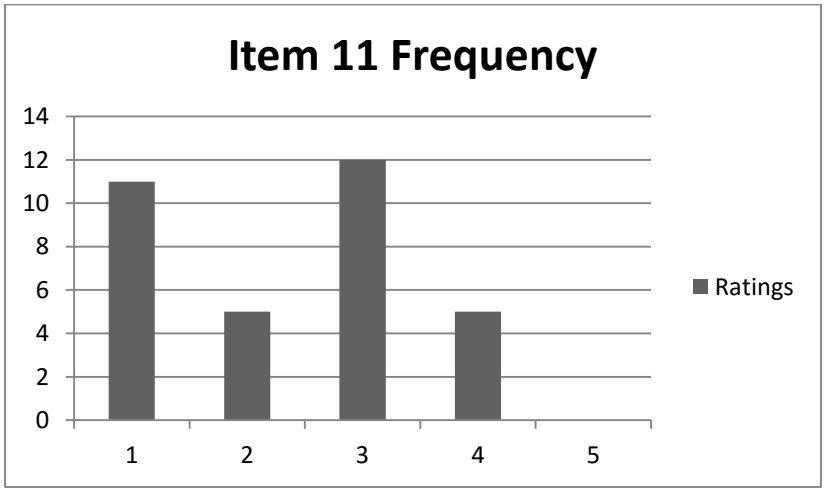


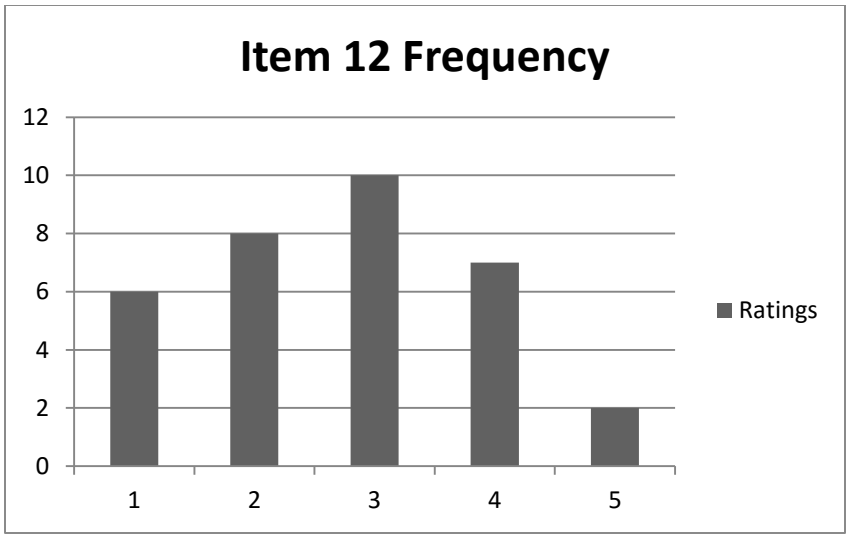


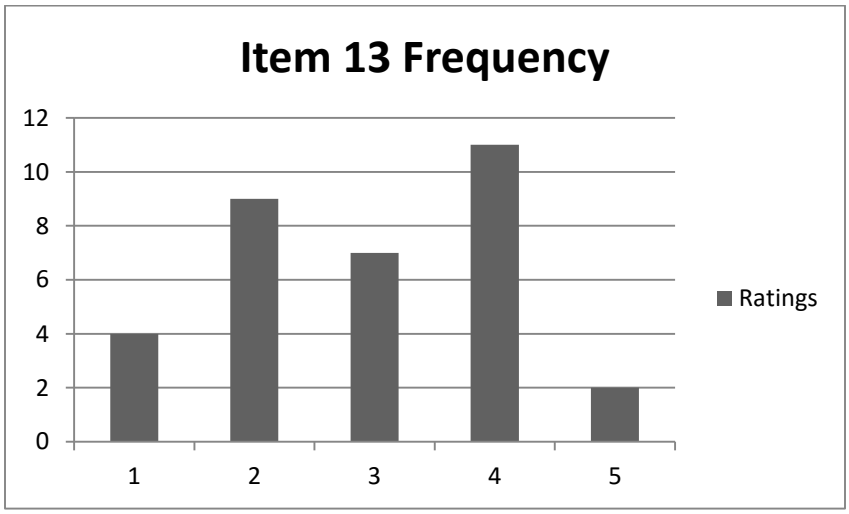


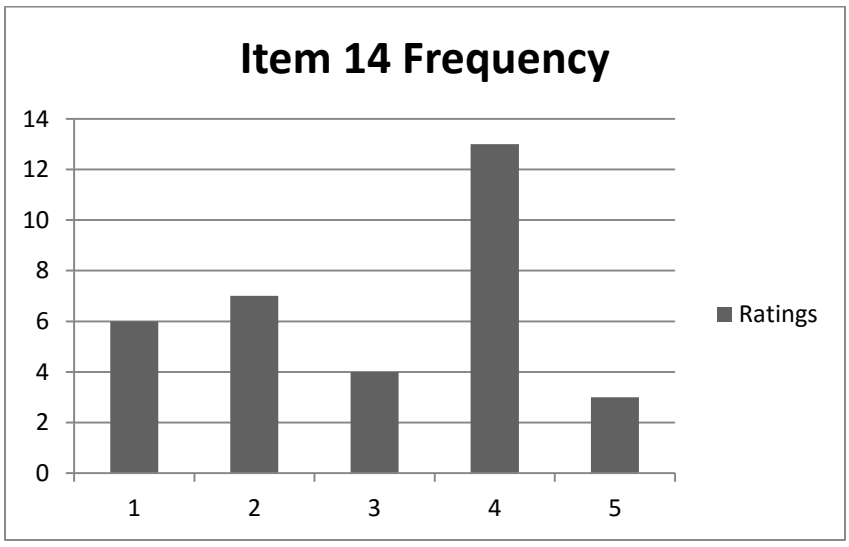


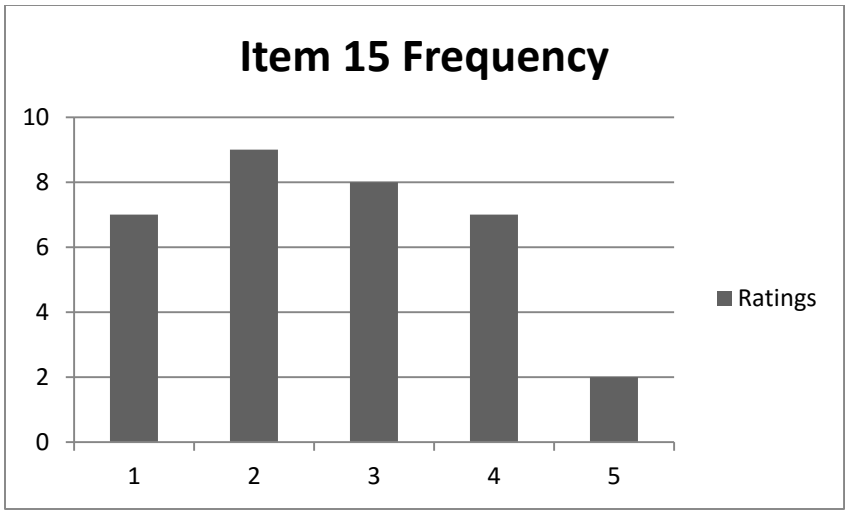


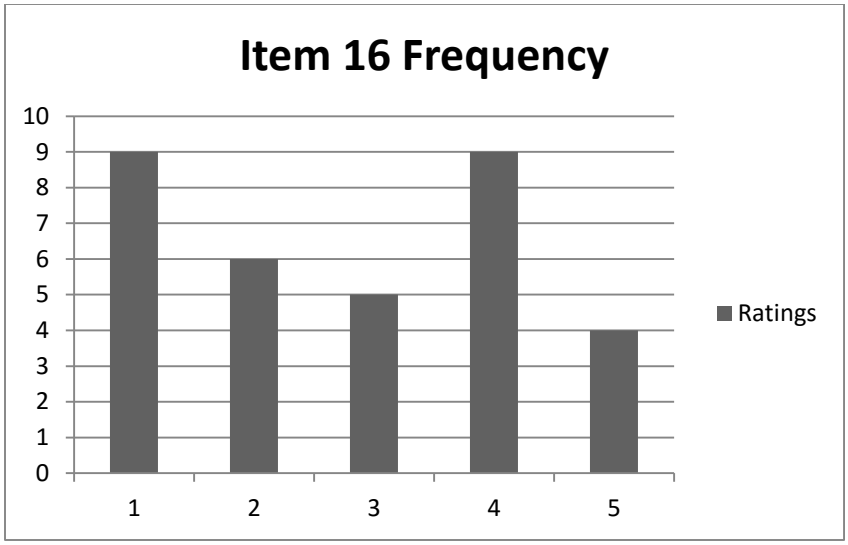


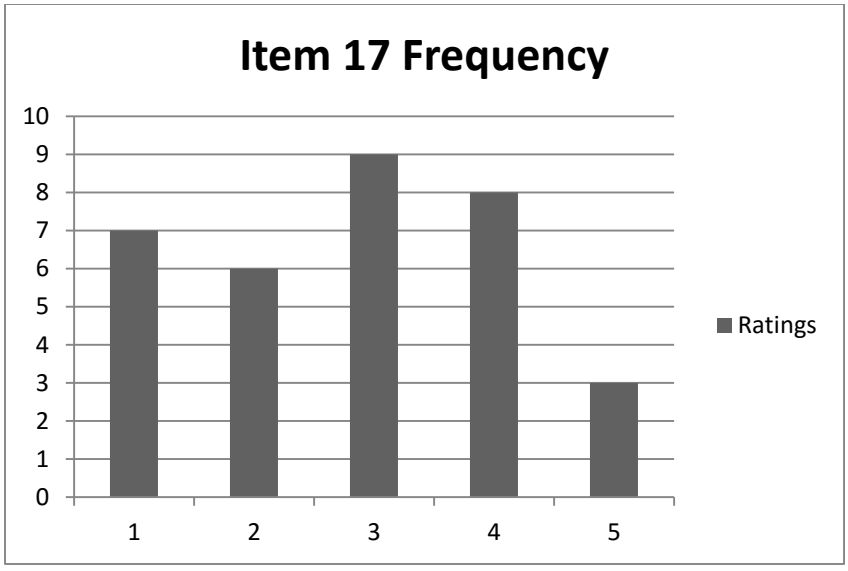


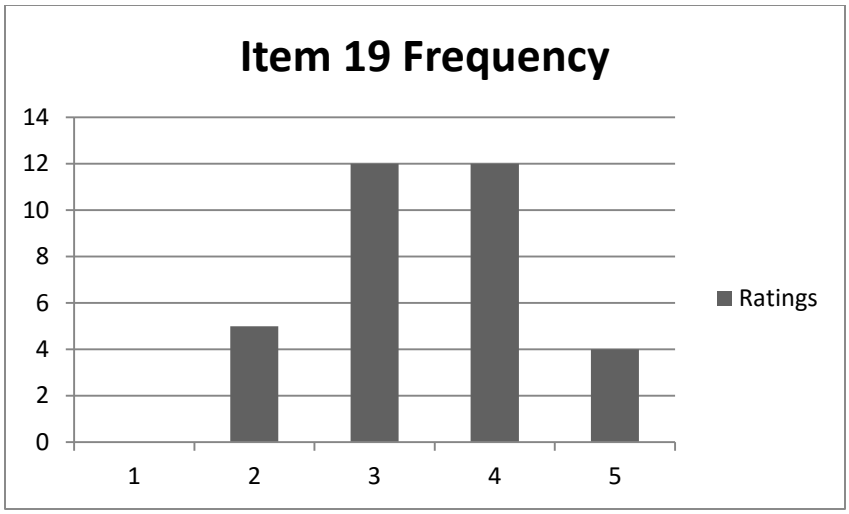


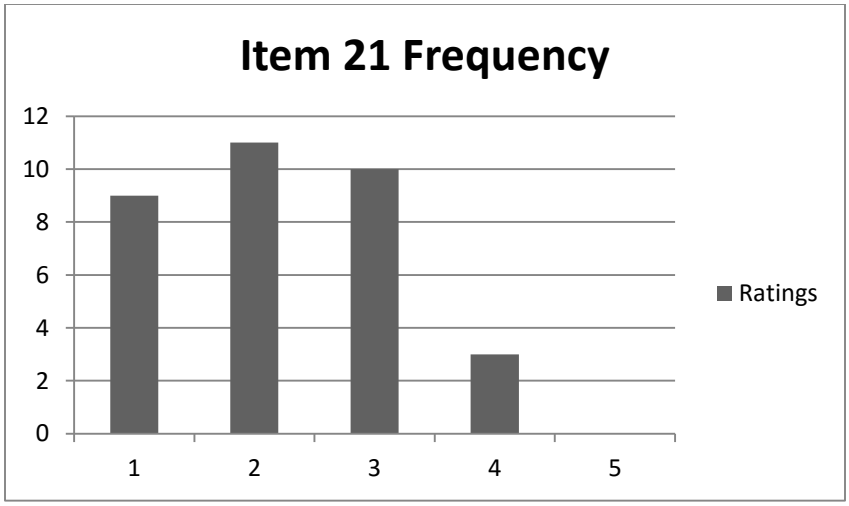


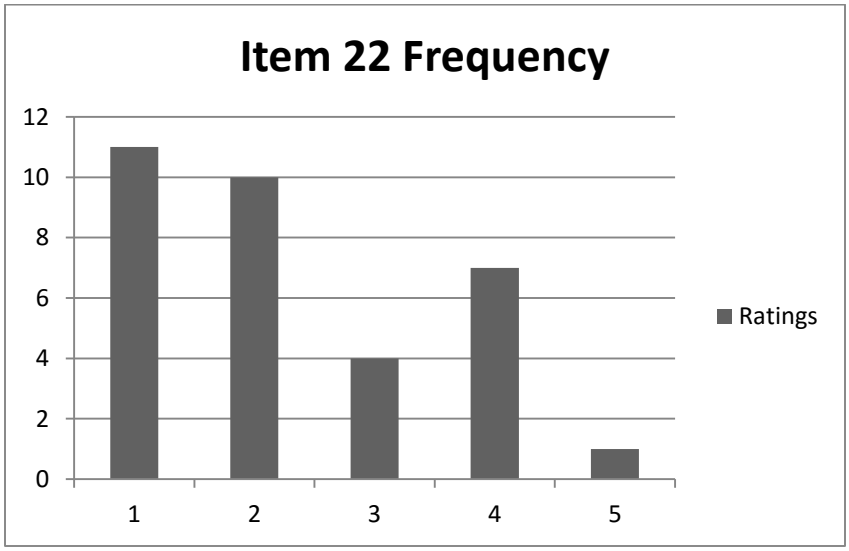


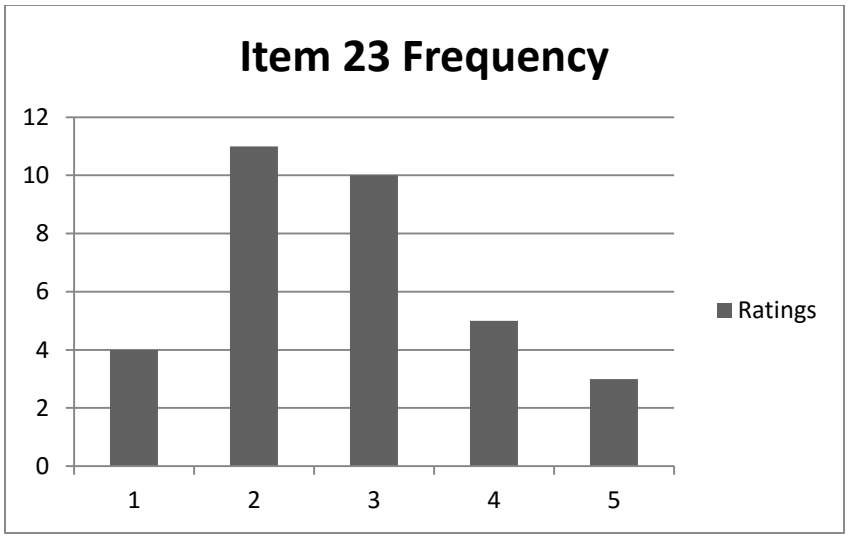


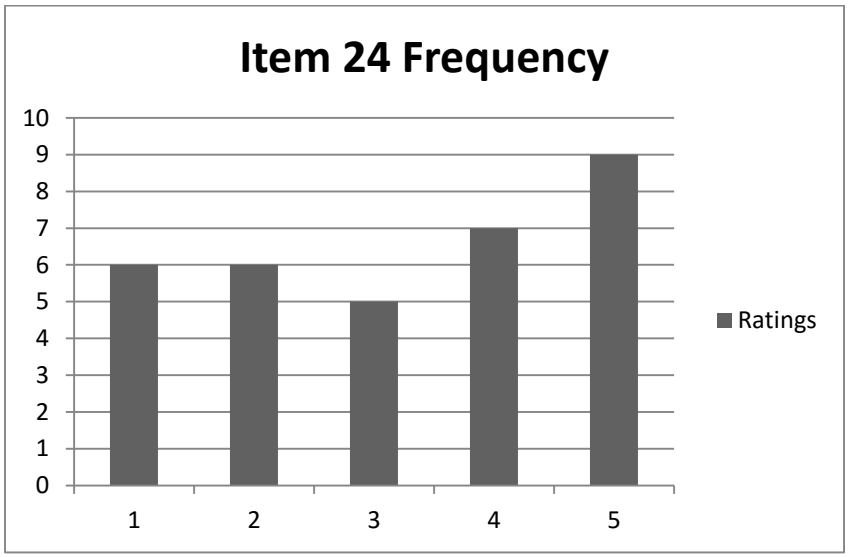


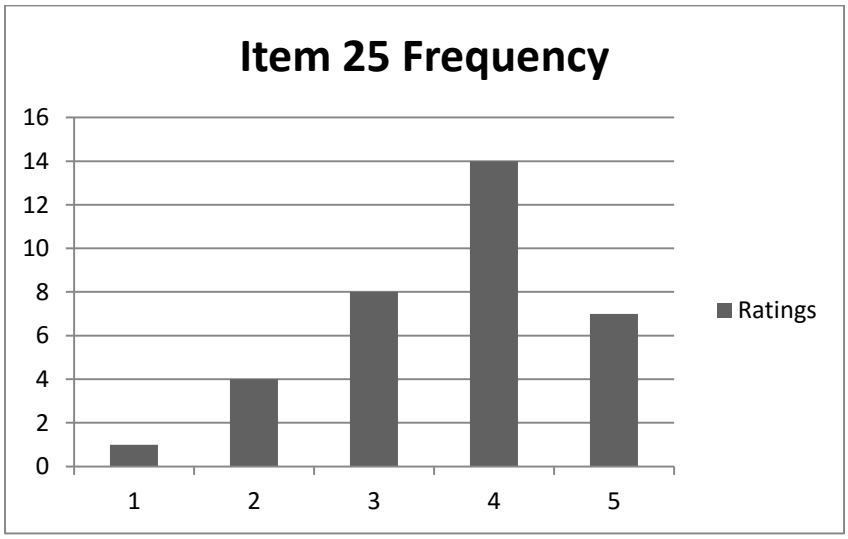


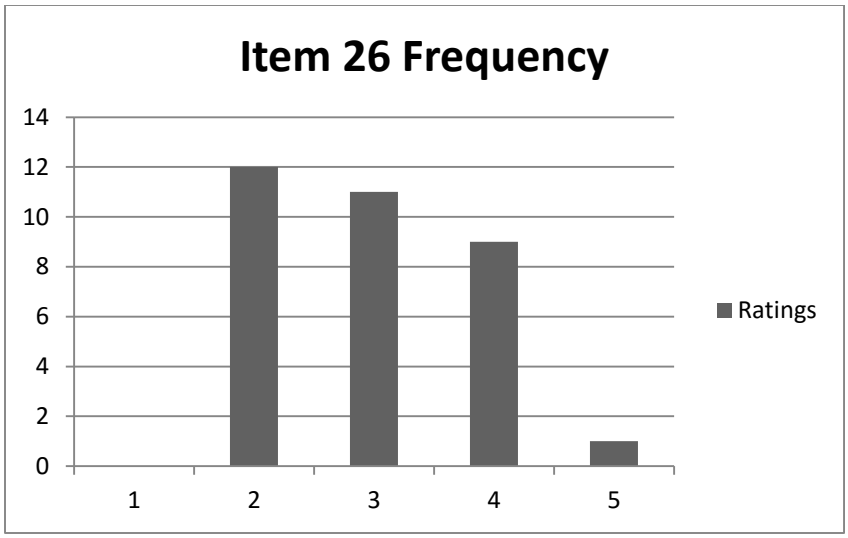


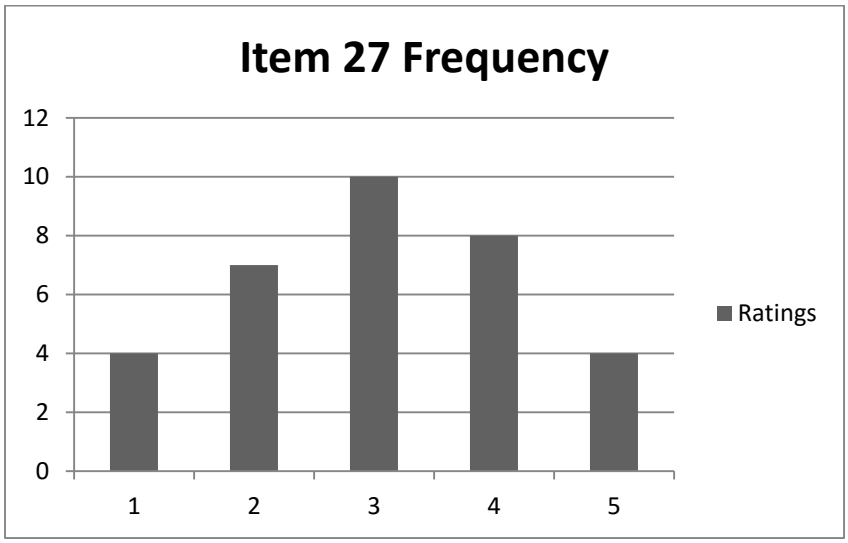


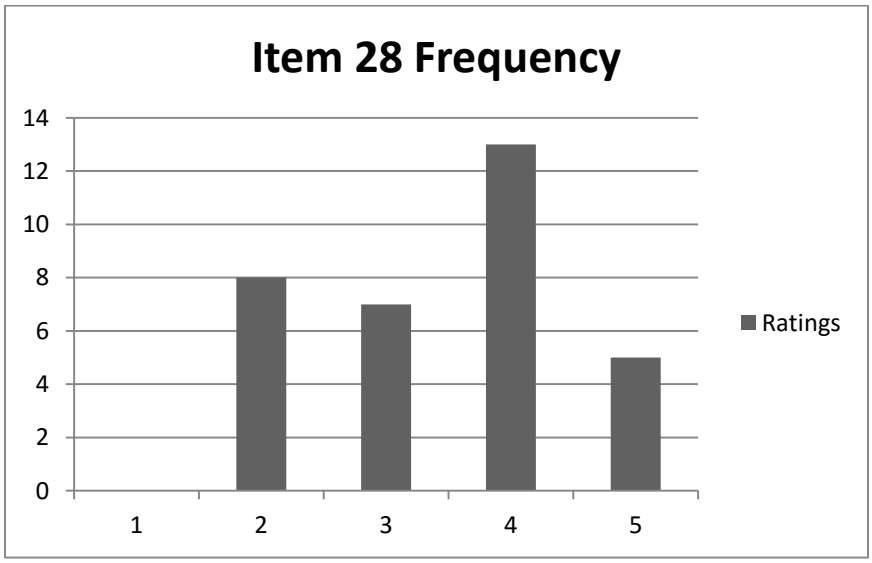


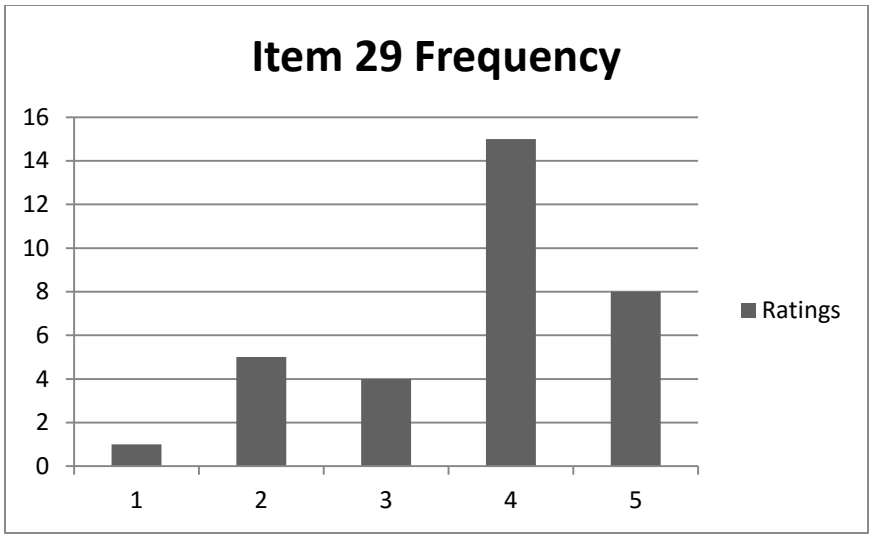


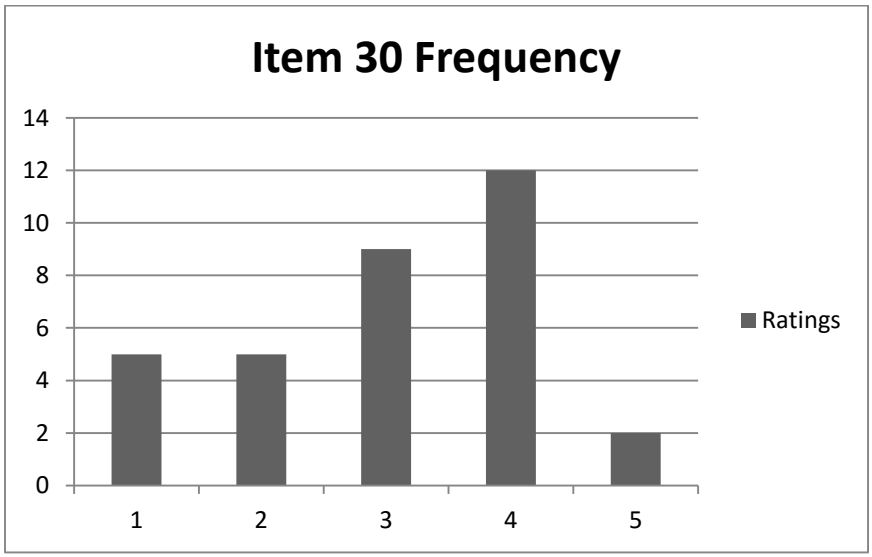


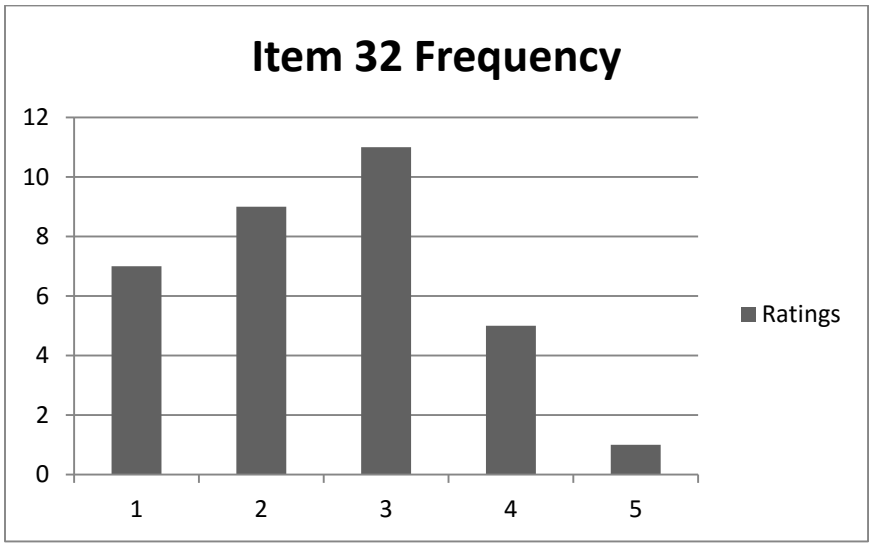


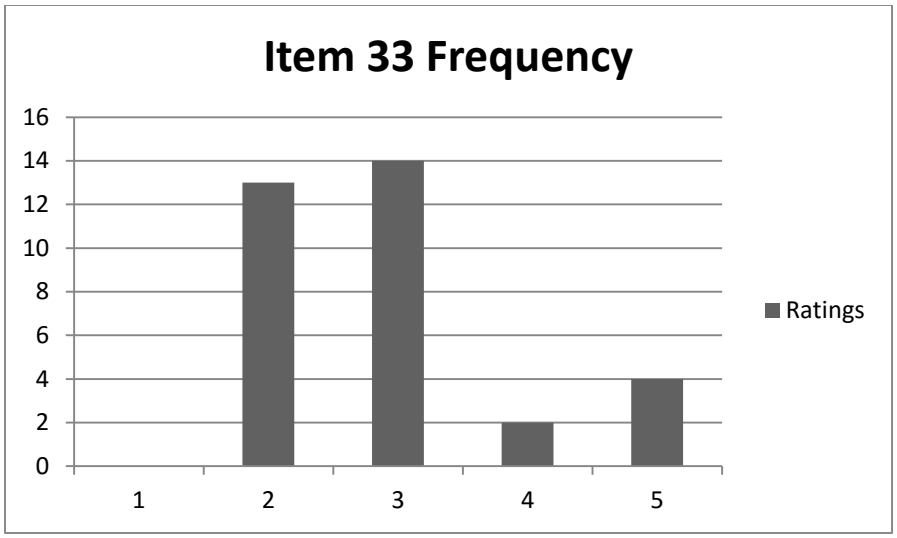


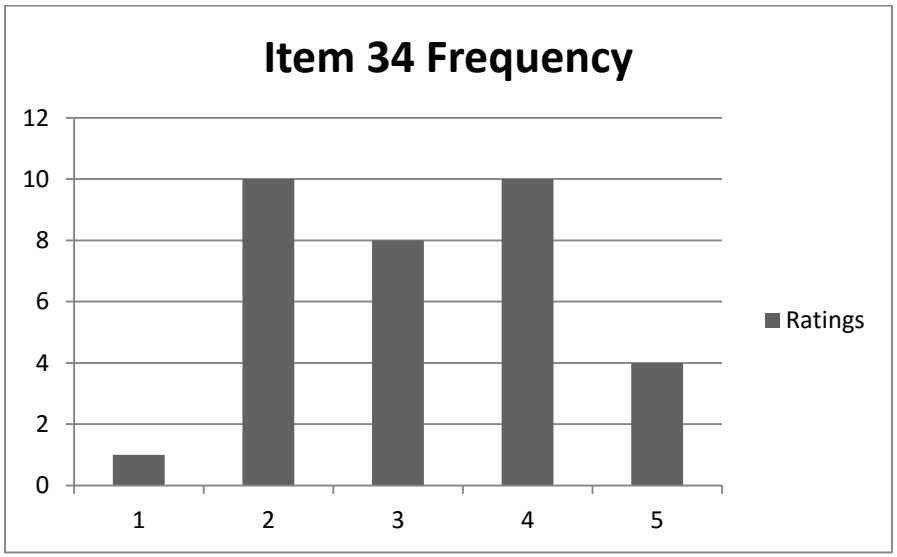


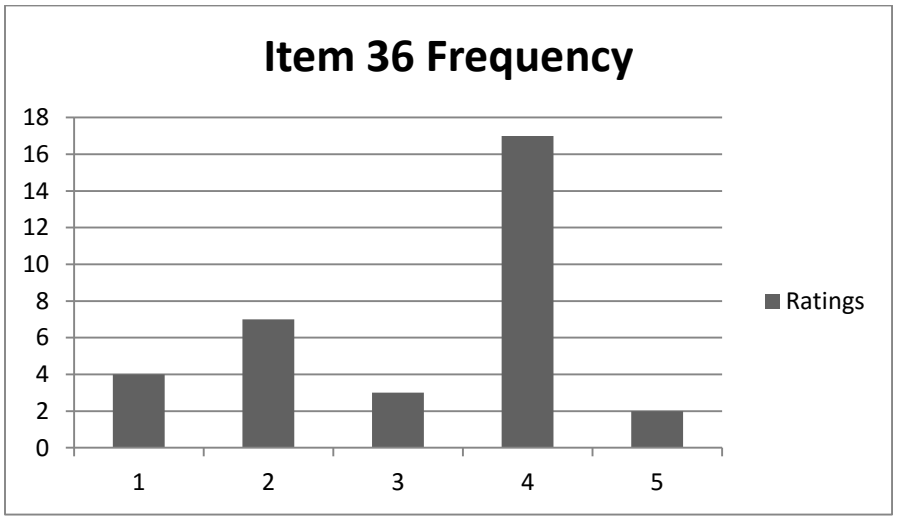


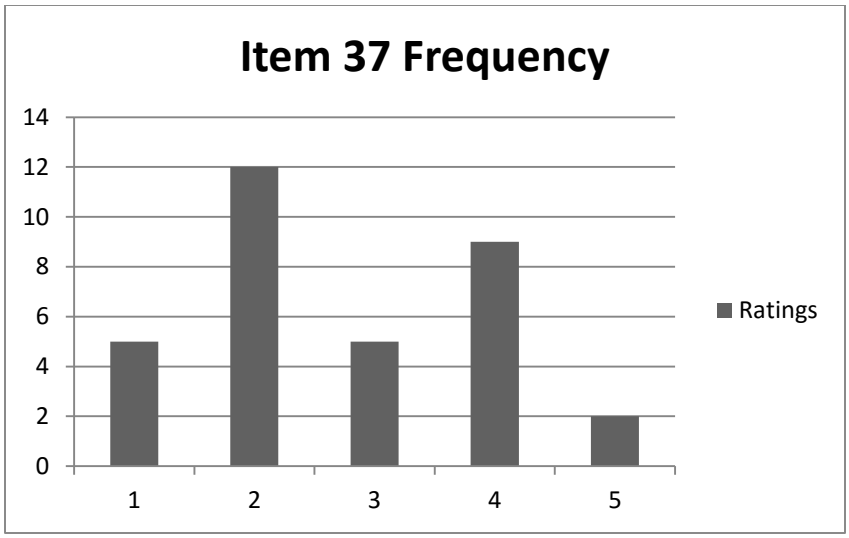


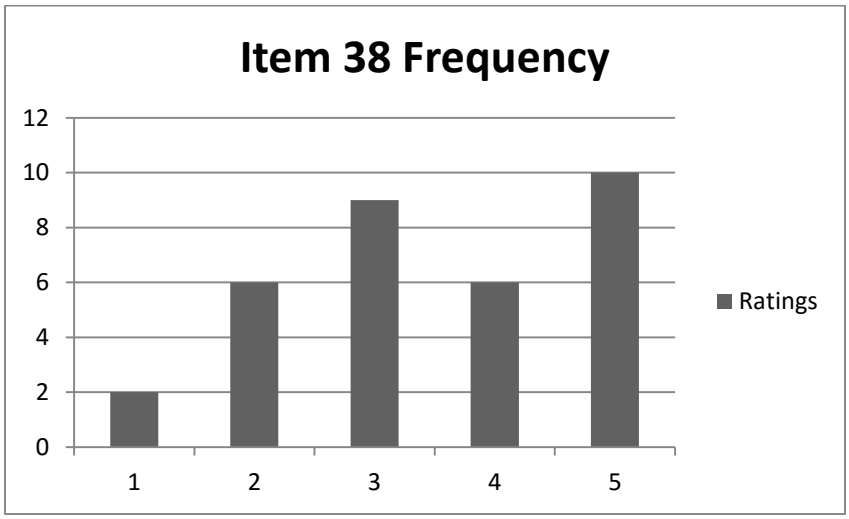


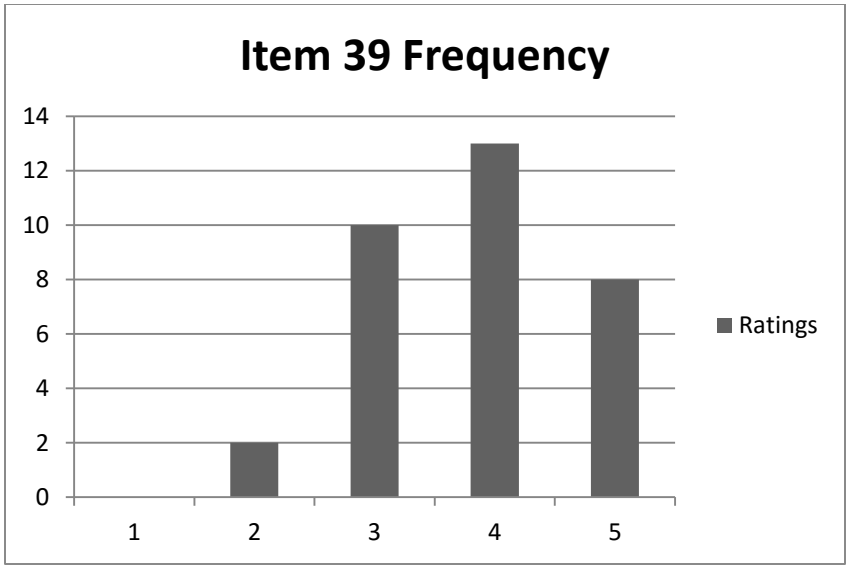


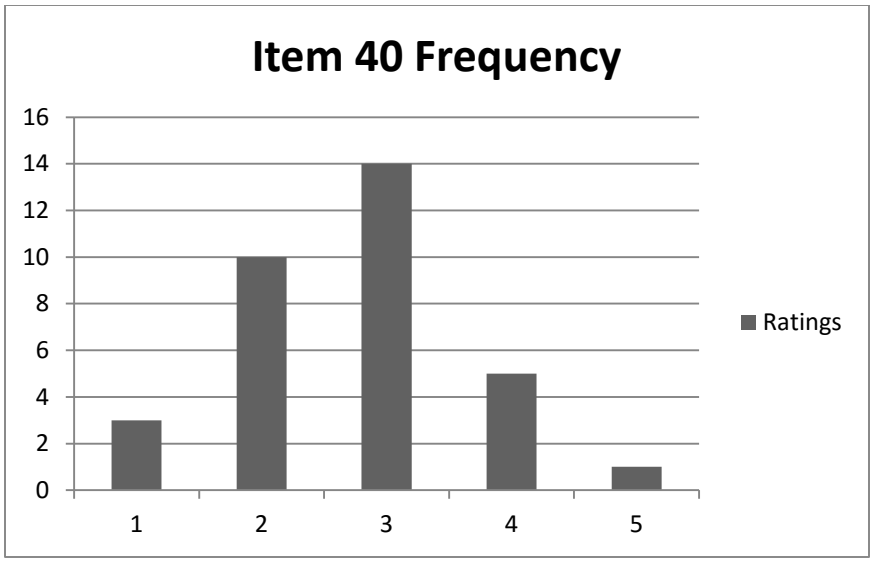


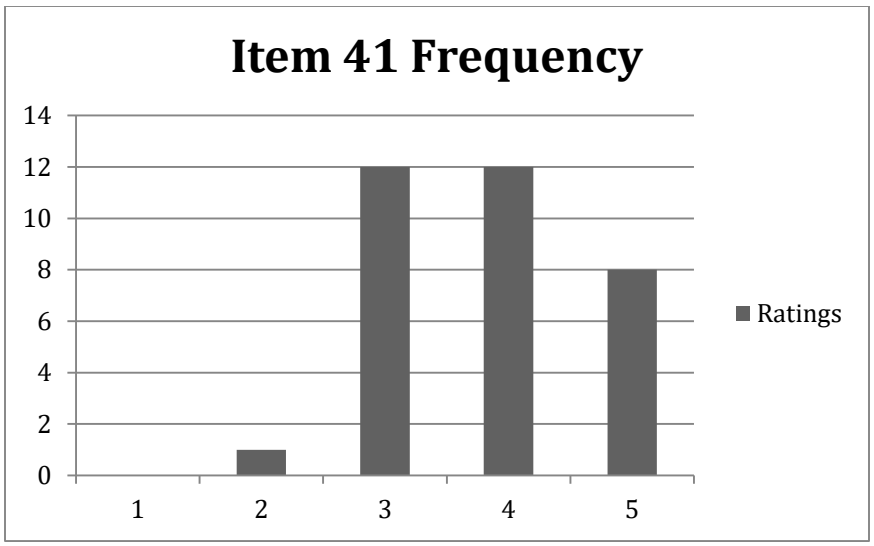


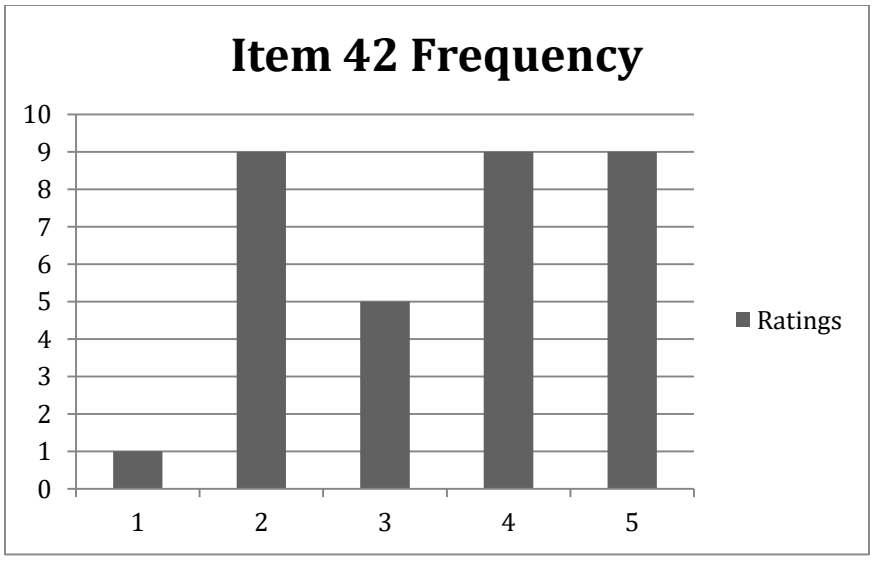


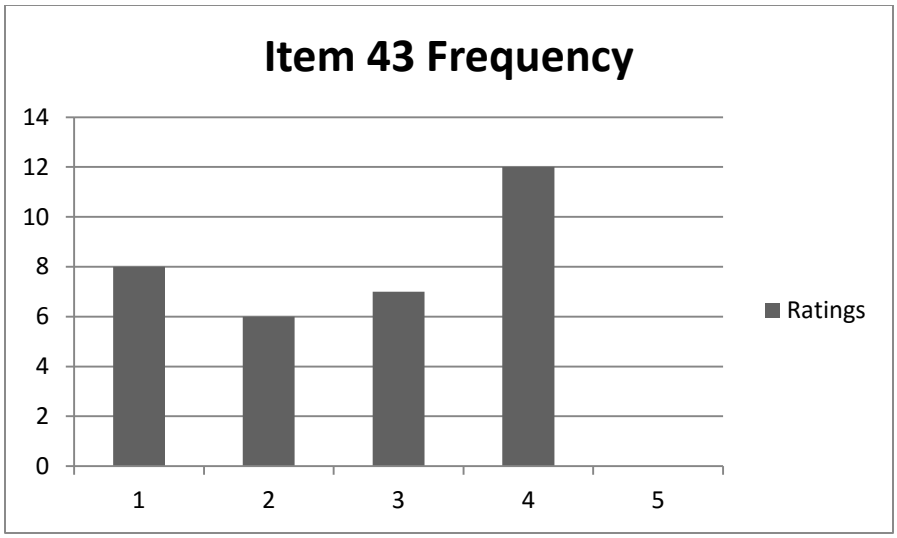


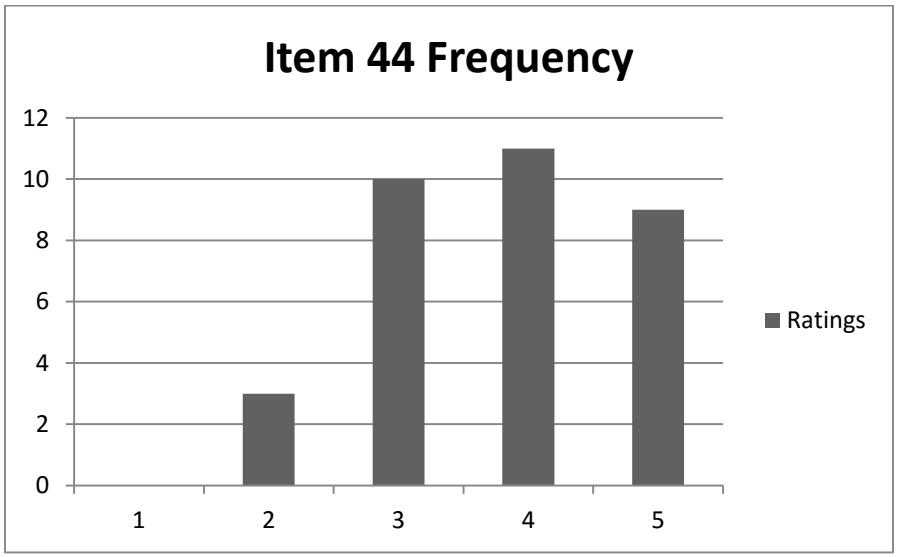


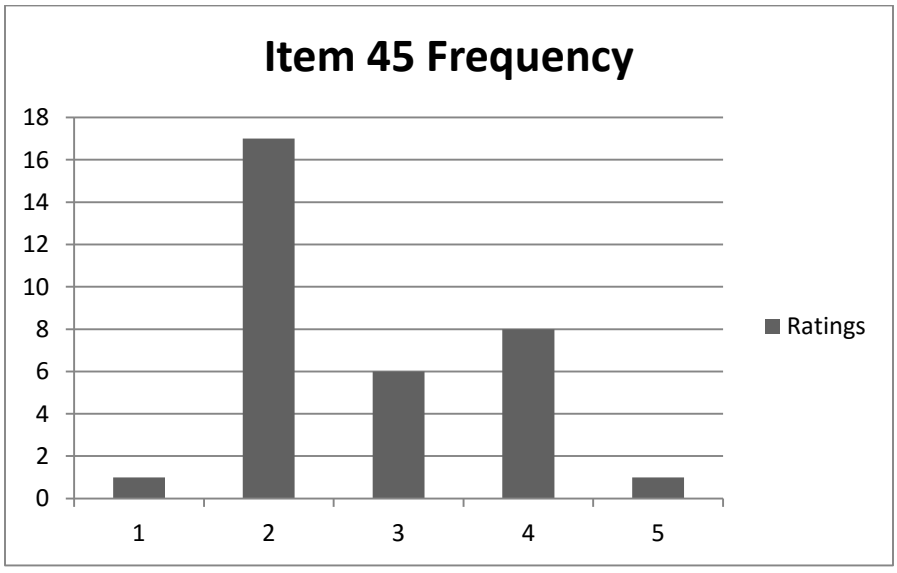


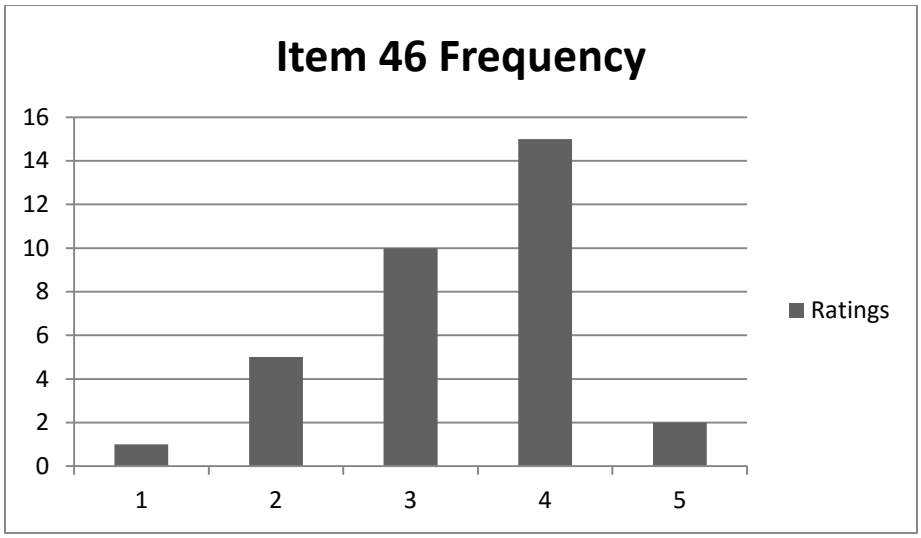


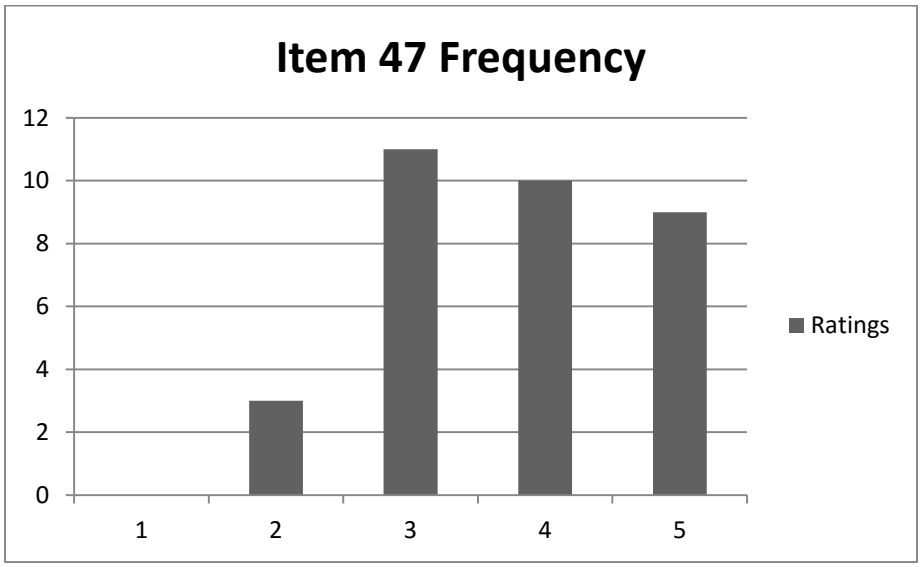


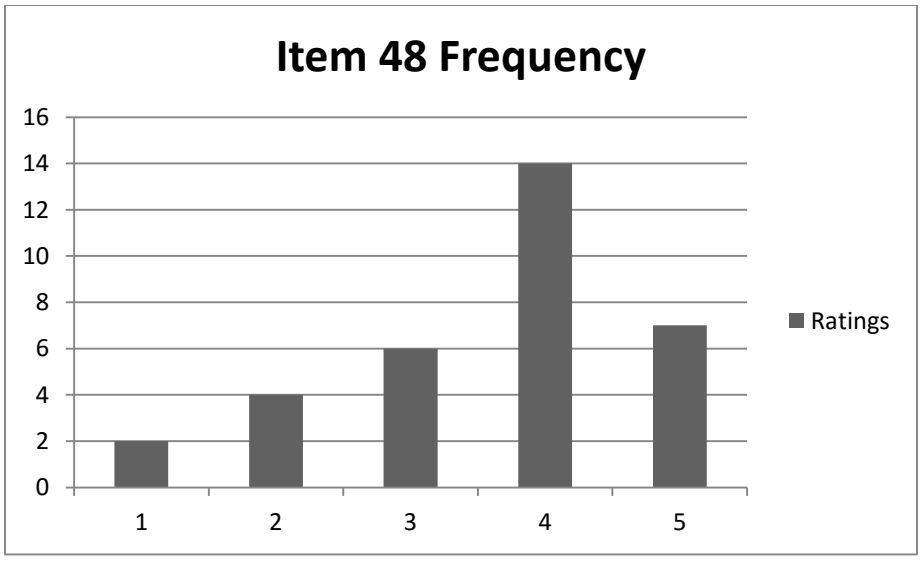


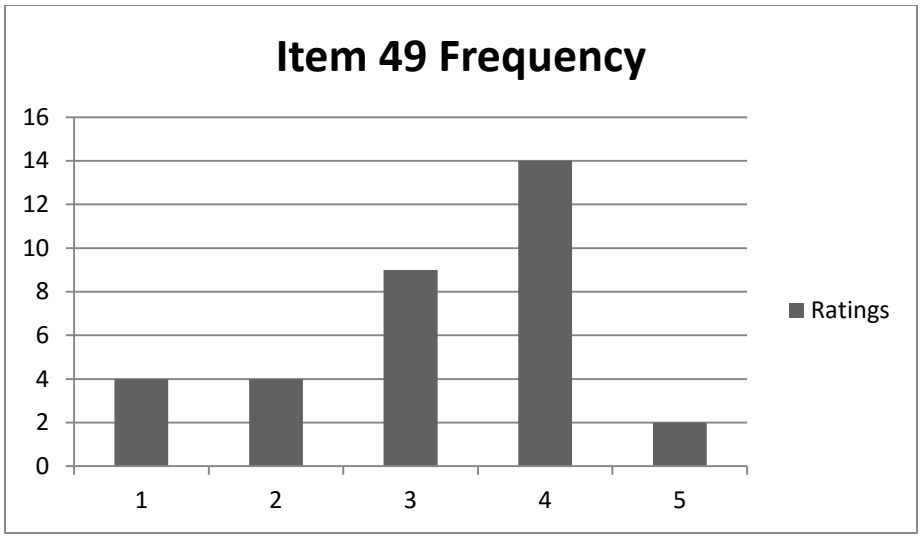


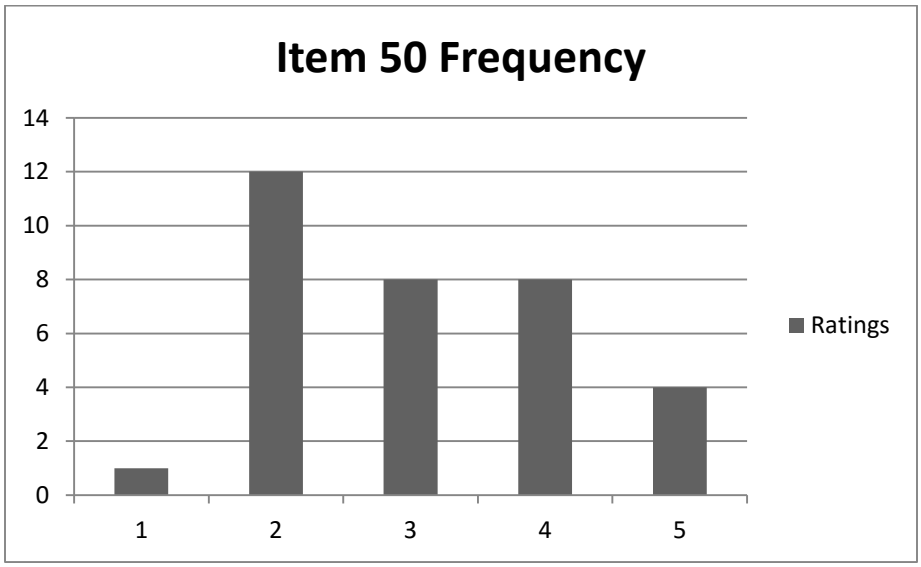


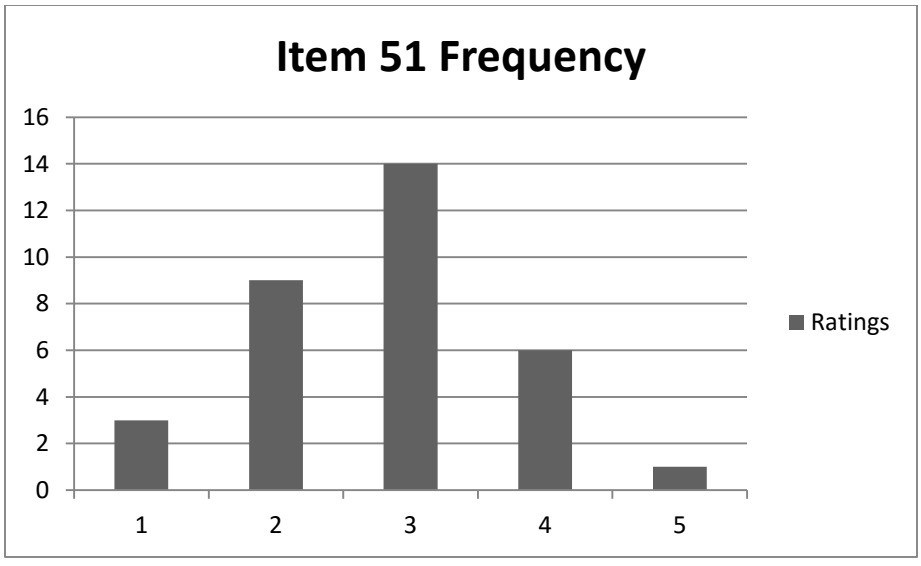


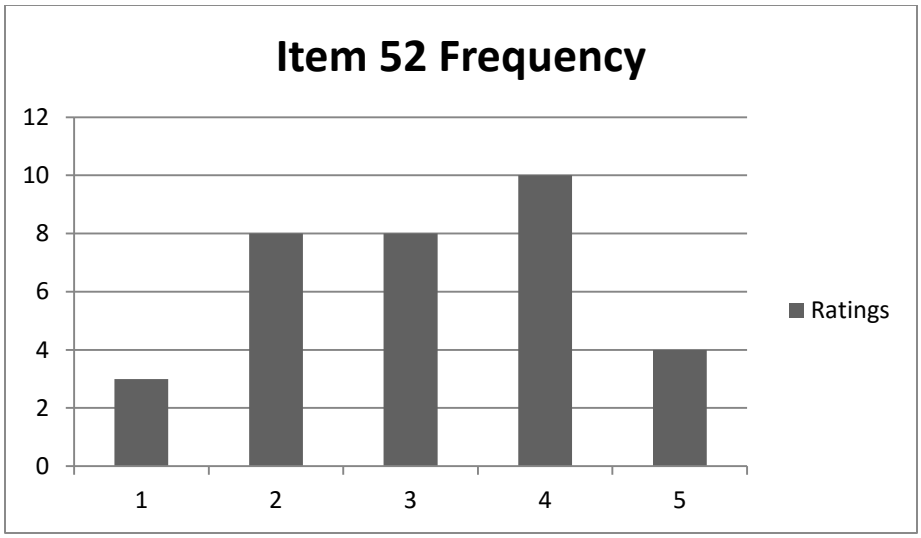


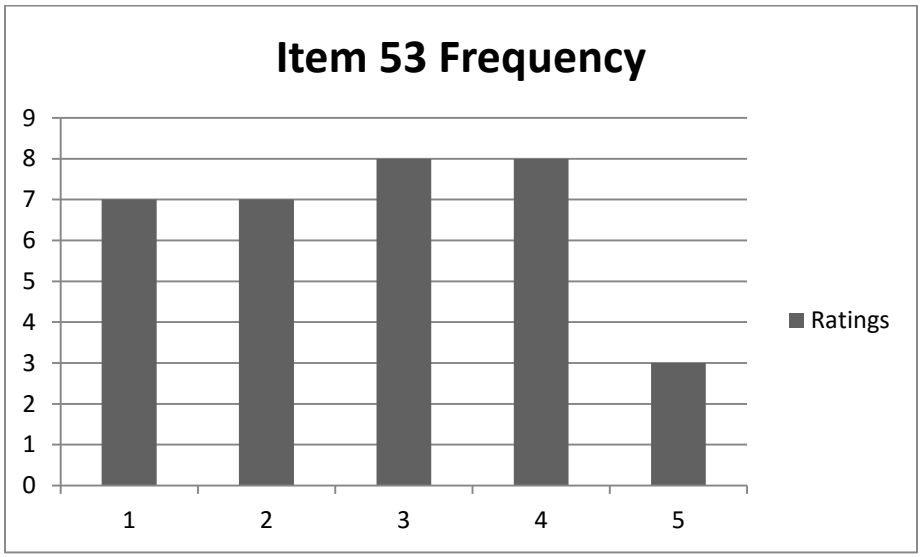


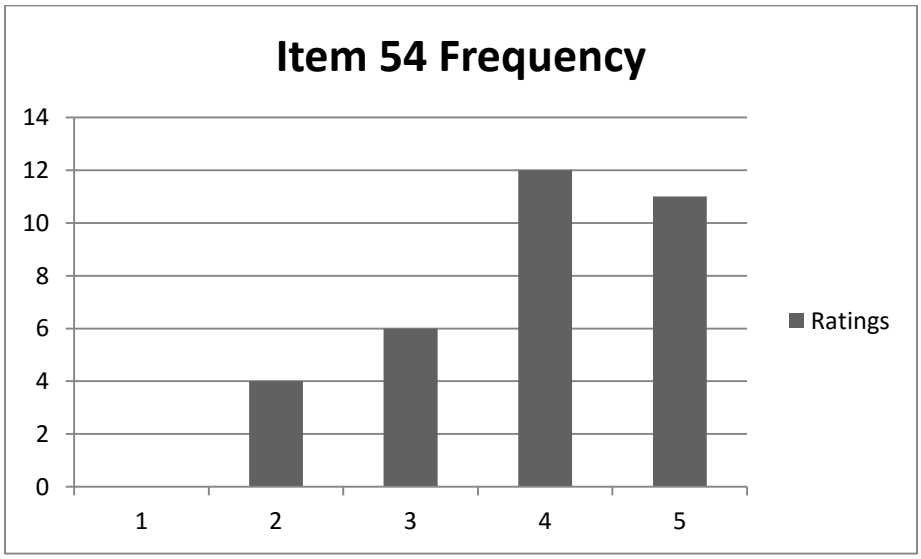


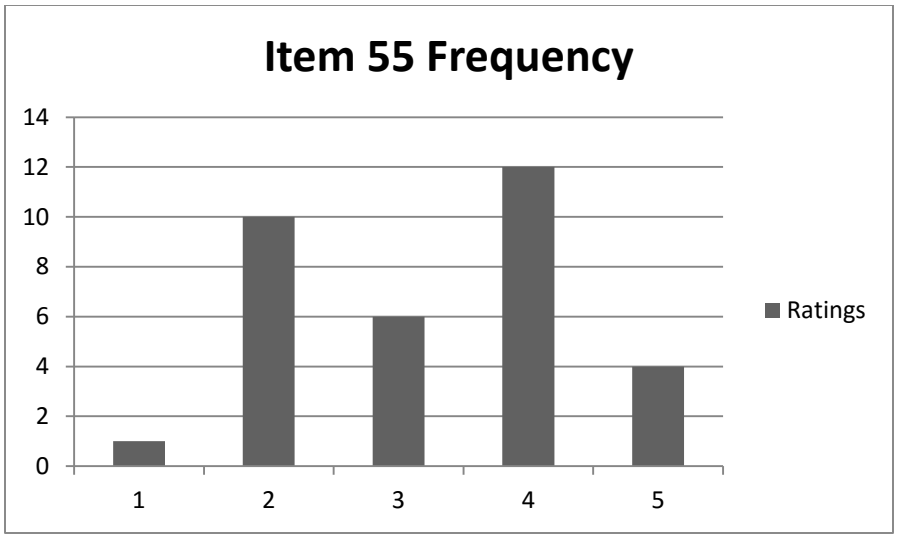


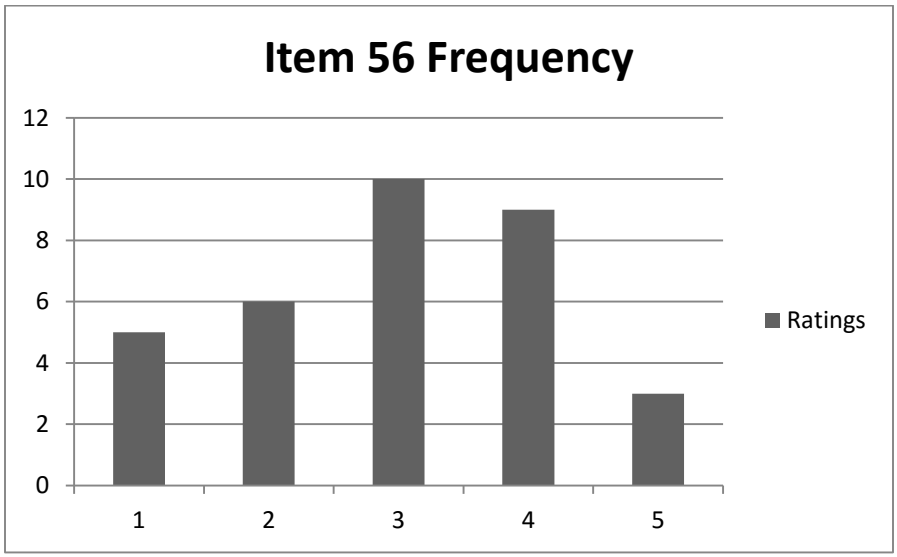


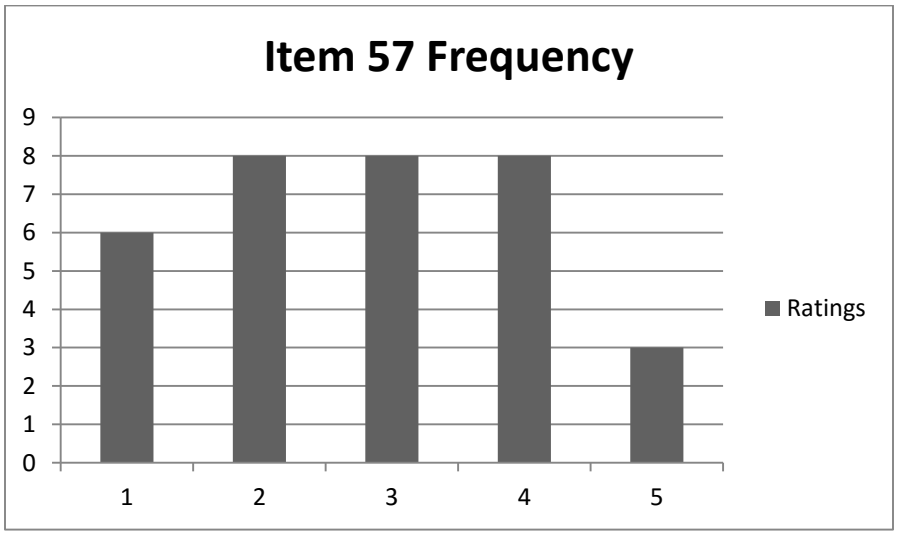


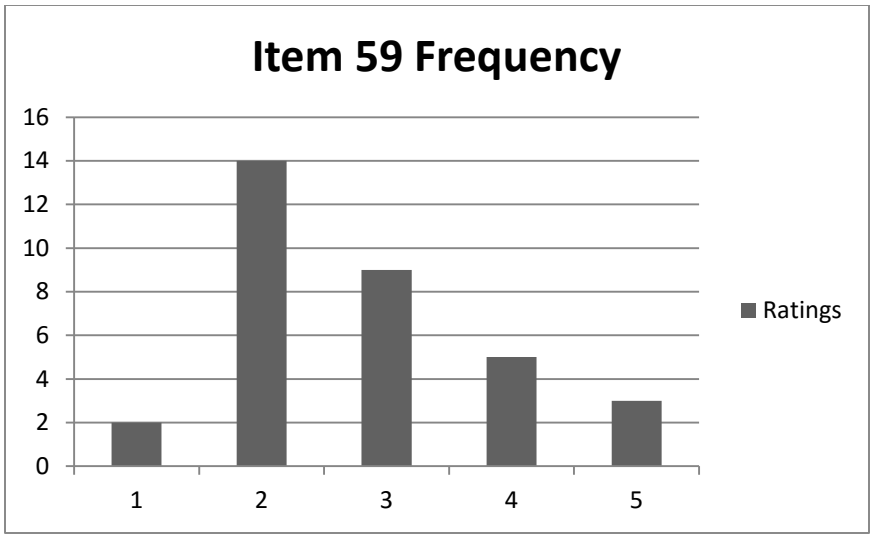


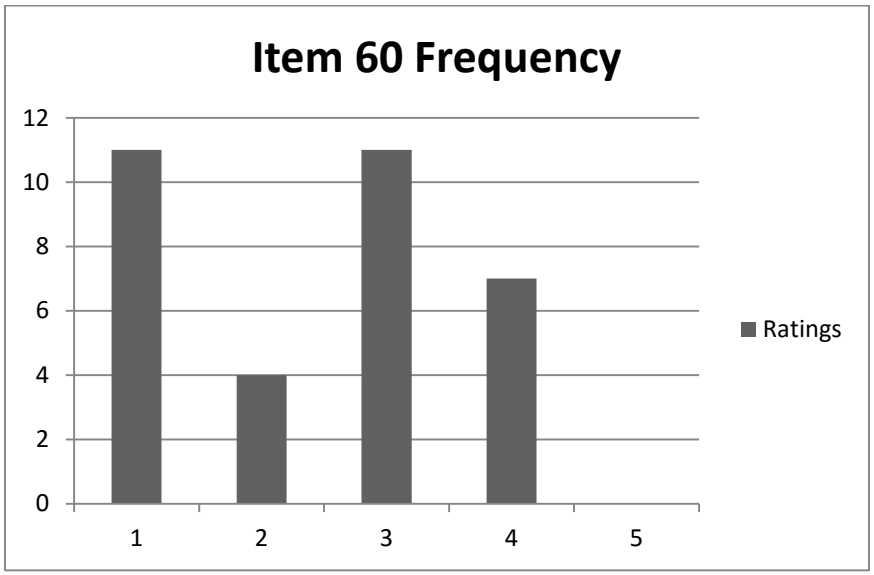


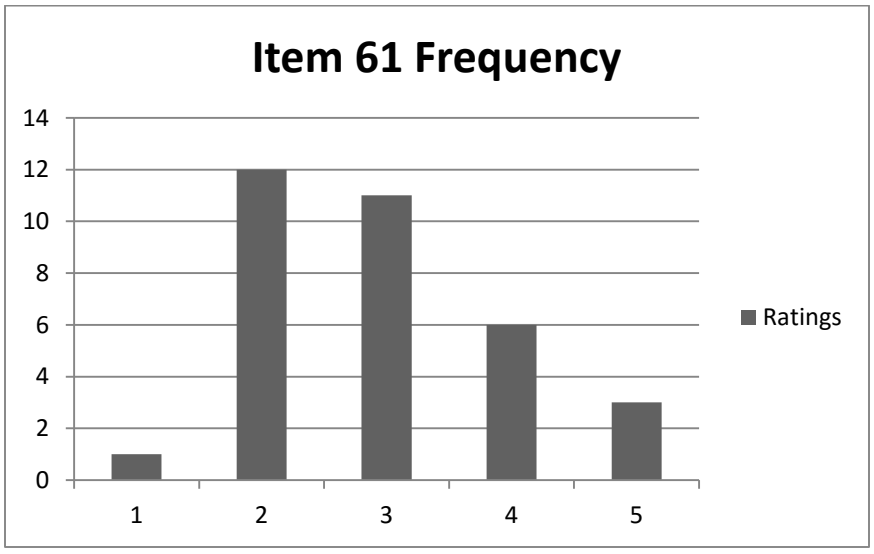


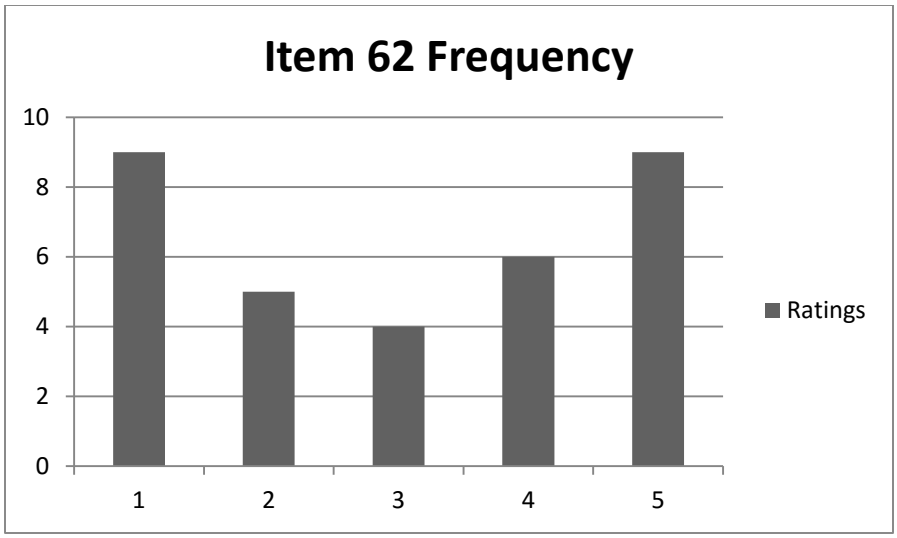


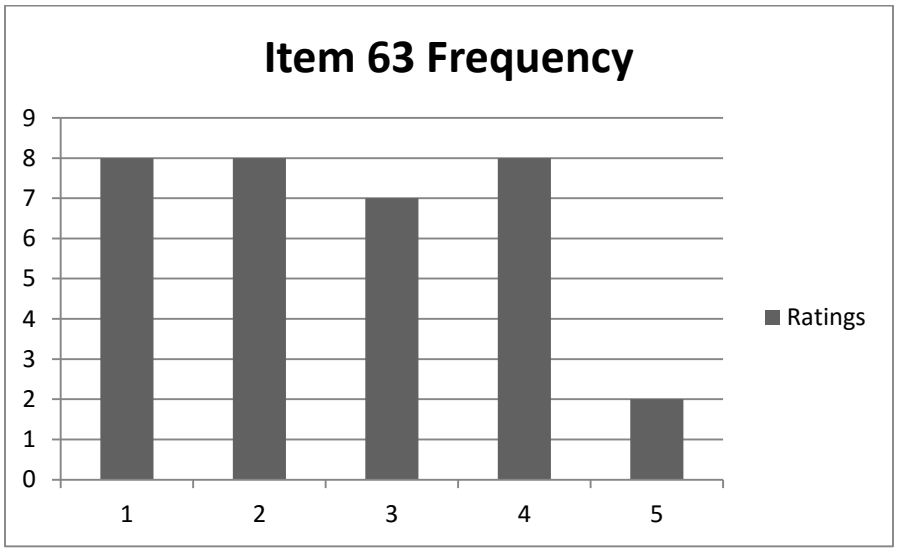


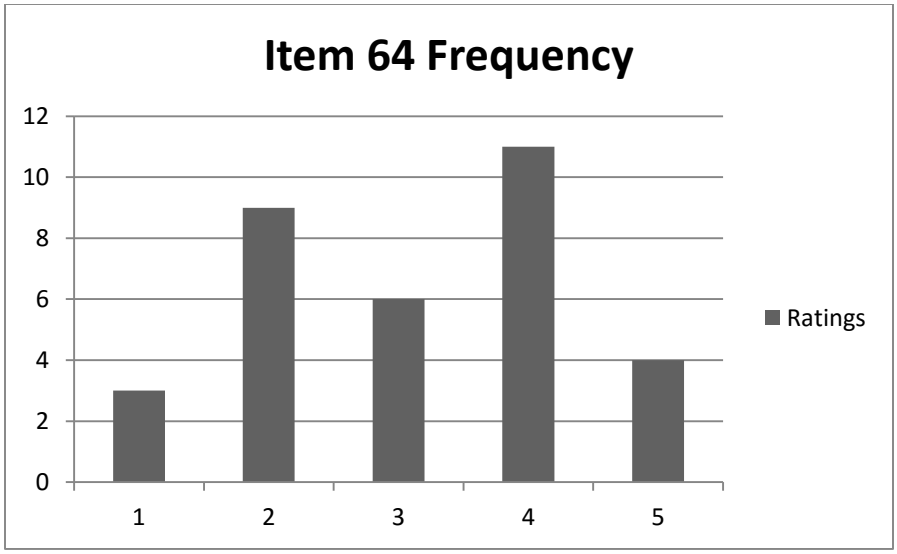












VITA

Jina Jang is originally from Diamond Bar, California and received a B.A. with a major in Psychology and a minor in Education Studies from University of California, Los Angeles. After working as a research coordinator at Center for Autism and Related Disorders following her undergraduate studies, she subsequently enrolled in Louisiana State University's clinical psychology doctoral program in 2012 under the supervision of Dr. Johnny L. Matson. Her research interests include early identification and intervention for autism spectrum disorders and other developmental disorders, with particular emphasis on factors such as cultural differences impacting diagnosis and treatment. She completed her doctoral internship at Kennedy Krieger Institute, Johns Hopkins School of Medicine. She will continue her work in the autism field as a postdoctoral fellow at Center for Autism and Related Disorders in California.