Improving interpersonal communication skills through adaptive training - influences of negotiation styles, perception of trust and personality traits- Findings from preliminary statistical analysis

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Abstract. *The importance of interpersonal communication skills in the business environment will only increase as the world undergoes trends of globalization and digitization. In the workplace, interpersonal skills play an increasingly important role for salary, satisfaction, and mobility, and therefore there is a need for field research that will facilitate improving interpersonal relationships over time. In this doctoral research, an integrative model will be developed to examine the antecedents of interpersonal communication skills improvement after tailored training. Pilot study was conducted on 22 business owners to examine the variables before and after the training to determine how the variables interacted. Mixed results were reported in the pilot study. Low participant numbers and the interval between measurements clearly affect the results. To develop an integrative model for communication skills, the second step involves examining the relationships between variables across a larger population.*

Keywords. Interpersonal communication skills, Adaptive interpersonal skills training, Negotiation styles, Perception of trust, Personality traits

JEL Classification. M310

Introduction

Communication skills are some of the most important aspects of everyday life, yet they are among the most difficult to define and assess. Due to this expanding focus and the increased value expected from communication skills, it makes sense to learn more about them. A variety of activities that we encounter daily require interpersonal communication skills; Problem solving, resource distribution, creating collaborations, dispute resolution, and promoting important issues in an interpersonal environment at home and in the workplace. A skilled communicator can select key pieces of a complex idea to convey through words, sounds, and images to build shared understanding (Levy and Murnane, 2004). Through social perception, persuasion, negotiation, instructing, and service orientation, skilled communicators negotiate positive outcomes with customers, partners, subordinates, and superiors (Mumford *et al*, 1999).

Communication skills are vital to the business environment and will become even more important during the transition to the future job market. Timm (2005, cited in Mitchell, 2021) observed that in the new global marketplace, employees are expected to interact with others

more personally than ever before; therefore, traditional technical skills will not suffice. Soft skills are critically important in the workplace (Robles, 2012). According to this research, hard skills only contribute 15% to success, whereas soft skills account for 85%. Communicating interacting with others reflects these skills. Borghans *et al*, (2006), reported a substantial growth in the number of people performing job tasks requiring soft skills from 1970 to 2002 And this numbers will only increase over time.

With the growth of the global digital economy, interpersonal skills (IPS) will become increasingly important in the future workplace. IPS have been found to be associated with important workplace outcomes, such as task performance, job dedication, interpersonal facilitation, and overall performance (Ferris, *et al*, 2001, Efrat, 2022). There is a need for field research that will enhance interpersonal relationships over time due to the increasing importance of interpersonal skills in the workplace and their impact on parameters like salary, satisfaction, and mobility.

Today's high-performance workplace requires employees to be able not only to perform basic tasks like improving processes and resolving problems, but also to interact professionally and effectively with others (Glenn, 2003, cited in Mitchell, 2008). As these skills have become increasingly important, significant funding is spent on interpersonal skills training programs to improve these skills.

Literature on the subject discusses ways to assess and measure interpersonal skills (Bowden *et al*, 2004; Carpenter *et al*, 2005; Morreale *et al*, 2011; Gibb, 2013; Beenen and Pichler, 2016; Johnson, 2018), their relationship to work outcomes (Mitchell, 2008, Robles, 1012; Coffelt *et al*, 2016; Efrat, 2022), training interpersonal skills (Hunt and Baruch, 2003; Doo, 2006; Kraiger and Kirkpatrick, 2010; Sutil-Martín and Otamendi, 2021) and transfer of training (Gilmore and Fritsch, 2001; Blume *et al*, 2009; Laker and Powell, 2011; Hurrel *et al*, 2012; Hutchins *et al*, 2013). Interpersonal skills are rarely studied in terms of predicting their improvement (Klein, 2009; Carpenter *et al*, 2017). The aim of this paper is to present the findings of a research that sought to examine what predicts improvement in interpersonal skills.

Interpersonal Skills Antecedents

According to an extensive meta-analysis published by Klein (2009), Several possible antecedents of IPS have been identified in the literature. Among those most frequently investigated include gender and various personality traits. As IPS tend to be situation-specific behaviors, identifying strong or even significant predictors may prove to be challenging. Because interpersonal skills are influenced by various factors, such as life experience, situational factors, and individual characteristics, it is difficult to isolate them from other

influences. Hayes, 2002, (cited in Klein, 2009), identifying strong and consistent demographic or personality predictors may be a difficult task. This study identified antecedents like gender and personality traits that influence the outcomes of effectiveness training for IPS. The impact of additional antecedents on interpersonal skills training outcomes needs to be examined. Further studies explored whether the degree of complexity of the environment in which IPS and outcomes are measured moderates the relationship between IPS and outcomes (Klein, 2009).

Several studies have examined ways to measure and assess the effectiveness of different forms of training to improve interpersonal skills (Salas *et al*, 2011). It would be useful to develop a model based on an overall view of interpersonal skills, starting with the characteristics of trainees, the emphasis of training, and the implementation of improvements. Understanding IPS antecedents will help us better understand the entire domain of interpersonal skills. There are three primary antecedents that have been assessed in this study: personality characteristics, trust, and bargaining styles and two demographic factors- gender and age. It is intended to assess how these antecedents relate to the IPS under study, in part.

As a contribution to the field of IPS training, this study examines the influence of three main antecedents: trust, negotiation style, and personality characteristics on improving interpersonal communication skills among managers who maintain interpersonal communication by virtue of their position. Four variables were chosen for this study, as they have been used extensively in other studies. Interpersonal Communication Competence Scale (ICCS) is a self-report questionnaire measures ten ICC skills (Rubin and Martin, 1994). TKI is a valid tool for assessing the characteristic approach or style to negotiation or conflict situations (Kilman and Thomas, 1977). The Big Five Inventory (BFI) was developed by John *et al*, (1991) as a tool to measure personality traits based on the characteristics Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect or Openness to Experience. An extremely short version of the variable was successfully validated by Gosling *et al* (2003). In their work (1996), Cummings and Bromiley provided a properly validated instrument for measuring trust- The OTI. The study also explores evidence regarding potential differential effects of communication skills training by two demographic variables: gender and age. Using a variety of variables, the study will develop an adaptive intervention plan for improving interpersonal communication skills in the business world.

Hypothesis

Based on the theory discussed above, the following hypotheses are proposed:

Hypothesis 1: Personality traits are positively correlated with interpersonal communication improvement

Hypothesis 2: A high level of trust is related with improvement of interpersonal communication skills

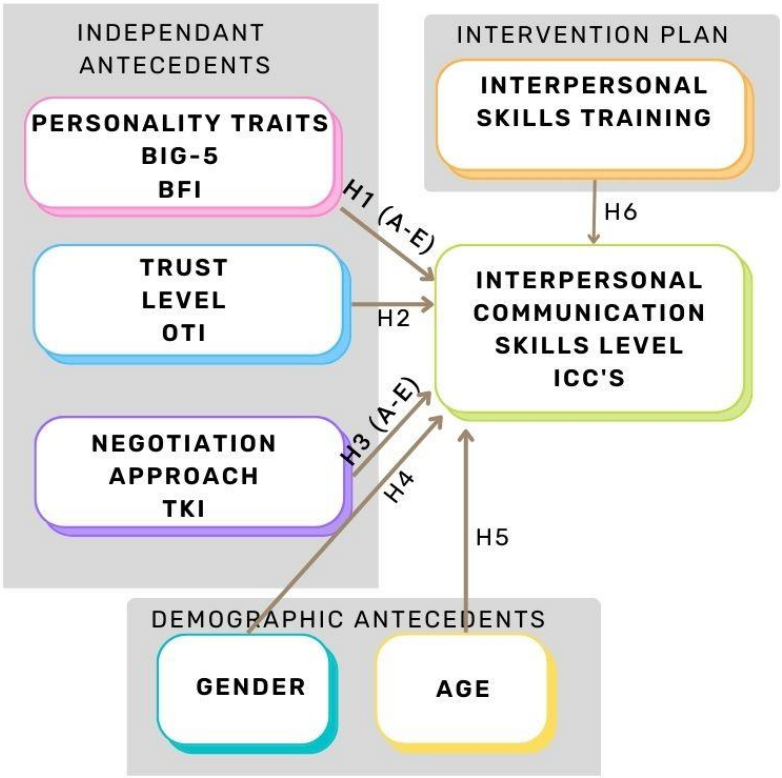
Hypothesis 3: The improvement of interpersonal communication skills differs between collaborative and competitive approaches

Hypothesis 4: The training program improves interpersonal communication skills more for women than for men

Hypothesis 5: Interpersonal skills improvement does not correlate with participants' age

Hypothesis 6: Participants' interpersonal communication skills have improved after training

Figure 1. Conceptual model depicting study hypotheses



Methodology

In the current study, the goal was to examine the relationships between variables that may predict the ability to improve interpersonal skills through tailored training. This paper examines the relationships between the variables using a quantitative pilot study. In the line with the study assumptions (H1,H2,H3,H4,H5,H6 Hypotheses), the four well-established reflective scales from the literature were used to measure the constructs (BFI-5 items, TKI-5 items, OTI-2 items, ICC's-10 items). An online questionnaire was applied to collect the data, before and after the training, as detailed below. BFI, OTI and TKI were used as independent variables and ICC'S as dependent. Two demographic characteristics were chosen as control variables, (gender, age).

Research tools

The methodology was action oriented. A training focused on the ten interpersonal competence skills enumerated in Rubin's work (Rubin and Martin, 1994). Training involved didactic teaching separated by demonstrations of specific communication skills and their consequences, discussion of difficulties in changing behavior, sharing experiences, identifying good and less effective communication skills from scenarios, and rehearsing effective communication skills in everyday scenarios. The participants complete a four-hour training session. The participants in the training complete the questionnaires twice: before and after the training. Assessment of interpersonal skills were based on self-reporting.

Measuring scales

ICC's: The research questionnaire used the Likert scale (1-5). The variable and dimensions were calculated by averaging the scores in the items of each dimension, creating a new scale of the quasi-interval type whose range is between 1-10.
BFI: The research questionnaire used the Likert scale (1-5). The variable and dimensions were calculated by averaging the scores in the items of each dimension, creating a new scale of the quasi-interval type whose range is between 1-5.
OVI: The research questionnaire used the Likert scale (1-7). The variable and dimensions were calculated by averaging the scores in the items of each dimension, creating a new scale of the quasi-interval type whose range is between 1-7.
TKI: The conflict-instrument-questionnaire: The five dimensions of the variable were created by plotting the number of times the respondent marked certain answers. In the AVOIDING dimension the score range is 1-13, while in the other dimensions 1-12. The measurement scale is an interval scale. Table 1 illustrates the measuring scale used in this study.

Table 1. Measuring scales

Variable		Scale	Questionnaire Range	Variable scale
ICC'S	Interpersonal communication skill level	Likert	1-30	Quasi-interval
BFI	Personality traits Big-5	Likert	1-10	Quasi-interval
OTI	Perception of trust	Likert	1-12	Quasi-interval
TKI	Behavioral access to negotiation	Nominal/count	1-12/1-13	Interval

Research population

In the current study, the target population was business owners with 1-10 employees who manage interpersonal interactions, both internal and external, as part of their responsibilities.

Data collection and sample

Research participants were small business owners from a networking organization. An email explaining the purpose of the training, which is part of a research project, was sent out to members of the organization. By return email, participants volunteered to the training. Before the workshop, 48 people filled out the questionnaire, and only 22 of them filled out the questionnaire at the additional time after the workshop

Instrument and procedure

Quantitative analysis was used to perform hypothesis testing, by using a four-chapter closed structured questionnaire as a data collected instrument before and after the training.

Findings

This study is a pilot for the doctoral research model, with the aim of examining what predicts improvement in interpersonal skills through an intervention program. The participants in the study are business owners who voluntarily participated in the workshop during the month of July 2022. Only those participants who filled out the research questionnaire in two periods of time, before and after the workshop, were included in the study. Therefore, the subjects who did not fill out a questionnaire in the second round were excluded from the study, and it is based on the answers of 22 subjects: 16 women (72.7%) and 6 men (27.3%). The average age is 58.1 years (standard deviation 12.63), the age range is 29-84.

Hypothesis 1: Personality traits are positively correlated with interpersonal communication improvement

Table 2. The 5 factors of the variable personality traits

Factor	**items**	**inverting values**	**Alpha**
Extraversion	1,6	6	0.544
Agreeableness	2,7	2	0.078
Conscientiousness	3,8	8	0.358
Emotional stability	4,9	4	0.621
Openness to Experiences	5,10	10	0.068

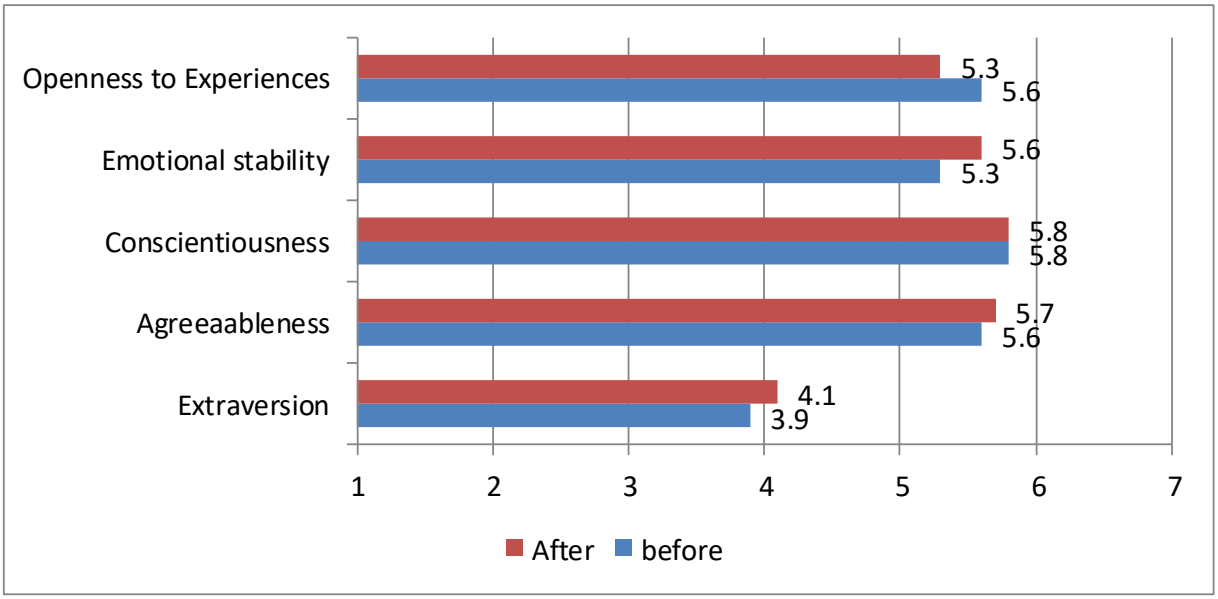
Extraversion: the factor consists of items 1 (extroverted, enthusiastic), and 6 (restrained, quiet). **Agreeableness**: The factor consists of items 2 (critical, grumpy), and 7 (sympathetic, warm). **Conscientiousness**: the factor consists of items 3 (reliable, self-disciplined), and 8 (disorganized, careless). **Emotional stability**: the factor consists of items 4 (anxious, easily shaken), and 9 (calm, mentally stable). **Openness to Experiences**: the factor consists of items 5 (complex, open to new experiences), and 10 (routine, not creative).

Table 3. Averages and standard deviations of the 5 factors of personality traits, before and after the training

	Before		**After**			
personality traits	**Mean**	**SD**	**Mean**	**SD**	**t**	**sig.**
Extraversion	3.9	1.58	4.1	1.47	-0.61	0.548
Agreeableness	5.6	1.03	5.7	0.96	-0.49	0.628
Conscientiousness	5.8	0.98	5.8	1.08	0.12	0.905
Emotional stability	5.3	1.30	5.6	1.34	-1.42	0.169
Openness to Experiences	5.6	0.88	5.3	1.02	1.71	0.102

According to the findings, it appears that on average the subjects perceive themselves at a medium-high level in the factors Agreeableness, Emotional stability, Conscientiousness, and Openness to Experiences, while a medium rating in the Extraversion factor. The differences in perception of personality traits after the workshop were minimal and not statistically significant.

Figure 2. Averages of the 5 factors of personality traits, before and after the workshop



Pearson's correlation coefficient was used to determine if there is a correlation between the various personality traits.

Table 4. Pearson's correlation coefficient between the 5 factors of personality traits, before and after the workshop

	Before workshop	**1**	**2**	**3**	**4**	**5**
1	Extraversion	1				
2	Agreeableness	0.12	1			
3	Conscientiousness	-0.193	0.097	1		
4	Emotional stability	-0.119	**.728****	0.322	1	
5	Openness to Experiences	0.072	**.444***	0.307	**.445***	1
	After workshop	**1**	**2**	**3**	**4**	**5**
1	Extraversion	1				
2	Agreeableness	-.152	1			
3	Conscientiousness	.123	**.453***	1		

4	Emotional stability	-.198	**.675****	.300	1	
5	Openness to Experiences	**.470***	.124	.330	.186	1

(**) p<0.01; (*) p<0.05

Before the workshop, significant positive correlations were found between Agreeableness and Emotional stability and Openness to Experiences, as well as between Emotional stability and Openness to Experiences. Following the workshop, no significant differences were found in the correlations, except for a distinct positive correlation that was not found before between Extraversion and Openness to Experiences.

Hypothesis 2: A high level of trust is related with improvement of interpersonal communication skills

Table 5. The two factors of the Trust level variable

Factor	**items**	**Alpha**
Trust	1,2,3,7,8,9,11	**0.919**
Distrust	4,5,6,10,12	**0.826**

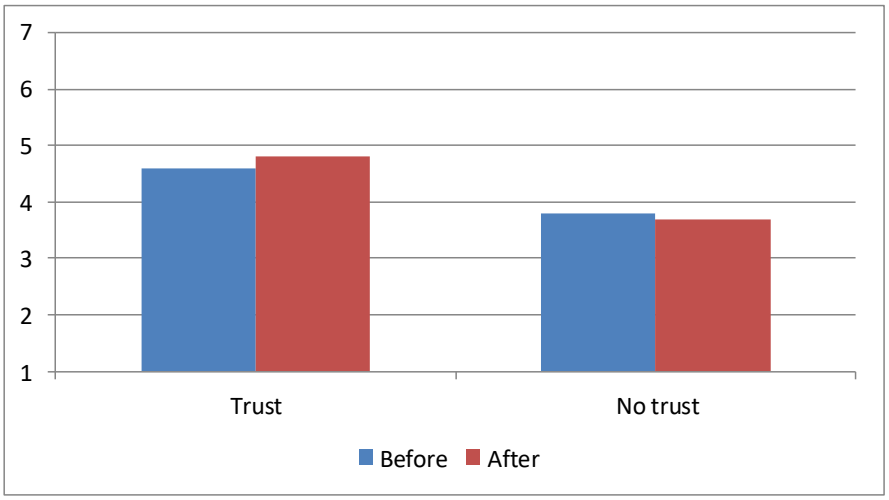
The **trust** factor consists of seven items (1,2,3,7,8,9,11), alpha reliability level 0.919, and it means that the higher the score, the subject perceives the relationship between him, and the other party as characterized by a high level of trust. The **distrust** factor consists of five items (4,5,6,10,12), alpha reliability level 0.826, which means that the higher the score, the subject perceives the relationship between him, and the other party as characterized by a high level of mistrust.

Table 6. Averages and standard deviations of trust level, before and after the workshop

	Before workshop		**After workshop**			
	Mean	**SD**	**Mean**	**SD**	**t**	**sig.**
Trust	4.6	1.05	4.8	1.18	-0.79	0.440
Distrust	3.8	0.99	3.7	1.14	0.27	0.789

The level of trust reported by the subjects is moderately high overall (4.6, 4.8) while the level of distrust is lower on average (3.8, 3.7).

Figure 4. Average of trust level, before and after the workshop



The perception of trust and distrust was expected to be negatively correlated, but no significant relationship was found between the two factors of trust level, both before and after the workshop.

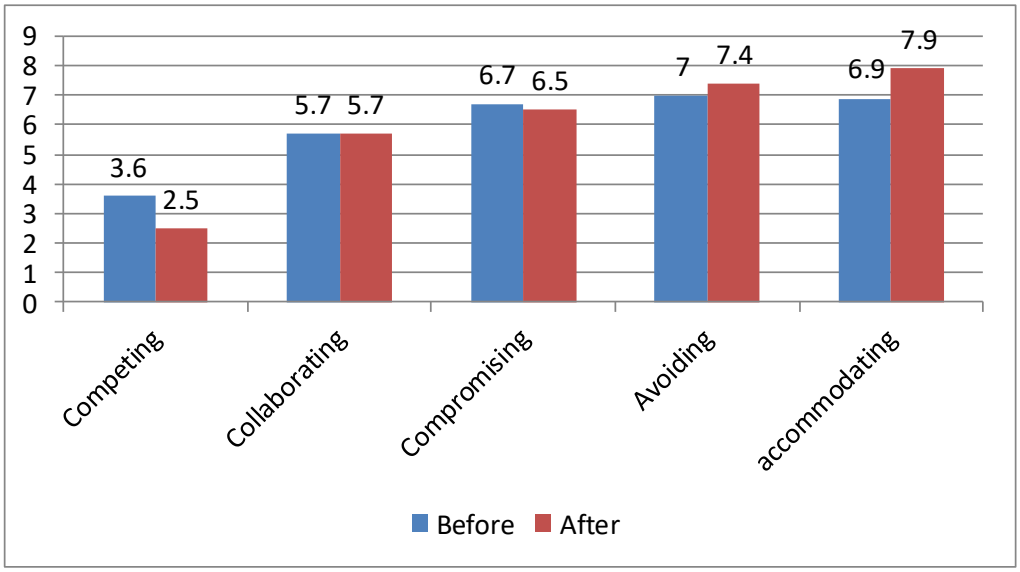
Hypothesis 3: The improvement of interpersonal communication skills differs between collaborative and competitive approaches

Table 7. Averages and standard deviations of the factor of negotiation management styles, before and after the workshop

	Before workshop		**After workshop**			
	M	**SD**	**M**	**SD**	**t**	**sig.**
Competing	3.6	2.34	2.5	2.04	**2.07**	**0.051**
Collaborating	5.7	1.96	5.7	1.73	0.11	0.912
Compromising	6.7	1.70	6.5	1.74	0.46	0.653
Avoiding	7.0	3.12	7.4	2.95	-0.59	0.562
Accommodating	6.9	1.87	7.9	2.24	**-1.83**	**0.082**

The findings show that the subjects do not perceive themselves as having a competitive negotiation style. The factor received the lowest ratings on average, while the highest scores were received in the accommodating and avoiding factors. Regarding the question of whether there was a change in negotiation style following the workshop, certain but not significant differences were found in two variables: a decrease in the average rating of **competing** (from 3.6 to 2.5 after the workshop), and an increase in the average rating of **accommodating** (from 6.9 to 7.9 after the workshop).

Figure 5. Average negotiation styles, before and after the workshop



To examine whether there is a correlation between the various factors of negotiation management styles, the Pearson correlation coefficient was calculated.

Table 8. Pearson's correlation coefficient between the 5 factors of the Negotiation approach, before and after the workshop

	Before workshop	**1**	**2**	**3**	**4**	**5**
1	Competing	1				
2	Collaborating	-.109	1			
3	Compromising	.126	.063	1		
4	Avoiding	**-.544****	**-.489***	**-.465***	1	
5	accommodating	**-.345**	-.150	**-.353**	-.056	1
	After workshop	**1**	**2**	**3**	**4**	**5**
1	Competing	1				
2	Collaborating	-.101	1			
3	Compromising	.188	.219	1		
4	Avoiding	**-.672****	**-.368**	**-.384**	1	
5	accommodating	-.094	**-.364**	**-.609****	-.124	1

(**) $p<0.01$; (*) $p<0.05$

The most striking finding is the significance negative correlations between the **Avoiding** style and the **Competing, Collaborating** and **Compromising** styles, both before and after the workshop. Also, there is a significance negative correlation between **compromising** and

accommodating. No significant changes are seen in the correlations between before and after the workshop.

Hypothesis 4: The training program improves interpersonal communication skills more for women than for men

Table 9. The average ratings of the research variables by gender, before and after the workshop

	Before workshop						**After workshop**					
	male		**female**				**male**		**female**			
	M	**SD**	**M**	**SD**	**t**	**sig.**	**M**	**SD**	**M**	**SD**	**t**	**sig.**
Interpersonal communication skills												
Self-disclosure	3.7	0.76	3.8	0.75	-.454	.654	4.1	0.70	3.7	0.62	1.099	.285
Empathy	3.9	0.66	4.3	0.58	-1.270	.219	3.8	0.88	4.2	0.77	-1.142	.267
Social-relaxation	4.1	0.59	4.3	0.43	-.839	.411	4.2	0.60	4.2	0.46	.139	.891
Assertiveness	2.8	0.41	3.4	0.71	**-1.842**	**.080**	3.2	0.52	3.5	0.73	-1.019	.320
Alter centrism	3.5	0.77	3.5	0.69	-.091	.928	3.7	0.52	3.6	0.55	.279	.783
Interaction management	4.0	0.55	4.0	0.71	0.000	1.000	3.4	0.58	3.9	0.66	-1.586	.128
Expressiveness	4.0	0.64	4.0	0.55	.083	.935	4.0	0.19	3.9	0.58	.511	.615
Supportiveness	3.9	0.58	4.0	0.49	-.280	.782	4.0	0.23	4.1	0.73	-.365	.719
Immediacy	4.2	0.64	4.4	0.66	-.612	.547	4.4	0.60	4.3	0.60	.238	.814
Environmental control	3.5	0.64	3.7	0.51	-.715	.483	3.6	0.92	3.8	0.62	-.526	.605
Personality traits												
Extraversion	4.0	1.92	3.9	1.51	.12	.905	3.4	1.88	4.3	1.28	-1.289	.212
Agreeableness	6.0	0.55	5.4	1.13	1.22	.236	5.8	0.98	5.6	0.97	.514	.613

Conscientiousness	5.8	1.17	5.8	0.95	-.13	.898	6.1	0.80	5.7	1.17	.822	.421
Emotional stability	6.3	0.61	4.9	1.30	**2.47***	**.023**	6.3	0.61	5.4	1.47	1.399	.177
Openness to Experiences	5.6	0.92	5.6	0.89	.048	.962	5.4	1.07	5.2	1.03	.397	.696
Trust level												
Trust	4.6	0.92	4.7	1.12	-.246	.808	4.3	0.64	5.0	1.26	-1.244	.229
Distrust	4.3	0.74	3.6	1.02	1.542	.139	4.4	0.64	3.5	1.18	1.714	.103
Negotiation Approach												
competing	3.0	1.67	3.8	2.56	-.716	.482	2.8	2.48	2.4	1.93	.460	.650
collaborating	5.3	2.07	5.9	1.96	-.569	.576	5.8	2.48	5.6	1.45	.246	.808
compromising	6.7	1.97	6.8	1.65	-.100	.921	6.7	1.86	6.5	1.75	.196	.847
avoiding	7.8	2.71	6.8	3.30	.716	.482	7.2	3.49	7.4	2.85	-.187	.853
accommodating	7.2	1.60	6.8	2.01	.387	.703	7.5	2.74	8.1	2.11	-.514	.613

Note: The sample included 16 women and 6 men.

Despite the expectation to find differences between men and women in the ratings of the research variables, the findings in the pilot study do not indicate significant differences between the genders, except for two variables:

Significant difference in **emotional stability** before the workshop $t=2.47$; $p<0.05$. The men in the sample perceived their level of emotional stability (6.3) as higher compared to women (4.9).

Difference in borderline significance in **Assertiveness** before the workshop $t=-1.84$; $p=.08$. The women in the sample perceived their level of assertiveness (3.4) as higher compared to the men (2.8).

In the future, it is necessary to check this figure again on a larger sample.

Hypothesis 5: Interpersonal skills improvement does not correlate with participants' age

Table 10. Pearson's correlation coefficient between age and the research variables

	Age	
	Before workshop	**After workshop**
Personality traits		
Extraversion	.057	.027
Agreeableness	-.270	-.108
Conscientiousness	.053	.045
Emotional stability	-.304	.162
Openness to Experiences	**-.381**	-.045
Interpersonal communication skills		
Self-disclosure	.113	.036
Empathy	-.232	-.169
Social-relaxation	-.045	.200
Assertiveness	-.261	-.095
Alter centrism	-.259	.059
Interaction management	.210	-.167
Expressiveness	.150	-.056
Supportiveness	-.302	-.190
Immediacy	-.185	-.060
Environmental control	-.182	-.154
Trust level		
Trust	.177	-.072
Distrust	**-.442***	**-.418**
Negotiation Approach		
Competing	-.189	-.096
Collaborating	-.319	.102
Compromising	**-.479***	**-.527***
Avoiding	**.402**	**.348**
Accommodating	.332	-.040

(**) $p<0.01$; (*) $p<0.05$

Significant correlations were found, as indicate:

In the trust level variable: negative correlation between age and **distrust**, r=-0.442; p<0.05 (before), r=-0.42; p=0.059 (after): Younger people will have a greater tendency to express distrust in front of people they work with compared to older people.

In the Negotiation Approach variable: negative correlation between age and **compromising** r=-0.48; p<0.05 (before), r=-0.53; p<0.05 (after): Younger people will have a greater tendency of compromising in the negotiation process compared to older people.

A correlation with borderline significance was also found between age and **avoiding**: older people will have a greater tendency to resort to avoiding in the negotiation process compared to younger people.

Hypothesis 6: Participants' interpersonal communication skills have improved after training

Table 11. The 10 factors of the Interpersonal Communication Skills

Factor	**Items**	**inverting values**	**Alpha**	**fall out**
Self-disclosure	1,2,3		0.747	
Empathy	4,5,6	5	0.630	5
Social relaxation	7,8,9	9	0.580	
Assertiveness	10,11,12	11	0.594	11
Alter-centrism	13,14,15	13	0.406	13
Interaction management	16,17,18		0.351	16
Expressiveness	19,20,21	20	0.646	
Supportiveness	22,2,24		0.560	
Immediacy	25,26,27		0.777	
Environmental control	28,29,30	30	0.790	

A pair sample t-test of variance was used to determine if the subjects' average ratings of their communication skills had changed after the workshop.

Table 12. Averages and standard deviations of the 10 factors of interpersonal communication skills, before and after the workshop

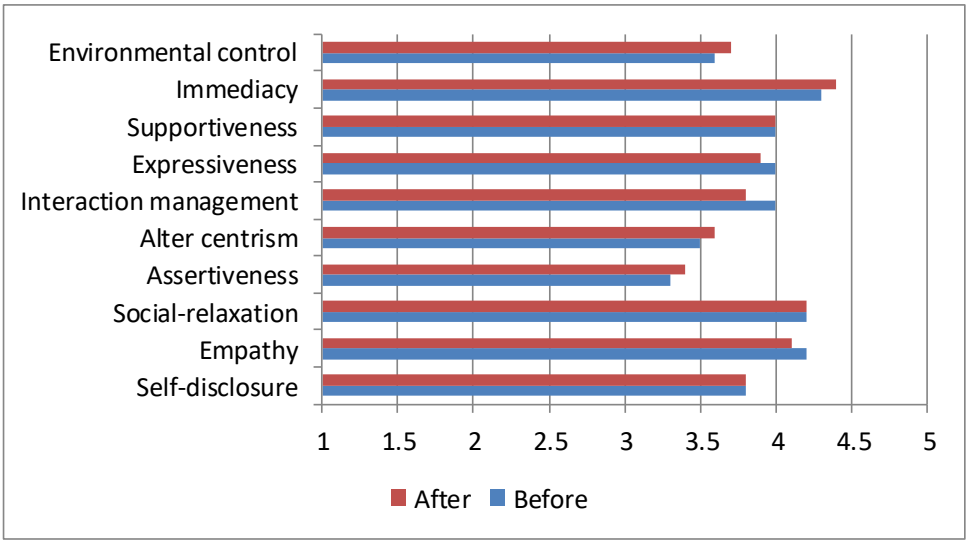
	Before		**After**			
	Mean	**SD**	**Mean**	**SD**	**t**	**sig.**
Self-disclosure	3.8	.74	3.8	.64	-.13	.89
Empathy	4.2	.61	4.1	.81	.68	.50
Social-relaxation	4.2	.47	4.2	.49	-.04	.97
Assertiveness	3.3	.69	3.4	.68	-.89	.38
Alter centrism	3.5	.70	3.6	.53	-.51	.62
Interaction management	4.0	.65	3.8	.67	1.45	.16
Expressiveness	4.0	.56	3.9	.50	.83	.41

Supportiveness	4.0	.50	4.0	.63	-.70	.49
Immediacy	4.3	.64	4.4	.59	-.21	.84
Environmental control	3.6	.54	3.7	.69	-.81	.43

The subjects rated themselves as having the highest interpersonal communication skills in the following factors: Immediacy, Social-relaxation and Empathy (average above 4.0), while the lowest skills in the factors: Assertiveness and Alter centrism.

From the comparative analysis (before/after) it was found that there are no significant differences in the interpersonal communication skills of the subjects following the participation in the workshop.

Figure 5. Average rates of the 10 factors of interpersonal communication skills, before and after the workshop



Pearson's correlation coefficient was calculated to investigate whether interpersonal communication skills are correlated.

Table 13. Pearson's correlation coefficient between the 10 factors of interpersonal communication skills, before and after the workshop

	Before workshop	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1	Self-disclosure	1									
2	Empathy	.296	1								
3	Social-relaxation	.200	-.120	1							

4	Assertiveness	.133	.114	**.589****	1						
5	Alter centrism	.272	-.066	**.371**	**.385**	1					
6	Interaction management	**.515***	**.508***	.116	.212	-.104	1				
7	Expressiveness	**.747****	.285	.295	.204	.170	**.472***	1			
8	Supportiveness	**.426***	.422	-.070	-.066	-.167	.327	.431*	1		
9	Immediacy	**.682****	**.633****	.309	.245	.242	**.683****	**.731****	**.583****	1	
10	Environmental control	.235	**.391**	.296	.295	.111	.208	**.374**	.305	**.500***	1
	After workshop	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1	Self-disclosure	1									
2	Empathy	**.499***	1								
3	Social-relaxation	**.463***	**.612****	1							
4	Assertiveness	.163	**.336**	.187	1						
5	Alter centrism	**.490***	.341	.278	.389	1					
6	Interaction management	.235	**.583****	**.559****	**.318**	**.344**	1				
7	Expressiveness	**.560****	.392	**.544****	.044	**.405**	.361	1			
8	Supportiveness	**.594****	**.629****	**.514***	**.455****	**.499****	**.494***	**.645****	1		
9	Immediacy	**.580****	**.564****	**.449***	**.484****	**.496****	**.442***	**.577****	**.759****	1	
10	Environmental control	**.407**	**.554****	**.576****	**.352**	.231	**.771****	**.425***	.409	**.493****	1

(**) p<0.01; (*) p<0.05

The most prominent figure from the analysis indicates that following the workshop there are more significant correlations among the various factors of interpersonal communication skills, compared to the number of significant correlations found before the workshop.

The research model holds that there are relationships between the three independent variables: Personality traits, trust level, and Negotiation approach and the dependent variable - Interpersonal communication skills. The model was tested using Pearson's correlation coefficient and presented in comparison between before and after the workshop.

Table 14. Pearson's correlation coefficient between Personality traits and Interpersonal communication skills

	Personality traits									
	Extraversion		**Agreeableness**		**Conscientiousness**		**Emotional stability**		**Openness To Experiences**	
Interpersonal communication skills	**before**	**after**	**before**	**after**	**Before**	**after**	**before**	**after**	**before**	**after**
Self-disclosure	**.560****	.140	**.326**	**.358**	-.147	.029	-.019	.251	.247	.288
Empathy	-.209	.226	.074	.310	-.293	.183	-.060	.280	.310	**.555****
Social-relaxation	.209	**.433***	.202	.327	**.462***	**.558****	.343	.325	**.631****	**.451***
Assertiveness	.236	.018	.161	-.195	.062	-.159	.221	-.027	**.525***	-.014
Alter centrism	.206	-.025	.346	.033	-.028	-.347	.243	.349	.289	.094
Interaction management	.149	**.379**	.319	.209	-.055	.156	.252	.164	.311	**.375**
Expressiveness	**.398**	**.456***	.264	**.433***	-.013	.206	.085	**.364**	.309	**.604****
Supportiveness	.044	.349	.326	**.418**	-.094	.131	.159	.205	.127	.345
Immediacy	.181	.108	**.476***	**.513***	.023	.124	.332	**.443***	**.553****	**.420**
Environmental control	-.205	.172	.167	**.424***	.296	.254	.305	**.368**	**.516***	.302

(**) p<0.01; (*) p<0.05

The purpose of the analysis was to first examine whether there is a relationship between the various factors of the two variables, as well as to examine whether, following the participation in the workshop, differences in the correlations, their strength and direction will be found. As we can see in the table, there are some significance correlations between the factors of Personality traits and Interpersonal communication, as indicate:

The higher the level of **extraversion** before participating in the workshop, the higher the level of **self-disclosure**, while after participating in the workshop the correlation between these two variables is low and not significant.

Also, the higher the level of **Extraversion**, both before and after participating in the workshop, the higher the level of **Expressiveness**.

The higher the level of **agreeableness**, the higher the probability of a high level of interpersonal communication skills, as listed: **Self-disclosure, Expressiveness, Supportiveness, Immediacy**, and **Environmental control**. The findings show that following the participation in the workshop, the strength of the correlations is even higher compared to the correlations obtained in the questionnaire that the subjects filled out before the workshop.

The higher the level of **Conscientiousness**, the higher the probability of a higher level of interpersonal communication skills in the **Social-relaxation**, both before and after participating in the workshop. No significant relationships were found in the other factors of communication skills.

When the relationship between Emotional-stability and interpersonal communication skills was examined, it was found that before participating in the workshop there were no significant correlations, while after participating in the workshop it can be seen that the subjects recognize that their **Emotional-stability** is related to communication skills such as **Expressiveness, Immediacy** and **Environmental control**.

The research also indicates a significant correlation of **Openness to Experiences** with various communication skills of the subjects, in about half of the factors tested. The most prominent figure in this context is regarding **Assertiveness**. Before participating in the workshop there was a high and significant positive correlation between **Openness to Experiences** and **Assertiveness**, while after the workshop the correlation was deleted.

Table 15. Pearson's correlation coefficient between Trust level and Interpersonal communication skills

	Trust level			
	Trust		**Distrust**	
Interpersonal communication skills	**before**	**after**	**before**	**after**
Self-disclosure	**.352**	-.085	**-.305**	-.086
Empathy	-.004	.274	.114	-.102
Social-relaxation	.244	**.338**	.060	-.220
Assertiveness	.215	**.435***	.232	.070
Alter centrism	-.112	-.072	.213	.146
Interaction management	.290	.371	-.253	-.148
Expressiveness	**.532***	-.072	-.030	**-.396**
Supportiveness	**.390**	**.346**	-.019	-.007
Immediacy	**.431***	.282	-.072	-.091
Environmental control	**.395**	.203	**.407**	-.342

(**) $p<0.01$; (*) $p<0.05$

There are more significant correlations between trust and interpersonal communication skills compared to Distrust. Before the workshop, significant positive correlations were found between **trust** and the following: **Self-disclosure, Immediacy, Expressiveness, Supportiveness, and Environmental control**: the higher the subject's trust level, the higher his interpersonal communication skills in those 5 factors.

In the questionnaires filled out after the workshop there are different findings. Only **Supportiveness** still has a positive correlation with trust, and now it has been found that **Social-relaxation** and **Assertiveness** are also affected by the perception of trust.

The findings also show that the higher the level of **distrust**, the lower the **self-disclosure** before the workshop, while after the workshop no relationship was found between the two variables. On the other hand, only after participating in the workshop is there a negative correlation between the level of **distrust** and **Expressiveness**. It was also found that while before the workshop there was a positive relationship between **distrust** and **Environmental control**, after participating in the workshop the correlation reversed and became negative.

Table 16. Pearson's correlation coefficient between Negotiation Approach and Interpersonal communication skills

	Negotiation Approach									
Interpersonal communication skills	competing		collaborating		compromising		avoiding		accommodating	
	before	after	before	after	before	after	before	after	before	after
Self-disclosure	.164	.096	.024	-.110	.050	-.036	**-.353**	-.028	.314	.063
Empathy	.121	-.007	.144	-.137	.073	.329	-.243	.049	.036	-.207
Social-relaxation	.240	.095	-.025	-.047	.163	-.023	-.244	-.065	-.016	.053
Assertiveness	.348	.290	.213	.176	**.369**	.124	**-.417**	**-.372**	-.296	-.006
Alter centrism	-.009	.208	.196	.196	.166	.110	-.175	-.239	-.053	-.110
Interaction management	.217	.105	.000	-.045	.086	.112	-.338	-.306	.213	.256
Expressiveness	.210	.028	-.013	-.134	.080	-.159	-.301	.072	.181	.106
Supportiveness	.026	.135	.039	-.231	.179	.009	-.394	.017	**.421**	.026
Immediacy	.243	.065	.092	-.217	.198	-.130	**-.455***	.047	.179	.148
Environmental control	.294	.189	.010	-.019	.089	.101	**-.390**	**-.344**	.191	.218

(**) p<0.01; (*) p<0.05

There are very few significance correlations between negotiation approach and interpersonal communication skills. The most striking finding is that **avoiding** is negatively associated with some interpersonal communication skills. Those who use the strategy of avoidance during negotiations, express a lower level of interpersonal communication skills. Following the workshop, these connections diminished.

Hypotheses Summary

	Hypothesis	**Confirmation**
H1	Personality traits are positively correlated with interpersonal communication improvement	Partially
H2	A high level of trust is related with improvement of interpersonal communication skills	Partially
H3	The improvement of interpersonal communication skills differs between collaborative and competitive approaches	Partially
H4	The training program improves interpersonal communication skills more for women than for men	Rejected
H5	Interpersonal skills improvement does not correlate with participants' age	Confirmed
H6	Participants' interpersonal communication skills have improved after training	Rejected

Discussion and conclusions

As a first step in the study, the pilot examined the behavior of the variables, their initial relationship, and the effect of training on interpersonal communication skills. A second step involves examining the relationships between the variables for predicting improvement in communication skills towards constructing an integrative model.

No significant differences were found in the scores of the subjects after participating in the workshop for all variables tested. In this context it is worth noting that the time that passed between participation and filling out the questionnaire on the first date, participating in the workshop and then filling out the questionnaire a second time, was only a few days. The question must be discussed whether under these circumstances of a one-time workshop, and a short time between the end of the workshop and the completion of the second questionnaire, one can expect significant changes in the perceptions of the interpersonal communication skills. Perhaps one of the conclusions from the pilot study is to space out the time between the workshop and filling out the second questionnaire, and to hold more than one session of the workshop. That way there is a greater chance of deepening and establishing the skills acquired in the workshop.

Neither before nor after the workshop, there was a significant difference between men and women in terms of interpersonal communication skills. In the pilot, 16 women and only 6 men (out of an original sample of 48) filled out the questionnaire twice. This hypothesis should be tested again with a larger sample size in the future.

A significant correlation was found regarding age. As far as trust level is concerned, younger people tend to express distrust more frequently than older people. According to the Negotiation Approach, younger people are more likely to compromise during negotiations than older people. Furthermore, older people tend to avoid in the negotiation process more than younger people. A significant correlation between interpersonal communication skills and age was not found according to the research question.

Regarding the hypothesis about the connection between Personality traits and Interpersonal communication skills, and changes in this pattern after the workshop, some significant correlation was found between factors of both variables, but there was no significant gap between these correlations before and after the workshop. The main findings are positive correlation between extraversion and self-disclosure. Additionally, there is a positive correlation between Extraversion and Expressiveness. Moreover, there is a positive correlation between agreeableness and five interpersonal communication skills: Self-disclosure, Expressiveness, Supportiveness, Immediacy, and Environment control. Another finding regards to a positive correlation between Conscientiousness and Social relaxation. According to the study, there were no significant correlations between emotional stability and interpersonal communication skills before attending the workshop, while after participating in the workshop the subjects acknowledge that their emotional stability is related to communication skills such as expressiveness, immediacy, and environmental control. About half of the factors tested indicate that Openness to Experiences is significantly correlated with various communication skills of the subjects. In this context, assertiveness is the most prominent figure. There was a high and significant positive correlation between Openness to Experiences and Assertiveness before the workshop, but after the workshop the correlation was gone.

The correlation between trust level and interpersonal communication skills was stronger than that between distrust and interpersonal communication skills. The higher the subject's trust level, the better his interpersonal communication skills. The correlation between trust and interpersonal communication skills weakened following the workshop. In addition, distrust is negatively correlated with self-disclosure. Conversely, a negative correlation between distrust and Expressiveness is only observed after participating in the workshop. In addition, while before the workshop there was a positive correlation between distrust and environmental control, after the workshop the correlation reversed and became negative.

Among the five factors of negotiation approach, avoiding was negatively associated with some interpersonal communication skills. Negotiators who employ the avoidance strategy exhibit poor interpersonal communication skills. These connections diminished after the workshop.

References

Beenen, G., Pichler, S., & Davoudpour, S. (2016). Interpersonal Skills in MBA Admissions: How are They Conceptualized and Assessed? *Academy of Management Proceedings*, *2016*(1), 10232. https://doi.org/10.5465/ambpp.2016.10232abstract

Blume, B. D., Ford, J. K., Baldwin, T. T., & Huang, J. L. (2009). Transfer of Training: A Meta-Analytic Review. *Journal of Management*, *36*(4), 1065–1105. https://doi.org/10.1177/0149206309352880

Borghans, L., Weel, B., & Weinberg, B. A. (2008). Interpersonal Styles and Labor Market Outcomes. *Journal of Human Resources*, *43*(4), 815–858. https://doi.org/10.3368/jhr.43.4.815

Bowden, T. B., Keenan, P. A., Knapp, D. J., & Heffner, T. S. (2004, January). *Creating the US Army Interpersonal Skills Assessment (AISA) Battery*. ResearchGate. https://www.researchgate.net/publication/229029055_Creating_the_US_Army_Interpersonal_Skills_Assessment_AISA_Battery

Carpenter, J. P., Frank, R., & Huet-Vaughn, E. (2017). Gender Differences in Interpersonal and Intrapersonal Competitive Behavior. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2940616

Coffelt, T. A., Baker, M. J., & Corey, R. C. (2016). Business Communication

Practices From Employers' Perspectives. *Business and Professional Communication Quarterly*, *79*(3), 300–316. https://doi.org/10.1177/2329490616644014
Cummings, L. L., & Bromiley, P. (1996, January). *The Organizational Trust Inventory (OTI): Development and Validation*. ResearchGate. https://www.researchgate.net/publication/232553329_The_Organizational_Trust_Inventory_OTI_Development_and_Validation
Doo, M. Y. (2006). A problem in online interpersonal skills training: do learners practice skills? *Open Learning: The Journal of Open, Distance and E-Learning*, *21*(3), 263–272. https://doi.org/10.1080/02680510600953252
Efrat, A. (2022, July). *Reviews of Literature Regarding Interpersonal Skills and the Workplace Coer the years 2011-2021*. Nis.seaopenresearch.eu. https://nis.seaopenresearch.eu/volume-xVOLUME X (2022)
Ferris, G. R., Witt, L. A., & Hochwarter, W. A. (2001). Interaction of social skill and general mental ability on job performance and salary. *Journal of Applied Psychology*, *86*(6), 1075–1082. https://doi.org/10.1037/0021-9010.86.6.1075
Gibb, S. (2013). Soft skills assessment: theory development and the research agenda. *International Journal of Lifelong Education*, *33*(4), 455–471. https://doi.org/10.1080/02601370.2013.867546
Gosling, S. D., Rentfrow, P. J., & Swann, W. B. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality*, *37*(6), 504–528. https://doi.org/10.1016/s0092-6566(03)00046-1
Hunt, J. W., & Baruch, Y. (2003). Developing top managers: the impact of interpersonal skills training. *Journal of Management Development*, *22*(8), 729–752. https://doi.org/10.1108/02621710310487882
Hutchins, S., Mcdermott, P., Carolan, T., Gronowski, M., Fisher, A., & Demay, M. (2013). *Interpersonal Skills Summary Report*. https://apps.dtic.mil/sti/pdfs/ADA585788.pdf
John, P., Donahue, E. M., & Kentle, R. L. (1991). Big Five Inventory. *PsycTESTS Dataset*. https://doi.org/10.1037/t07550-000
Kilmann, R. H., & Thomas, K. W. (1977). Developing a Forced-Choice Measure of Conflict-Handling Behavior: The "Mode" Instrument. *Educational and Psychological Measurement*, *37*(2), 309–325. https://doi.org/10.1177/001316447703700204
Klein, C. (2009). What Do We Know About Interpersonal Skills? A Meta-analytic Examination Of Antecedents, Outcomes, And The Efficacy Of Training. *Electronic Theses and Dissertations, 2004-2019*. https://stars.library.ucf.edu/etd/3950/
Kraiger, K., & Kirkpatrick, S. (2010). An empirical evaluation of three popular training programs to improve interpersonal skills. *Journal of Psychological Issues in Organizational Culture*, *1*(1), 60–73. https://doi.org/10.1002/jpoc.20005
Laker, D. R., & Powell, J. L. (2011). The differences between hard and soft skills and their relative impact on training transfer. *Human Resource Development Quarterly*, *22*(1), 111–122. https://doi.org/10.1002/hrdq.20063
Levy, F., & Murnane, R. J. (2004). Education and the Changing Job Market. *Educational Leadership*, *62*(2), 80. https://eric.ed.gov/?id=EJ716780
Mitchell, G. (2008). Essential Soft Skills for Success in the Twenty-First Century Workforce as Perceived by Alabama Business/Marketing Educators. *Etd.auburn.edu*. https://etd.auburn.edu/handle/10415/1441

Morreale, S., Backlund, P., Hay, E., & Moore, M. (2011). Assessment of Oral Communication: A Major Review of the Historical Development and Trends in the Movement from 1975 to 2009. *Communication Education*, *60*(2), 255–278. https://doi.org/10.1080/03634523.2010.516395

Mumford, M. D., Peterson, N. G., & Childs, R. A. (1999). Basic and cross-functional skills. *An Occupational Information System for the 21st Century: The Development of O*NET.*, 49–69. https://doi.org/10.1037/10313-004

Robles, M. M. (2012). Executive Perceptions of the Top 10 Soft Skills Needed in Today's Workplace. *Business Communication Quarterly*, *75*(4), 453–465. https://doi.org/10.1177/1080569912460400

Rubin, R. B., & Martin, M. M. (1994). Development of a measure of interpersonal communication competence. *Communication Research Reports*, *11*(1), 33–44. https://doi.org/10.1080/08824099409359938

Salas, E., Bedwell, W. L., & Fiore, S. M. (2011). *Developing the 21st Century (and beyond) Workforce: A Review of Interpersonal Skills & Measurement Strategies*.University of Central Florida. Department of Psychology Workshop of Assessment of 21st Century Skills

Sutil-Martín, D. L., & Otamendi, F. J. (2021). Soft Skills Training Program Based on Serious Games. *Sustainability*, *13*(15), 8582. https://doi.org/10.3390/su13158582