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THE DEVELOPMENT OF INTERPERSONAL COMMUNICATION SCALE: THE STUDY OF VALIDITY AND RELIABILITY

Jared M. CAMPBELL[*] - Öznur ATAŞ AKDEMİR[**]

ABSTRACT

Interpersonal communication is one of the crucial elements of human communication. Interpersonal communication has some authentic features. It is inescapable. Not communicating is not an option; even the act of not communicating communicates something. It is also irreversible, complex and contextual. All these characteristics make interpersonal communication as a communicative phenomenon to be studied in depth. This study reports the development process of an interpersonal communication scale. As a result of reliability and validity studies a seven-item questionnaire is developed in order to investigate interpersonal communication tendencies of persons. Interpersonal Communication Scale (ICS) has two factors: External Perception and Internal Disseverance. External Perception defines an individual's ability to interact with others, and Internal Disseverance refers to one's desire to remove the distance between the individual, which they are communicating. The components of these two factors were explored in two studies using various measures of communication, self-deception, social desirability, and gender. External perception was found to predict an individual's perception ability, gender, and their ability to communicate with others. Internal disseverance was discovered to predict an individual's desire to communicate, flexibility and competence in regards to communication. At the end of statistical analyses, the scale is verified as a reliable and valid tool. The ICS developed in this study can be used as a reliable data collection instrument for the studies in interpersonal communication field for various contexts. The paper concludes some implications for further research.

[*] Savannah State University / USA
[**] Asst. Prof. Dr. Ağrı İbrahim Çeçen University, Faculty of Education, Department of Educational Sciences, E-mail: oznuratasakdemir@gmail.com (Corresponding author)

STRUCTURED ABSTRACT

The aim of the study

The purpose of this article was to determine what factors of communication, both internally and externally, were most strongly attributed to FtF. In study one, we constructed the ICS from the above nine sub-categories of communication, and studied their reliability in relation to each other. The second study confirmed the dimensional structure of the ICS by using convergent, divergent, and predictive validity of the ICS. Self-efficacy is a person's belief in their own ability to successfully communicate with other individuals; and flexibility the ability to communicate in different ways (DeVito, 2001; Galvin, Bylund, & Brommel, 2012). Apprehension, assertiveness, anxiety, and confidence all relate to an individual's active ability to successfully approach others and engage in communication (McCroskey & Richmond, 1991; DeVito, 2001). Listening and self-talk refer to how well an individual can communicate by actively focusing on the other communicator without changing the subject towards their self (Weaver II, 1993). Mindfulness, conflict resolution, perception, and empathy sum up the individual's ability to be thoughtful of another while engaging in communication (Weaver II, 1993; DeVito, 2001; Galvin, Bylund, & Brommel, 2012). Metacommunication entails several aspects of communication. Non-verbal body language, verbal cues, language, and simulacrum were included in this sub-category as they all deal with internal ideas and thoughts about communication (Weaver II, 1993; DeVito, 2001). Openness towards others, as it relates to self-disclosure, owning feelings, and the willingness to communicate, was deemed another important aspect of communication in various contexts (Akdemir, 2016; DeVito, 2001; McCroskey & Richmond, 1991; Takkaç & Akdemir, 2015). Supportiveness, positiveness, and reward when dealing with praise and criticism were grouped together as an individual who is more supporting and positive are much more likely to be approached by others and engage in communication (Weaver II, 1993). Equality, respect, and ethics were grouped together as all deal with how well we interact with others who are different from ourselves (DeVito, 2001). Finally, immediacy as it relates to liking and attraction was placed in a factor. How others view us will have an impact on how we are allowed to communicate with them (McCroskey, Larson, & Knapp, 1971).

Method

In the first phase, an initial set of 97 items was created. The items were evaluated and divided into nine sub-categories: Self-Efficacy & Flexibility; Apprehension, Assertiveness, Anxiety & Confidence; Listening and Self-Talk; Mindfulness, Conflict Resolution, Perception, & Empathy; Metacommunication; Openness; Supportiveness, Positiveness, & Reward; Equality, Respect, & Ethics; & Immediacy. After a face validity evaluation of the items, the list was reduced to 36 items. Each of the above factors was given four items. Then, an exploratory factor analysis of the questionnaire was conducted to verify the actual measurable structure. One hundred ninety six individuals at a public university participated in the initial reliability study. The participants consisted of undergrad and graduate students, faculty, and staff.

Results

The 36-item version of the scale was coded into SPSS and an initial exploratory principal analysis was performed. The analysis revealed that only one factor had an eigenvalue over 1.0 and a percent of Variance above 10%. After all but seven items were dropped a second factor analysis was performed and revealed that the 7-item scale consisted of two factors. Using Varimax rotation, the two factors had eigenvalues of 2.848 and 1.074 with percent of Variances of 40.693 and 15.339 respectively. The final rotation demonstrated simple structure with factor loadings of 0.40 or greater and none that double loaded in both of the factors (Spector, 1992). Four items loaded on the External Perception subscale and three loaded on the internal disseverance subscale (Table 1). The means, standard deviations, Cronbach's Alpha, and intercorrelations can be seen in Table 2. Cronbach's Alpha coefficient was calculated for the overall scale (ICS Scale α = .748) and both the sub-scales (External Perception α = .742, and Internal Disseverance α = .739). Both the overall ICS scale's and subscales' Cronbach's α were in the respectable rage according to DeVellis (2003).

In the first study, a one-way ANOVA was conducted to determine if there was a significant difference between gender for the ICS and the subscales. The results indicated that while there was significant difference for the ICS [F (1,187) =17.67, p<.001] and the External Perception subscale [F (1,189) =20.886, p<.001], there was no difference in the Internal Disseverance [F (1,187) =3.408, p>.05]. This indicates that females may be better at perception but both sexes are the same at desiring to communicate.

The ICS was submitted to a confirmatory factor analysis, using maximum-likelihood solution to test the hypothesized factor structure found in study one. The resulting factor loadings are presented in Table 1. The means, standard deviations, Cronbach's Alpha, and intercorrelations can be seen in Table 2. The Chi-Square goodness-of-fit was significant (.202); additionally the result was confirmed by using the x2/df ratio. The calculation was found to be 1.37 (10.991/8) which falls in the acceptable limits (Hatcher, 1994). Based on the information presented the ICS seems to be composed of the two hypothesized components: External Perception and Internal Disseverance.

Keywords: interpersonal communication, external perception, internal disseverance

KİŞİLERARASI İLETİŞİM ÖLÇEĞİNİN GELİŞTİRİLMESİ: GÜVENİRLİK VE GEÇERLİK ÇALIŞMASI

ÖZET

Kişilerarası iletişim, insanoğlunun iletişim etkinliklerinin en önemli ögelerinden biridir ve bazı özgün özelliklere sahiptir. Bu özellikler şu biçimde açıklanabilir: Kişilerarası iletişim kaçınılmazdır. İletişim kurmamak bir seçenek değildir; aslında iletişim kurmamak bile bir

şekilde iletişimdir. Kişilerarası iletişim aynı zamanda geri döndürülemez, karmaşık ve bağlamsaldır. Bütün bu özellikler, kişilerarası iletişimi derinlemesine incelenmesi gereken iletişim olgusu haline getirir. Bu çalışma bir kişilerarası iletişim ölçeğinin geliştirilmesine ilişkin araştırmayı sunmaktadır. Yapılan güvenirlik ve geçerlik analizleri sonucunda kişilerarası iletişim eğilimlerini ölçmeyi amaçlayan yedi maddelik bir ölçek geliştirilmiştir. Kişilerarası İletişim Ölçeği (KİÖ) iki faktörlüdür: Dışa Yönelik Algı ve İçsel Paylaşım. Dışa yönelik algı, kişinin başkalarıyla etkileşim kurma yeteneğini ifade eder; içsel paylaşım ise kişinin iletişim kurarken başkalarıyla arasındaki mesafeyi kaldırma arzusunu ifade eder. Bu iki faktörün bileşenleri çeşitli iletişim, kendi kendini aldatma, sosyal çekicilik ve cinsiyet ölçekleri kullanılarak iki ayrı çalışmada saptanmıştır. Dışa yönelik algının bireyin algılama yeteneğini, cinsiyet faktörünü ve başkalarıyla iletişim kurma yeteneğini yordadığı belirlenmiştir. İçsel paylaşımın bireyin iletişim isteğini ve iletişim kurma açısından esnekliğini ve yeteneğini yordadığı belirlenmiştir. Yapılan istatistik analizleri sonucunda geliştirilen ölçeğin güvenilir ve geçerli olduğu belirlenmiştir. Bu çalışmada geliştirilen ölçek, farklı alanlardaki kişilerarası iletişim araştırmalarında güvenilir bir veri toplama aracı olarak kullanılabilecektir. Çalışma, gelecekte yapılacak benzer nitelikteki araştırmalar için kimi çıkarımlarla sonlandırılmıştır.

Anahtar Kelimeler: Kişilerarası iletişim, dışa yönelik algı, içsel paylaşım.

The Development of a Trait Measure of Face-To-Face Communication

The question of how technology in society has affected the ability to communicate has been argued for years (Akın, Yalnız & Kazaz, 2015; Göker, 2015; Karatekin, Sönmez & Kuş, 2012). Many observations have been made that individuals communicating via the web, texting, or using other technology appear to have inferior interpersonal skills than those using face-to-face (FtF) interaction (Bakke, 2010; Hwang, 2011). The use of computer-mediated communication is almost unavoidable, how well society utilizes technology in communication is becoming ever more important (Caughlin, Basinger & Sharabi, 2016; Morreale, Staley, Stavrositu & Krakowiak, 2015; Spitzberg, 2006). Being able to measure this observation is a challenge regarding the nature of measuring interpersonal communication (Caughlin & Basinger, 2015). In this research study, a trait measure of FtF communication called the Interpersonal Communication Scale (ICS) was developed based on factors that have been shown to control communication. With a baseline of FtF communication, it should be possible to manipulate different variables to formulate the effect of technology on communication.

Interpersonal communication is inescapable. Not communicating is not an option; even the act of not communicating communicates something. Verbal communication is only part of the act of communicating. Non-verbal communication is just as important and normally conveys more information than words alone. The use of technology to communicate, the telephone for instance, takes away the use of body language to communicate. The use of e-mail, texting, or instant messaging only further compounds the problem of communicating by taking away the ability to use tone or verbal cues in communication (Petric, Petrovcic, & Vehovar, 2011; Stephens, 2011; Stricker, 1982).

Interpersonal communication is also irreversible; once we utter a word, or say something it is impossible to take it back. While saying inappropriate things verbally is bad enough, having these communications written down or transferred via technology can make the severity of what was

communicated magnified. Whereas something said to one person, is only heard by that one person, if it is recorded, the discourse can be shown to anyone.

Communication is also extremely complex (Algren & Eichhorn, 2011). Communication between two individuals involves six entities: Who you think you are, who you think the other person is, who you think the other person thinks you are, who the other person thinks they are, who the other person things you are, and who the other person thinks you think they are. In 'Being and Time', Martin Heidegger addresses this issue. It is his thought that without creating a language that both individuals completely and fully understand, it is impossible to communicate effectively (Heidegger, 1962). Proper use of language, and when to use it, is also an integral part of communication (Cegala, 2011). Communication is also complex because we use simulacrum in our day-to-day communication. Simulacrum is the use of symbols for words or ideas (Baudrillard, 1988). Being able to use examples and symbolisms in language is critical in communication.

Finally, interpersonal communication is contextual (Duran, 1992; Hullman, 2007; Nelson, 2016). Psychological, relational, situational, environmental, and cultural are important exoteric forms of context that communication can take place (Rubin & Martin, 1994). The order these different contexts are ordered will dictate how interactions between individuals will progress. This is due to each communicator having different value systems for these conceptualities (Martin, Anderson, & Thweatt, 1998; Martin & Anderson, 1998; Martin & Rubin 1995).

Where there are many different aspects of communication, having any two observers to agree on which factors are most important is difficult. Self-efficacy is a person's belief in their own ability to successfully communicate with other individuals; and flexibility the ability to communicate in different ways (DeVito, 2001; Galvin, Bylund, & Brommel, 2012). Apprehension, assertiveness, anxiety, and confidence all relate to an individual's active ability to successfully approach others and engage in communication (McCroskey & Richmond, 1991; DeVito, 2001). Listening and self-talk refer to how well an individual can communicate by actively focusing on the other communicator without changing the subject towards their self (Weaver II, 1993). Mindfulness, conflict resolution, perception, and empathy sum up the individual's ability to be thoughtful of another while engaging in communication (Weaver II, 1993; DeVito, 2001; Galvin, Bylund, & Brommel, 2012). Metacommunication entails several aspects of communication. Non-verbal body language, verbal cues, language, and simulacrum were included in this sub-category as they all deal with internal ideas and thoughts about communication (Weaver II, 1993; DeVito, 2001). Openness towards others, as it relates to self-disclosure, owning feelings, and the willingness to communicate, was deemed another important aspect of communication in various contexts (Akdemir, 2016; DeVito, 2001; McCroskey & Richmond, 1991; Takkaç & Akdemir, 2015). Supportiveness, positiveness, and reward when dealing with praise and criticism were grouped together as an individual who is more supporting and positive are much more likely to be approached by others and engage in communication (Weaver II, 1993). Equality, respect, and ethics were grouped together as all deal with how well we interact with others who are different from ourselves (DeVito, 2001). Finally, immediacy as it relates to liking and attraction was placed in a factor. How others view us will have an impact on how we are allowed to communicate with them (McCroskey, Larson, & Knapp, 1971).

The purpose of this article was to determine what factors of communication, both internally and externally, were most strongly attributed to FtF. In study one, we constructed the ICS from the above nine sub-categories of communication, and studied their reliability in relation to each other. The second study confirmed the dimensional structure of the ICS by using convergent, divergent, and predictive validity of the ICS.

Item Selection and Reliability Study (study 1)

Method

In the first phase, an initial set of 97 items was created. The items were evaluated and divided into nine sub-categories: Self-Efficacy & Flexibility; Apprehension, Assertiveness, Anxiety & Confidence; Listening and Self-Talk; Mindfulness, Conflict Resolution, Perception, & Empathy; Metacommunication; Openness; Supportiveness, Positiveness, & Reward; Equality, Respect, & Ethics; & Immediacy. After a face validity evaluation of the items, the list was reduced to 36 items. Each of the above factors was given four items. Then, an exploratory factor analysis of the questionnaire was conducted to verify the actual measurable structure.

Participants

One hundred ninety six individuals at a public university participated in the initial reliability study. The participants consisted of undergrad and graduate students, faculty, and staff.

Materials and Procedure

The initial version of the ICP was administered to the participants in a casual setting outside of the school building. The 36-item questionnaire was completed on campus during set testing times. An exploratory factor analysis was performed on the completed questionnaires and Cronbach's alpha reliability coefficients were calculated.

Results

The 36-item version of the scale was coded into SPSS and an initial exploratory principal analysis was performed. The analysis revealed that only one factor had an eigenvalue over 1.0 and a percent of Variance above 10%. After all but seven items were dropped a second factor analysis was performed and revealed that the 7-item scale consisted of two factors. Using Varimax rotation, the two factors had eigenvalues of 2.848 and 1.074 with percent of Variances of 40.693 and 15.339 respectively. The final rotation demonstrated simple structure with factor loadings of 0.40 or greater and none that double loaded in both of the factors (Spector, 1992). Four items loaded on the External Perception subscale and three loaded on the internal disseverance subscale (Table 1). The means, standard deviations, Cronbach's Alpha, and intercorrelations can be seen in Table 2. Cronbach's Alpha coefficient was calculated for the overall scale (ICS Scale $\alpha = .748$) and both the sub-scales (External Perception $\alpha = .742$, and Internal Disseverance $\alpha = .739$). Both the overall ICS scale's and subscales' Cronbach's α were in the respectable rage according to DeVellis (2003).

In the first study, a one-way ANOVA was conducted to determine if there was a significant difference between gender for the ICS and the subscales. The results indicated that while there was significant difference for the ICS [$F(1,187) = 17.67$, $p < .001$] and the External Perception subscale [$F(1,189) = 20.886$, $p < .001$], there was no difference in the Internal Disseverance [$F(1,187) = 3.408$, $p > .05$]. This indicates that females may be better at perception but both sexes are the same at desiring to communicate. Figure 1 for the error bar graphshows that there is no overlap between genders.

In Figure 2, the outlier was included in the results as the individual was confirmed to have Asperger's Syndrome (a high functioning form of Autism) and very poor communication skills associated with their disability. This strengthens the ICS's validity as it shows it can accurately measure an individual's communication ability whether high or low.

Validity Study

Method

Second phase was conducted in order to validate the simple structure discovered by the exploratory factor analysis in the first phase and test the construct validity of the ICS by measuring the scale with other scales that measure related communication constructs (e.g. The Interpersonal Perception Task, Communication Flexibility Scale, and the Interpersonal Communication Competence Scale). Two additional scales were administered, one for divergent validity (Self-Deception Questionnaire), and another for external criteria (Social Desirability Scale).

Measures.

Interpersonal perception task (IPT).

The IPT (Archer & Costanzo, 1989) was created to measure an individual's nonverbal communication and social perception. The video is 35 minutes long and contains 30 brief scenes. Each scene is paired with a question that has either two or three possible answers. For each scene, there is an objectively correct answer to the question asked. Each question is answered on a six point Likert scale. The scale has five subscales (Kinship, Lie, Competition, Status, and Intimacy). The internal reliability of the entire IPT during this study was respectable (Cronbach's $\alpha = .724$). Cronbach's α for each subscale was Kinship $\alpha = .232$, Lie $\alpha = .298$, Competition $\alpha = .195$, Status $\alpha = .469$, and Intimacy $\alpha = .372$. The same phenomenon seen in the other subscales was the same, the overall scale and subscales' α fall in acceptable ranges.

Self-deception questionnaire (SDQ).

The SDQ (Gur & Sackeim, 1979) was created to measure self-deception in individuals. This 20-item questionnaire is set up to where if you answer one or two on a 7-point Likert scale you are deceiving yourself. The internal reliability of the SDQ during this study was very good (Cronbach's $\alpha = .821$).

Interpersonal communication scale.

This ICS was created to measure the FtF communication ability of individuals. The ICS is composed of two subscales, External Perception, and External Disseverance. The questionnaire is answered using a 7-item Likert scale. For the validity test, Cronbach's Alpha coefficient was calculated for the overall scale (ICS Scale $\alpha = .856$) and both sub-scales (External Perception $\alpha = .785$, and Internal Disseverance $\alpha = .743$).

Communication flexibility scale (CFS).

Rubin and Martin's CFS (1995) was created to measure an individual's flexibility in communication. Communication flexibility is defined by a person's awareness that in any given situation there are options and alternatives available to them, their willingness to be adaptive in any given situation, and the belief that they have the ability to be flexible. The CFS is a 12-item scale answered by using a 6-item Likert scale. For the study, the SFS had an acceptable Cronbach's Alpha coefficient of .729.

Social desirability scale (SDS).

The SDS (Crown & Marlowe, 1960) was created to identify the behaviors that are perceived by society to be acceptable. Sociology functionalists define this phenomenon as social networking. This phenomenon predicts that individuals behave in a biased manner depending on what society has deemed to be acceptable behavior. This 33-item questionnaire is answered using a 2-item Likert scale

(True or False). For the second test, Cronbach's Alpha coefficient for the SDS was calculated to be .811.

Interpersonal communication competence scale (ICCS).

The ICCS (Rubin & Martin, 1994) was created to measure the competence of an individual's communication ability. The internal reliability of the SDQ during this study was minimally acceptable (Cronbach's $\alpha = .652$).

Participants

A new random sample of participants (N = 73) was used to determine if the initial exploratory factor analysis had merit. The data collected was entered into SPSS and a confirmatory factor analysis was performed.

Materials and Procedure

Questionnaire packets containing the above listed scales in the listed order were given to each participant. A pre-written instruction was verbally read to each participant and the test was administered beginning with the IPT video. A confirmatory factor analysis was performed on the completed questionnaires and Cronbach's alpha reliability coefficients were calculated.

Results

The ICS was submitted to a confirmatory factor analysis, using maximum-likelihood solution to test the hypothesized factor structure found in study one. The resulting factor loadings are presented in Table 1. The means, standard deviations, Cronbach's Alpha, and intercorrelations can be seen in Table 2. The Chi-Square goodness-of-fit was significant (.202); additionally the result was confirmed by using the x^2/df ratio. The calculation was found to be 1.37 (10.991/8) which falls in the acceptable limits (Hatcher, 1994). Based on the information presented the ICS seems to be composed of the two hypothesized components: External Perception and Internal Disseverance.

A one-way ANOVA was conducted to determine if there was a significant difference between gender for the ICS and the subscales. The results indicated that there was no significant difference for the ICS [$F (2, 70) = .003$, $p > .05$], the External Perception subscale [$F (2, 70) = .262$, $p > .05$], or the Internal Disseverance subscale [$F (2, 70) = .345$, $p > .05$]. This indicates that there is no difference between the genders in regards to the ICS.

In Figure 2, the outlier was included in the results as the individual was confirmed to have a learning disability and very poor communication skills associated with their disability. This strengthens the ICS's validity as it shows it can accurately measure an individual's communication ability whether high or low.

Construct Validation

The intercorrelations for the ICS and the other scales selected for comparison are shown in Table 3. The pattern indicates that the ICS does indeed measure communication ability. The ICS is the only communication scale to correlate with all communication scales as predicted. The ICS also only correlates with the IPT that seems to indicate it has the ability to measure an individual's perception ability. All communication scales except the IPT correlate with the SDS that seem to indicate uniformity between the scales regarding an individual's desire to follow society norm by answering the way society has deemed appropriate.

Discussion

The ICS, as presented above, has shown to have possible merit as reliable and valid measure of FtF communication. Additional research will need to be performed to determine if additional items in the subscales will increase the Cronbach's α to a more acceptable range and will cause the items to settle down and not move to another factor. One factor may have been the number of participants, as an acceptable random sample is deemed extremely accurate at the 95% confidence interval when approaching 384 respondents.

Other applications could consist of commercial use in determining hiring practices and promotion opportunities. Measuring communication abilities of family members to help therapist and counselors guide their clients to a healthy communication with their significant other is also plausible. In fact, any area where FtF communication is vital would greatly benefit from a reliable and valid trait measure of FtF communication.

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Table 1
Factor loadings for the Interpersonal Communication Scale

ITEM	Principal factor External	Perception	Internal Disseverance
1. I encourage others to tell me how they feel.	.654 (.794)	.279 (.167)	
2. People tell me that I am easy to talk to.	.856 (.505)	.091 (.549)	
3. Strangers often approach and start talking to me.	.645 (.170)	.147 (.640)	
4. People tell me I am a good listener.	.780 (-.041)	.100 (.779)	
5. I am honest with others about my thoughts and feelings.	.376 (.543)	.590 (.409)	
6. I believe that communication will be productive.	.238 (.886)	.675 (.003)	
7. I use examples to help me explain what I am talking about.	-.045 (.198)	.785 (.558)	

Note: First row of factor loadings are from the exploratory factor analysis, n = 193. The factor loadings in parentheses are the corresponding factor loadings from the confirmatory factor analysis, n = 73. There is movement of several of the items between factors; this may be due to the small sample taken during the validity study.

Table 2
Means, standard deviations, intercorrelations, α reliability scores for the ICS and its subscales

	M	SD	ICS	Per	Dis
Reliability Study [a]					
Interpersonal Communication	37.70	5.89	(.748)		
External Perception	20.78	4.32	.925**	.(742)	
Internal Disseverance	16.92	2.50	.753**	.445**	(.739)
Validation Study [b]					
Interpersonal Communication	38.40	5.87	(.856)		
External Perception	21.79	3.86	.906**	(.785)	
Internal Disseverance	16.60	2.88	.824**	.507**	(.743)

Note: [a]n = 193; [b]n = 73.
** p<.001.
Cronbach's α for each scale is in parentheses in diagonals.

Table 3

Intercorrelations among different questionnaire measures used in study 2

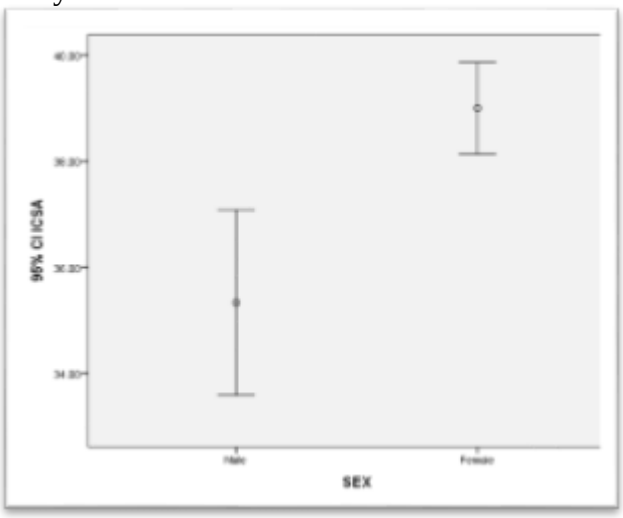
		ICS	EXPER	INDIS	Gender	IPT	CFS	ICCS	SDQ	SDS
ICSTOT	Pearson Correlation	1	.906**	.824**	.007	.327**	.562**	.714**	.188	.387**
	Sig. (1-tailed)		.000	.000	.478	.003	.000	.000	.057	.000
	N	73	73	73	73	72	72	70	72	73
SUBICSEX	Pearson Correlation	.906**	1	.507**	.042	.347**	.463**	.566**	.226*	.415**
	Sig. (1-tailed)	.000		.000	.362	.001	.000	.000	.028	.000
	N	73	73	73	73	72	72	70	72	73
SUBICSIN	Pearson Correlation	.824**	.507**	1	-.043	.204*	.523**	.633**	.081	.232*
	Sig. (1-tailed)	.000	.000		.359	.043	.000	.000	.250	.024
	N	73	73	73	73	72	72	70	72	73
Gender	Pearson Correlation	.007	.042	-.043	1	-.134	.011	-.054	.101	.005
	Sig. (1-tailed)	.478	.362	.359		.131	.464	.330	.200	.482
	N	73	73	73	73	72	72	70	72	73
IPTTOT	Pearson Correlation	.327**	.347**	.204*	-.134	1	.142	.138	.064	.180
	Sig. (1-tailed)	.003	.001	.043	.131		.119	.130	.298	.065
	N	72	72	72	72	72	71	69	71	72
CFSTOT	Pearson Correlation	.562**	.463**	.523**	.011	.142	1	.619**	.155	.442**
	Sig. (1-tailed)	.000	.000	.000	.464	.119		.000	.098	.000
	N	72	72	72	72	71	72	69	71	72
ICCSTOT	Pearson Correlation	.714**	.566**	.633**	-.054	.138	.619**	1	.206*	.235*
	Sig. (1-tailed)	.000	.000	.000	.330	.130	.000		.045	.025
	N	70	70	70	70	69	69	70	69	70
SDQTOT	Pearson Correlation	.188	.226*	.081	.101	.064	.155	.206*	1	.585**
	Sig. (1-tailed)	.057	.028	.250	.200	.298	.098	.045		.000
	N	72	72	72	72	71	71	69	72	72
SDSTOT	Pearson Correlation	.387**	.415**	.232*	.005	.180	.442**	.235*	.585**	1
	Sig. (1-tailed)	.000	.000	.024	.482	.065	.000	.025	.000	
	N	73	73	73	73	72	72	70	72	73

**. Correlation is significant at the 0.01 level (1-tailed).

*. Correlation is significant at the 0.05 level (1-tailed).

ICS = Interpersonal Communication Scale; EXPER = ICS subscale External Perception; INDIS = ICS subscale Internal Disseverance; IPT = Interpersonal Perception Task; CFS = Communication Flexibility Scale; ICCS = Interpersonal Communication Competence Scale; SDQ = Self-Deception Questionnaire; SDS = Social Desirability Scale

Study One



Study Two

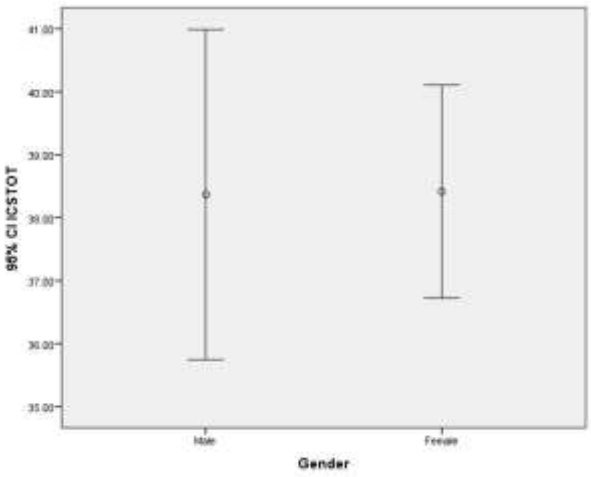


Figure 1. It is not clear why there are different results from study one to study two. One reason may be the number of participants (study one n=193, study two n=73).

Study 1 Study 2

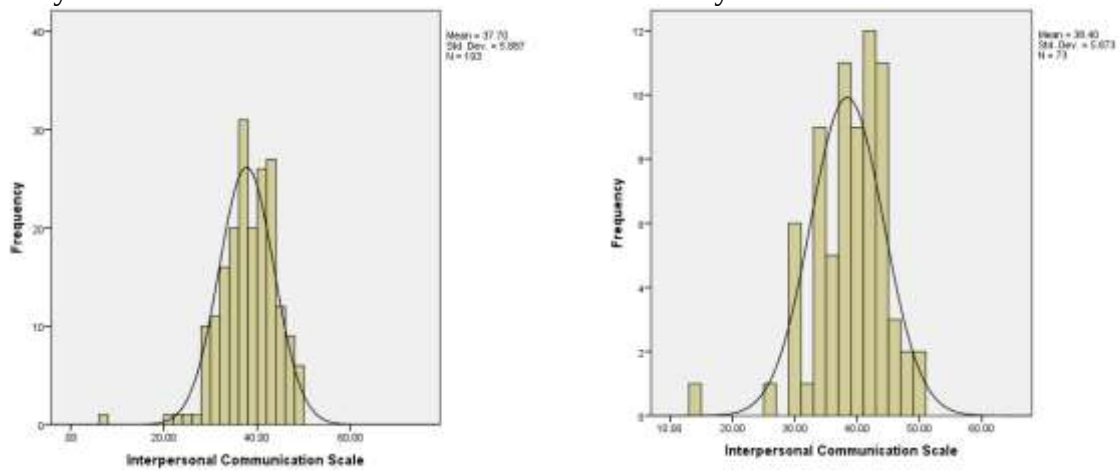


Figure2. There is a nice bell curve developing in both studies. The outliers in both studies were included in the results as the individuals who participated in both were diagnosed as autistic (study one) and with a learning disability (study two). The predictability of the scale is shown to be able to measure all individual's communication ability.

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