Behavioral Patterns Inventory: A reliability and validity study

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Abstract

Aim: There are many studies concerning behavioral models, to the best of our knowledge, no such study has been conducted in the field of medical education. To fill this gap and contribute to education and academic literature, we aimed to develop a valid, reliable and easily accessible perceived behavior patterns inventory.

Methods: Data were collected from 851 medical students using an inventory form. The inventory developed consisted of a total of four scales reflecting the behavioral patterns. 109 items were created for the scales. The items in the inventory form were scored based on a five-point Likert-scale. Reliability and validity analyses were conducted separately for each scale. The construct validity of the scales was examined using the exploratory and confirmatory factor analysis, and their reliability was examined with the alpha reliability coefficient.

Findings: The calculated alpha reliability values of the scales ranged between 0.71 and 0.79, and the variance rates were between 44.638 and 55.374. These values are acceptable and appropriate to the previously determined standards.

Conclusions: Findings obtained from the reliability study and factor analysis show that the developed inventory is reliable and valid for behavioral structures.

Keywords: Inventory development, social style, medical education, medical students, scale.

1. Introduction

Our behaviors are a reflection of many variables, especially those related to our social environment, intelligence, personality, education level, gender, socio-economic status, and culture. Behaviors (cognitive, affective, and psychomotor) seem to be unique but show similarities with the behavioral patterns of other people. In other words, people display similar behavioral patterns in many situations, events, and conditions. Although observable behavior patterns exhibited by each individual (Buchholz, 1976) or behavior patterns which can be defined as a concept of behavior that shows a specific action pattern can observed and agreed upon by others show differences between persons, individuals with similar behaviors can be grouped (Gross, 2003). An individual being aware of both his/her own behavioral patterns and those of others helps better manage

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communication. In addition, for this process, it is important to determine how we feel and perceive things, as well as how others feel about us and perceive us (Fleishman, 1957; Marynissen, 2011; Manning, 1992). In behavior patterns exhibited during communication, there are two dimensions, horizontal and vertical, and the high- and low-level combinations of both dimensions contain four main behavior patterns, namely director, systematical, socializer, and relater (Snavely, 2009). The distribution of the four behavioral models by subgroups among dimensions and some basic features is presented in Appendix 1 (Merrill and Reid, 1981; Rumsey, 2014; Darling, 1990; Wilson Learning Corporation, 1977; Gambino, 1993). The horizontal dimension refers to the assertiveness/pertinaciousness of a preferred communication behavior, extending from being ask/thinker-directed to tell/action-directed, and it is described as how one is perceived in influencing others' thoughts and behaviors in the "axis of assertiveness". During a process of communication, as we draw near to the ask/thinker-directed part of the axis from the perspective of behavioral patterns, we see individuals perceived as wary, who prefer to ask instead of comment and tell, those that listen quietly instead of talking, and those that choose to be indirect while expressing themselves. As we approach the opposite end of the axis, we may come across individuals who exhibit total opposite behavioral patterns. In the vertical dimension, the preference of behavior in communication in terms of the perspective of task/reactivity ranges from task/result-directed to emotion/people-directed, which is described as how others perceive an individual in relation to the manifestation of his/her emotions in the "axis of responsibility/reaction". As we come closer to the "task/results focused" end of the axis in the perspective of the behavior model, we see individuals who are disconnected from their emotions and sensitivity, focusing more on task responsibility and attaching more importance to results instead of human relations. As we approach the opposite side of this axis, individuals' senses of behavior patterns in communication will also be on the opposite direction (Snavely, 1981; Merrill and Reid, 1981). As shown in Appendix 1, through the four behavior models in communication, the locations and the dimensions in the axis are expected to be perceived according to the specifications.

2. Aim of the research

In the human factor-oriented business world, in order to adapt to the customer according to the behavioral patterns in communication, some social style scales have been developed (Weitz, 1981; Weitz, 1984; Weitz, 1992; Spiro, 1990). However, to the best of our knowledge, there is no such study in the field of education, particularly in medical education. This study aimed to develop a reliable and valid measuring tool which can show individuals' behavior models in every social field connected to students, educators, and human factors, and it was considered that such an inventory could both contribute to education and to fill a gap in the literature containing only a limited number of academic studies in this area.

3. Method and material

3.1. The Place end time of the study

This study was carried out on medical faculty students in the second quarter of 2021.

3.2. Population and sample selection

Data obtained from the study were collected from medical faculty students using a draft inventory form by the authors. Since this was a scale development study, sampling was chosen by purposeful sampling method in order to reveal the ranges of the variable attempted to be measured. Kline (2005) stated that a sample of 200 people was sufficient to extract reliable factors in scale development studies. For this reason, data were collected from a total of 851 students studying at Mersin University Faculty of Medicine. Of these students, 378 (45.2%) were male and 459 (54.8%) were female. Data were collected through online survey systems between February and March 2021.

3.3 Type of study

This study aimed to develop an inventory that shows the behavioral patterns of individuals in a reliable and valid manner; therefore, it can be considered as a scale/inventory development study.

3.4. Data collection tool

The inventory developed had a total of four scales reflecting the social behavior model and containing different and common items. Separate total scores were obtained from each scale. In order to create the trial forms of the scales, a literature review was undertaken, expert opinions were taken, and various scales previously developed for similar purposes were examined. As a result, a draft form containing 115 items in total was created for the four scales to reveal the social behavior patterns of individuals. The draft form was examined by one expert in the field of measurement and evaluation, one in basic medical sciences, and one in biostatistics. As a result of these examinations, the items that were found to be unsuitable for the purpose were removed from the form, and an inventory was created with the remaining 109 items for the four scales. The items in the trial form were scored based on a five-point Likert-scale as "completely disagree", "disagree", "undecided", "agree" and "completely agree".

3.5. Researcg ethics

Ethics committee approval was obtained for the study. Approval numbered 02.03.2021-02 was obtained from the social sciences ethics committee of Mersin University.

3.6. Data analysis

The data obtained were transferred to the computer, and quality control was performed. For each scale, reverse scoring and outliers analyses were performed. As a result of the outlier analysis, the data of a total of 14 participants were excluded from the analysis. Analyses were carried out on the data of the remaining 837 participants.

In the next step, reliability and validity analyses were conducted separately for the scales. In the item analysis of the scales, the item-total score relationship was examined with the Pearson correlation coefficient, and the items that correlated with a total score of 0.20 or below were removed from the draft form after the analysis. The construct validity of the scales was examined using the exploratory factor analysis (EFA). The Bartlett test and Kaiser-Meyer-Olkin (KMO) test results were taken into consideration to determine the suitability of the data to the factor analysis (Nunnally and Bernstein 1994; Child, 2006; Field, 2013). The reliability of the scales was examined with the Cronbach alpha reliability coefficient.

For the scales with high item-scale correlations and alpha coefficients, the oblique rotation (promax, kappa: 4) method was used, and for scales with low item-scale correlations and alpha coefficients, the vertical rotation (varimax) method was used (Reise, 2000; Field, 2013). In promax and varimax rotations, factors with eigenvalues greater than 1.00 were processed. The lower limit of communality was determined as 0.32. It was ensured that the difference between the factor loading values was at least 0.10. (Tabachnick & Fidel, 2001).

A confirmatory factor analysis (CFA) was conducted on data obtained from a different sample of 304 individuals to provide additional evidence for the validity of the developed scale. Chi-Square/df, Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), Normed Fit Index (NFI), Non-normed Fit Index (NNFI), Root Mean Square Residual (RMR) values were examined to evaluate the validity of the model in CFA (Kline, 2005).

4. Results

The data obtained from the study were analyzed separately for each scale. Table 1 presents the number of items included in the inventory form, the variance ratio and the reliability coefficient of each scale. For the items with an item-total scale score correlation of less than 0.20, KMO value and Barlett tests calculated for the suitability of the data to the factor analysis and with a communality value less than 0.32, not included.

Table 1.

Evidence for the construct validity of the scales in the inventory

	Scales			
	Systematical	**Director**	**Relater**	**Socializer**
The number of items in the inventory	72	38	43	66
Items with an item-total score correlation of less than 0.20	23	11	12	21
Kaiser-Meyer-Olkin measure of sampling adequacy	0.793	0.737	0.739	0.792
Bartlett's test of sphericity	0.00	0.00	0.00	0.00
Items with a communality value of <0.32	8	0	1	7
Number of items not included	12	5	1	10
Number of items in the final form	29	22	29	28
Variance rate explained by the final form	52.512	45.975	55.374	44.638
Number of components in the final form	7	5	7	5
Cronbach alpha	0.79	0.71	0.74	0.79

As shown in Table 1, the number of components of the four scales in the inventory was between 4 and 7, the number of items varied between 22 and 29, the explained variance rates were between 44.638 and 55.374, and the reliability coefficients varied between 0.71 and 0.79. The scree plots obtained from the factor analysis study undertaken separately for each scale are also presented in Table 1.
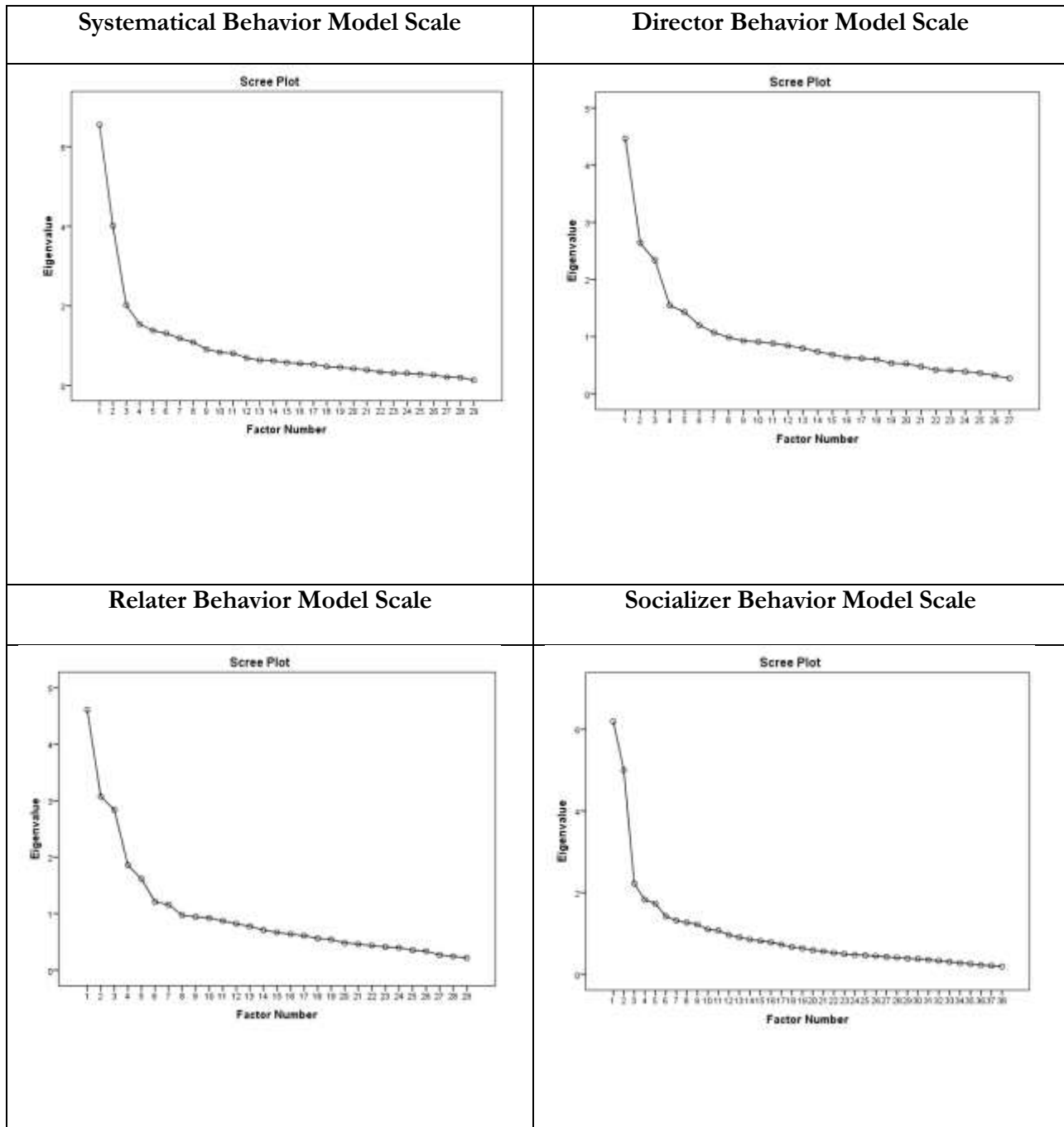
Systematical Behavior Model Scale	Director Behavior Model Scale
Relater Behavior Model Scale	Socializer Behavior Model Scale

Figure 1. Calculated scree plots for the scales in the inventory

There were seven components in the Systematical Behavior Model Scale, five in the Director Behavior Model Scale, seven in the Relater Behavior Model Scale, and five in the Socializer Behavior Model Scale.

Appendix 2 shows the components obtained from each scale, items included in these components, the reliability coefficients calculated separately for each scale and component, and the reverse-scored items. It was seen that the reliability values calculated for the components of the scales in the inventory varied between 0.60 and 0.87.

Confirmatory factor analysis (CFA) study was conducted on data obtained from different individuals in order to provide evidence for the validity of the structure determined as a result of EFA. Calculated fit indices are presented in Table 2. To ensure an acceptable level of model data

fit, the chi-square / df ratio must be below 5, and the RMSEA and RMR values must be below 0.08. In addition, CFI must be greater than 0.90 and IFI must be greater than 0.85 (Kline, 2005; Byrne, 1994). When the fit values calculated in Table 2 are analyzed, it can be accepted that the developed inventory has an acceptable goodness of fit.

Table 2.
Fit indices

Fit Indices	Behavioral Patterns			
	Systematical	**Director**	**Relater**	**Socializer**
Chi-square/df	2.78	2.34	2.65	3.21
RMSEA	0.07	0.06	0.07	0.08
RMR	0.08	0.08	0.08	0.08
CFI	0.90	0.90	0.90	0.90
IFI	0.90	0.87	0.85	0.87

5. Discussion and Conclusion

Verification of the ability of a scale to measure the intended construct is only possible with reliability analyses. Reliability means consistency and/or repeatability. Internal consistency is one of the most common methods used to establish evidence of the reliability of a scale. It determines the relationship between items considered to measure the same parameter. The items included in the scale should be consistent and related to each other to a certain extent. This relationship is measured with a previously determined correlation coefficient; i.e., the Cronbach alpha reliability coefficient (Cronbach, 1951). This coefficient varies between 0 and 1, but there are conflicting views concerning the optimum value (Nunnaly, 1967).

While Cichetti (1994); alpha> 0.70 is sufficient, alpha> 0.80 is good, alpha> 0.90 is defined as perfect, The American Psychological Association (APA, 1999) has determined the acceptability standards for the reliability coefficients as follows; alpha> 0.60 for scientific research, alpha> 0.70 for informational evaluations that contribute to the development of people, and alfa> 0.90 for job application evaluations. In addition, Murphy and Davidshofer (2001) stated that the reliability coefficients should be 0.60 and above for a measurement tool to provide reliable measurements.

Validity tests are conducted to determine whether evaluation results are compatible with existing theories and other measurement methods and define the extent to which a scale can measure a given construct. Construct validity is the most effective model of the validity analysis and evaluates the relationship of a measure with existing inferences and the parameter investigated. It covers different criteria, including convergent/discriminatory and factor validity (Messick, 1989). Factor validity is defined as the true or realistic degree of covariance between the examined features. There are two broad types of factor analysis: EFA and the confirmatory factor analysis (CFA). EFA is used to discover latent factors and CFA is used to verify the factor structure (Furr, 2014). The construct validity of the scales in this study was examined using EFA.

The findings obtained from our study show that the calculated Cronbach alpha reliability values of the scales in the behavioral models inventory ranged between 0.71 and 0.79. These values are acceptable and appropriate considering the previously determined standards. In addition, Nunnally and Bernstein (1994) stated that the factor analysis was fundamental in developing scales and providing evidence for their validity. Findings obtained from the reliability study and factor analysis showed that the developed inventory was reliable and valid.

Although the social style theory dates back to the Jung (1923), most studies include the findings of Merrill and Reid (1981) and Wilson Learning (Wenschlag, 1989). On the other hand, these studies have often been related to sales management. Although many study have been conducted to investigate behavior models, to our knowledge, there is no such study specific to the medical education field. The development of such a model to be used in education, especially in medical education would allow academics and healthcare professionals to determine their own and others' social styles and strengthen their communication skills as an educator and improve patient-physician relations.

The current inventory developed without any commercial purpose aimed to be easily accessible for all academicians, educators and healthcare professionals interested in this area. It is considered that this valid and reliable instrument to measure perceived behavior patterns will contribute to education and the academic literature.

References

Buchholz, S. W., Lashbrook, W. B., & Wenburg, J. R. (1976). Toward the measurement and processing of social style. Paper presented at the International Communication Association Convention, Portland.

Child, D. (2006). *The Essentials of Factor Analysis. 3rd edn*. New York: Continuum.

Cicchetti, D. V. (1994). Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instruments in psychology. *Psychological Assessment*, 6, 284-290.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16, 297-334.

Darling, J. R. (1990). Team Building in the Small Business Firm. *Journal of Small Business Management*, 28(3), 86.

Field, A. (2013) *Discovering Statistics using SPSS, 4th edn*. London: SAGE.

Fleishman, E. A. (1957). The leadership opinion questionnaire. In R. M. Stogdill, A. E. Coons (Eds.), *Leader behavior and its description and measurement*. Columbus: Bureau of Business Research, Ohio State University.

Furr, M. R., Bacharach, V. R. (2014; Chapter 9). *Psychometrics: An Introduction (2nd edition)*. Sage.

Gambino, F. M. (1993). 'Adaptive Leadership Style and Sales Performance: A Test of the Social Style Model'. *Dissertations*. 1865. https://scholarworks.wmich.edu/dissertations/1865

Gross, J. J., John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, 85(2), 348–362.

Jung, C. G. (1923). *Psychological types or the psychology of individuation*. Great Britain: Pantheon Books.

Kline, R.B. (2005). *Principles and practice of structural equation modeling (2nd edition)*. New York: The Guilford Press.

Manning, G. L., & Reece, B. L. (1992). *Selling today: An extension of the marketing concept*. Needham Heights, MA: Allyn and Bacon.

Marynissen HM. (2011). The relationship between organisational communication and perception. *Acta Chirurgica Belgica*;111(4):193-9.

Merrill, D. W., Reid, R. (1981). *Personal styles and effective performance*. Randor, PA: Chilton Book Company.

Messick, S. (1989). Validity. In R. L. Linn (Ed.), *Educational measurement*. New York: MacMillan.

Murphy, K., & Davidshofer, C. (2001). *Psychological testing: Principles and applications (2nd ed.)*. Pearson, London.

National Council on Measurement in Education. (1999). *Standards for educational & psychological testing*. Washington, D.C.: American Educational Research Association.

Nunnally, J. D. (1967). *Psychometric theory*. New York: McGraw-Hill.

Nunnally, J.C., & Bernstein, I.H. (1994). *Psychometric theory (3rd ed.)*. New York: McGraw-Hill.

Reise, S. P., Waller, N. G., Comrey, A. L. (2000) Factor analysis and scale revision. *Psychological Assessment*, 12(3), pp. 287-297.

Rumsey, J. (2014). "The Difference in the Social Styles of Career and Volunteer Fire Chiefs" Human Resource Development Theses and Dissertations. Paper 4.

Snavely, W. B. (1981). The impact of social style upon person perception in primary relationships, *Communication Quarterly*, 29:2, 132-143.

Snavely, W. B., & Walters, E. V. (1983). Differences in communication competence among administrator social styles, *Journal of Applied Communication Research*, 11:2, 120-135.

Spiro, R. L., & Weitz, B. A. (1990, February). Adaptive selling: Conceptualization, measurement, and nomological validity. *Journal of Marketing Research*. 27(1), 61-69.

Tabachnick, B.G. ve Fidel, S.L. (2001). *Using multivariate statistics*. New York: Harper Collin.

Weitz, B. A. (1981). Effectiveness in sales interactions: A contingency framework. *Journal of Marketing*. 45(1), 85-103.

Weitz, B. A. (1984). Sales effectiveness through adaptation to situational demands. *Personal Selling*, 123-142.

Weitz, B.A., Castleberry, S. B., & Tanner, J. F. (1992). *Selling: Building partnerships*. Homewood, IL: Richard D. Irwin, Inc.

Wenschlag, R. (1989). *The versatile salesperson: Selling the way your customers wants to buy*. New York: John Wiley & Sons, Inc.

Wilson Learning Corporation. (1977). *Social style sales strategies*. Eden Prairie. MN.

Appendix 1. Distribution of four behavioral models between dimensions and some of their main characteristics according to subgroups

TASK/RESULTS-DIRECTED — Low Responsiveness/Controlling Emotions

SYSTEMATICAL — Behavioral patterns	DIRECTOR — Behavioral patterns
Business Style Control focused on tasks more than people Following the procedure step by step Good at objective evaluation Planned, analytical, rational Avoids group work, preferring to work alone Concentrates Excellent accountant Cautious in decision-making When stressed may withdraw or become headstrong Separates emotions from decisions Low assertiveness Low responsiveness -I think… **Wants:** to be right **Prefer:** to think **Weakness:** not being able to motivate **Under pressure:** tend to escape	**Business Style** Task-focused, results-oriented Competitive and needs to win Fast-acting Can multitask Knows what he/she want Creative thinking Decisive Dislikes inefficiency and indecision Can be impatient and insensitive High assertiveness Low responsiveness - I will… **Wants:** to achieve results **Prefer:** to take action **Weakness:** Bad at listening **Under pressure:** Solves problems
Communication Style Ask-directed Indirect speech, implication Calm, slow, monotone tone of voice Formal, distant Leans back when sitting Controlled Disinterested Serious facial expression Limited eye contact Slow body movements No mimics Interrogator Indirect, stable Unenthusiastic Rarely shares emotions and personal information Likes to wear dark and grey	**Communication Style** Tell-directed Clear, sharp and exact speech Intentional responses Effectual speech Emphasizes his/her words Formal, disciplined Leans forward when sitting Interrupts others Crosses the personal space Serious facial expression Strong eye contact Fast body movements Skeptical Sometimes shares his/her emotions and personal information Likes to wear black and navy blue

ASK/THINKER-DIRECTED — Low Assertiveness (left) / **TELL/ACTION-DIRECTED — High Assertiveness** (right)

RELATER — Behavioral patterns	SOCIALIZER — Behavioral patterns
Communication Style Active listener Empathetic and soothing Compassionate listener Quiet, slow and soft speaker Narrow voice volatility Friendly and relates well to others Easy going Humble Empathetic and soothing Calm and soothing facial expression Sometimes uses mimics Good eye contact Abstainer Humane Enjoys sharing emotions and personal information Dreamer Emotional Surrounded by memories Artistical Makes friends easily	**Communication Style** Tell-directed Excited speech Loud, fast, and over-talker Jumps from topic to topic Has a tendency to generalize and exaggerate Can deviate from reality Colorful clothing Flamboyant jewelry Expositive Relaxed facial expression Vivid mimics Good eye contact Makes good use of body movements Relaxed sitting Outgoing and enthusiastic Spontaneous and fun-loving Enlivening Cheerful, entertaining Good at persuading and motivating Informal, self-righteous
Business Style Good at listening and teamwork Modest Dislikes conflict and risk-taking Slow decision-making Cannot manage time well Needs time for change Seeks security and likes organized workplaces Easy going, unhurried Polite, helpful Positive thinker Prefers to be told what to do than to lead Fears change and uncertainty Low assertiveness High responsiveness - I feel… **Wants:** to feel safe **Prefer:** to establish relationships **Weakness:** Late to act **Under pressure:** May become indecisive and obedient	**Business Style** Intuitive, creative Emphasizes less Natural salesman Generalist, dreamer May be competitive and risk-taker Unstructured, free, cadent Gets bored quickly Communicates with many Knows phone numbers and addresses, makes personal visits Gets the job done at the last minute Strong posture Fears being ignored or rejected Like to be acknowledged Dislikes routine and complexity High assertiveness High responsiveness -I want… **Wants:** To be approved **Prefer:** Spontaneity **Weakness:** Impulsiveness **Under pressure:** May become aggressive

EMOTIONS/PEOPLE-DIRECTED — High Responsiveness/Displaying Emotions

Appendix 2. Components of the scales and evidence of reliability

	Component Name	Item no	Reliability	Component name	Item no	Reliability	
Systematical Behavior Model Scale	Planned	1, 2, 3, 4, 5, 6, 7, 18	0.84	Task-oriented	10, 21, 32, 39, 40, 41, 42	0.72	**Director Behavior Model Scale**
	Assertiveness in human relation	13, 43, 44, 45, 50, 51, 58	0.87	Competitiveness	24, 30, 31	0.67	
	Elaborateness	8, 10, 15, 16	0.66	Individualism	22, 23, 25, 26	0.63	
	Social energy	57, 59, 61, 62	0.75	Emotional timidness	49, 52, 53	0.60	
	Emotional sharing	19, 20	0.82	Results-oriented	9, 29, 36, 37, 38	0.65	
	Social sharing	46, 47	0.84	**Reverse Scored Items** 23, 49, 52, 53			
	Gestures and facial expressions	11, 12	0.63				
	Reverse Scored Items 4, 6, 10, 18, 43, 44, 45, 46, 47, 50, 51, 57, 58, 59, 61, 62						

	Component name	Item no	Reliability	Component name	Item no	Reliability	
Relater-Behavior Model Scale	Timidness	21, 32, 37, 39, 40, 41, 42	0.76	Assertiveness in relationships	13, 43, 44, 45, 51, 56, 57, 58, 61	0.86	**Expressive Behavior Model Scale**
	Competitiveness	24, 30, 31, 33, 35	0.76	Undesignedness	1, 2, 3, 4, 5, 6, 18, 55, 60	0.83	
	Team spirit	22, 25, 26,27	0.74	Unchary	7, 8, 14, 16,17	0.73	
	Results-oriented	9, 29, 34, 36, 38	0.61	Entertainer	59, 62, 63	0.6	
	Emotional sharing	19, 2	0.82	Gestures and facial expressions	11, 12	0.63	
	Emotional sympathy	28, 48, 49, 54	0.63	**Reverse Scored Items** 1, 2, 3, 5, 7, 8, 11, 12, 13, 14, 16, 17, 55, 56			
	Social timidness	52, 53	0.67				
	Reverse Scored Items 9, 19, 20, 21, 22, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 48						

Appendix 3. Behavioral Patterns Inventory

Item No	Behavioral Patterns Inventory Please mark the most appropriate option for you with an 'X'. 1 point means you strongly disagree and 5 points means you strongly agree. Please answer all statements honestly and sincerely (even if you don't like the answers). **Items**	1	2	3	4	5
1	Planned work is a matter of principle for me.					
2	The most important part of a work is developing a good plan and to be able to stick to it.					
3	Working without any plans makes me feel anxious.					
4	I like living life with no particular plans.					
5	I even try to plan my daily chores.					
6	I'd rather let the process flow than waste time planning things.					
7	I think I'm a quite cautious and a self-controlled person.					
8	I think through every matter before making a decision.					
9	I think, people should say what they need to say right away, cutting a long story short.					
10	While speaking, I pay attention to my tone accent and intonation.					
11	People say that I don't use a lot of gestures while talking.					
12	I do not reflect my emotions on my facial expressions.					
13	I am generally perceived as distant.					
14	I am quite sensitive when it comes to details.					
15	I can easily notice the imperfections in a job done.					
16	I try to completely fulfill every responsibility I am given.					
17	I do all my work, including my daily chores, meticulously.					
18	Living life cautiously is not for me.					
19	I don't like sharing my feelings with others.					
20	I don't like sharing my problems with others.					
21	I push my limits in order to complete a job, even if it is difficult.					
22	I think individual success comes before team success.					
23	The decisions of the team are more important than my own decisions.					
24	If I have to work in a team, I would like to lead the team.					
25	I prefer working individually to working in a team.					
26	Working in a team demotivates me.					
27	In my opinion, working in a team is tiring.					
28	I don't mind offending my team members/friends for my own success.					
29	Instead of telling others how to do a task, I prefer doing it myself.					
30	I think I have a competitive personality.					
31	In my opinion, there is no success without competition.					
32	I don't refrain from expressing my ideas in a competitive environment.					
33	I don't like to be sidelined for a task that I am capable of doing.					
34	Assigning someone else to a position I deserve makes me angry.					
35	Competition motivates me.					
36	Indecisiveness of others makes me angry.					
37	I decide quickly and try to implement it fast.					

38	If I make a decision, I try to put it into practice immediately.					
39	Choosing between the alternatives is easy for me.					
40	I try to find the easiest and most effective way to do a difficult job.					
41	I do not hesitate to express my wishes openly.					
42	Every difficult task has an easy way.					
43	I think I am personable.					
44	I <u>don't mind</u> going through trouble to help people.					
45	I am a people person.					
46	People don't hesitate to tell me anything.					
47	My friends often choose me to talk about their problems.					
48	I don't care if other team members get upset about my idea that I believe is correct.					
49	I feel very uncomfortable when there is tension within the team.					
50	I easily mingle with people I have just met.					
51	I am quite social in new environments.					
52	The possibility of disturbing my friends is my preliminary concern, before I call them.					
53	My primary thought before asking anything from my friends is not to disturb them.					
54	Someone else's sadness also affects me.					
55	It is quite important that my belongings are organized.					
56	I have trouble expressing myself in unfamiliar settings.					
57	I feel quite energetic at social settings.					
58	Socializing in a new environment does not make me nervous.					
59	I like making people happy using humor.					
60	I'd rather live the moment than think about the future.					
61	I am considered to have a fun personality, including my Professional environment.					
62	I make time for entertainment, including work.					
63	My comfort zone is indispensable.					

Appendix 4. Behavior Scores Calculation Steps

$Score_{sub}$= (Total score- Min. score)/(Max. score – Min. score)

Total $Score_{sub}$= **Systematical** $Score_{sub}$ + **Director** $Score_{sub}$ + **Relater** $Score_{sub}$ + **Socializer** $Score_{sub}$

Systematical $Score_{general}$ = (**Systematical** $Score_{sub}$/ Total $Score_{sub}$)x100

Director $Score_{general}$ = (**Director** $Score_{sub}$/ Total $Score_{sub}$)x100

Relater $Score_{general}$ = (**Relater** $Score_{sub}$/ Total $Score_{sub}$)x100

Socializer $Score_{general}$ = (**Socializer** $Score_{sub}$/ Total $Score_{sub}$)x100

Min. score and Max. score are constant.

Total score is the total score of the answers given to the questions.

$Score_{general}$ is the behavior score.

Example: Behavior Scores Calculation

	Scores of Subscales			
	Systematical	**Director**	**Relater**	**Socializer**
Min. score	29	22	29	28
Max. score	145	110	145	140
Total score	90	79	69	80
Score$_{sub}$	(90-29)/(145-29) =0.526	(79-22)/(110-22) =0.648	(69-29)/(145-29) =0.345	(80-28)/(140-28) =0.464
Total Score$_{sub}$	0.526+0.648+0.345+0.464=1.983			
Score$_{general}$	(0.526/1.983)x100=26.5	(0.648/1.983)x100=32.7	(0.345/1.983)x100=17.4	(0.464/1.983)x100=23.4