

A Study on Developing a Communicative Rational Action Scale

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Abstract: The aim of this study is to develop a Communicative Rational Action Scale and analyze its validity and reliability. The scale has been prepared for all administrators and especially for firm administrators based on Max Weber's rationalizing theory and Jürgen Habermas' communicative action theory. The scale reveals to what extent administrators' behaviors are communicatively rational while deciding or acting. In total, 282 participants joined this study. The sample group consisted of senior administrators of 87 firms acting in Turkey's different Organized Industrial Zones or Free Zones. Data were analyzed by the SPSS 21 and AMOS 22 programs. Exploratory factor analysis and confirmatory factor analysis were applied to the obtained data. In order to test item discrimination, total item correlations were calculated and items under the value of 0.40 were removed from the scale. Exploratory factor analysis revealed 21 articles and five factors. The correlation coefficient of the 21-article scale with a similar scale is 0.979 ($p < 0.001$). The Cronbach's alpha value is 0.945 and the test-retest correlation parameter is $r = 0.793$ ($p < 0.001$). In conclusion, it was determined by confirmatory factor analysis that the Communicative Rational Action Scale has a good cohesion criterion, and it is a valid and reliable assessment instrument.

Keywords: communicative rational action; practical rationality; stakeholders; firm family

1. Introduction

Firms are naturally established for maximum profit. This is one of the most important goals of the market system. In a more general sense, it is claimed that the rationalization/modernization process transforms the owners/managers of the firm into rigid individuals who are self-interested and devoid of any value. It is stated that the firm owners compete fiercely with others without considering the living resources of future generations by minimizing costs to achieve their ultimate goals. It is claimed that everything, including humans, is instrumentalized to achieve a rational purpose. In Weberian terms, it is said that the economic units ruled by “specialists without spirit, sensualists without heart” cannot produce any meaning or value.

On the other hand, as a result of these developments and sociological transformations, a need for renewal appears in the market system. Starting from the second half of the 20th century, firms have been organized as socio-economic organizations rather than economic and mechanical formations. It is argued that profit cannot be the only motive that drives the behavior of firm managers. It is stated that firm owners and managers should defend the interests of all actors they deal with. This circle forming the inner and outer environments is called the firm family. This theory aims to

bring managers and firms, which are composed of mechanical relations, into a more human dimension. While Habermas does not establish a relationship with this theory, he offers a theory that is much broader than the firm family theory. He aims to restore modernity and raise it to an acceptable human level.

This study does not seek to prove the truth or falsity of Habermas' theory. Habermas proposes communicative action theory by performing an interdisciplinary and deep examination. Numerous studies have been carried out on his thesis. However, most of these are theoretical studies. Habermas places the communication argument at the center of his formulation. It should be assessed as to whether the theories of communication have real life equivalents. The original thesis of this study is the practical equivalent of the theory put forward by Habermas. Why was such work needed? Habermas claims that with a strong argument, such as (rational) communication, all segments of society (especially secular/religious) can reach an agreement. In this direction, this study aims to reveal the potential of firm owners and managers to act in a communicative rational way. The participants consist of firm owners and senior managers in Turkey. In total, 87 firms and 282 firm owners and managers have been reached. They work in some Organized Industrial Zones and the Free Zones in Turkey. The number of firms is 87 because large-scale companies are preferred for research. A total of 282 people participated in the study because they were firm owners or senior managers, and there is difficulty in reaching or including these people in research. What has been achieved with the scale that has been developed with these people? With the Communicative rational Action Scale that has been created, it can be understood to what extent firm owners or managers see their employees and other people as "subjects" and act accordingly.

2. Literature Review

Max Weber is one of the philosophers who has scrutinized the birth, development, maturation, and results of capitalism in the West. Weber regards the modern capitalism process and rationalism as having the same meaning. Individuals come across a new form of life through rationalism and the capitalism process. This new process prompts a new organization and regulation of all relations and activities in micro and macro units. Western societies progress in a purposive-rational way in the rationalism process. Purposive rationality can be explained as units focusing only on their benefits, success, and profits. Weber considers this rationalism process as a success of the West. In addition to this, Weber deals with western practical-rational understanding as a success of Western culture. Practical rationality means units acting in a way that is both reasonable and principled in their decisions and activities. However, Weber does not try to balance these two polar points. On one hand, he criticizes the erosion of values, while on the other hand, he supports the development of beneficial understanding.

According to Weber, modern capitalism requires the internalization and institutionalization of purposive rationality. Capitalist firms are the institutions in which purposive rationality has been most intensely adopted. Administrators' decisions based on benefit and success provide the development of capitalist firms [1]. Through this process, an unprecedented increase in wealth and prosperity is provided. On the other hand, purposive rationality, which is based on benefit, profit, and success, also creates serious problems [2]. Global wealth grows more and more every day; economic growth has been accomplished almost flawlessly. However, in this process, the individual has been instrumentalized like a commodity [3]. Various crises occur in finance, politics, and social lives due to losing the ultimate objectives of people. Weber calls rationalization or capitalism "the disenchantment of the world". In this process, the modern individual abandons his moral values and becomes a prisoner of ambition and pleasure [4]. Individuals struggle with pathological problems such as loss of meaning, loss of freedom, iron cage and new paganism. Through modernization, individuals become alone. The individual is deprived of a source that makes sense of his wealth and goods. People individualize and think and act insensitively and lose their independence [5].

Additionally, they set off on quests to interpret their lives. Thus, individuals become soldiers of capitalism. The only objective of the instrumentalized individual is to be a part of capitalism [6]. Since individuals lose their sense of belonging, they can neither adopt the product nor own the production machines of the producer. This situation leads to people living in an iron cage. The individual is alone and without meaning, a prisoner in a cold world. Thus, people worship anything they like, so as to find a way out. Weber calls this “new paganism” [7]. According to him, there used to be just one god in ancient times, but thousands exist nowadays. The administrators of the system are specialists without spirit and sensualists without heart [8].

Weber suggests that capitalism leads to pathological problems but it does not create any solution for these problems. Habermas tries to fill in the gap by analyzing Weberian sociology perfectly. Habermas tries to put modernism, which is based on Weber’s rationalism theory, in a favorable light. Thus, he developed the theory of communicative action.

Habermas generally wants to reach modern society and specially eliminate the problems which emerge in the socio-economic life. He strives for a restructuring of the socio-cultural life, which is destroyed by modern life. Relations between secular and non-secular people are reviewed by the communicative action theory that is developed for this purpose [9]. From that point of view, Habermas tries to design a correct interaction between firms’ administrators and workers. Communication is the focus point of his theory. Habermas believes that the ideal modern individual, firm and society can be reached via correct and rational communication.

Communicative action generally involves a mutual agreement between individuals by considering their ideas, demands and needs. In this respect, all involved parties exchange their opinions. They agree through their language and actions. People express their views when interacting. Adverse or different opinions can be expressed. The main aim of the process is to reach agreement. Agreement can be reached by regulating the opinions of participants vis a vis some conditions and principles. Thus, each communicative action is not rational according to Habermas [10].

Communicative reason, which forms rational society, is based on some preconditions and principles. According to Habermas, stakeholders (i.e., individual, firm, institution, state, etc.) should interact in order to reach an agreement. The stakeholders should know each other. The opposite situation must be accepted as a part of the process at the beginning. Stakeholders should strive to reach a compromise and to be positive. The norms and expectations of individuals must be clearly defined. Discussion should start as all stakeholders are equal. Language should be used freely and effectively. Intentions should be expressed clearly. Stakeholders should be honest, kind and reliable. Actions such as violence, lying, deception, tricks and domination should not be used during this process. Contrasting opinions should not be underestimated, and people should approach new discussions with tolerance [10].

According to Habermas, agreement between individuals is the main objective of relations and communication. During interaction, individuals are provided with motivation from a value pool called lifeworld. Communication based on lifeworld consists of justness, equality, freedom, interdependence, sharing, accuracy and honesty. This communicative rationality is based on the principle of validity. People should express their opinions with definite criteria for valid action. The methodological action leads individuals to rational thinking and acting. With the completion of a process, communicative rationalism is reached, different from rationalism, which provides benefits. According to the aforementioned philosopher, all social people acting in this behavior may compromise. Due to the creation of common ground, it is easier to organize international moral norms. Moreover, a fair economical system can also be built. Habermas suggests communicative rationality against purposive-rational action. In this perspective, the theory of communicative rationality can be considered as maintaining modernism instead of criticizing. According to Habermas, by understanding and

including the theory of communicative rationality theory into the entire process, people can maintain communication ethics. The validity, fairness and legality of the arguments and claims of people are important in terms of ethics. Habermas tries to present a commonly approved theory with international ethics behavior [11].

Studies on Habermas are abundant in the literature. The fact that the studies are from various disciplines is due to Habermas being a multi-dimensional thinker. There is also a lot of theoretical study on communicative rationality. However, there is scarcely any empirical work on communicative rationality for action in the literature. This situation is valid for domestic and foreign literature.

The main studies on the subject are as follows: Power and others consider food insecurity using Habermas' distinction between the system and lifeworld [12]. Rezapour and others aim to identify communicative action indicators and variables and assess the communicative action in Tehrancy. They derived seven indicators: urban space, lifeworld, amenity, social capital, communicative rationality, a critical viewpoint and economic development [13]. Duckett and others critique the transparency and legitimacy of participatory scenario planning considering a case study of scenario development for the livestock industry within Scotland by applying Habermas' theory [14]. Murtagh and others studied Habermas' communicative action in eight Twitter campaigns in their research [15]. Brody evaluated current Forest Service decision-making processes and looks to better understand the public's perspectives of these processes by applying communicative action [16]. Chan focused on how social reproduction was possible in school education, how school education worked in general, and how school education was developed. He used Habermas' theory of communicative action, a study of school education in Hong Kong was conducted, with a span of more than sixty years from 1945 to 2008 [17].

Duran and Bayrak conducted a study on communicative rationality in participation banks and traditional banks within the province of Rize [18]. Çamlı evaluated the stakeholder's model, which is a current trend in business science, with the communicative rationality theory in his study. As a result of the firm-based research conducted in the province of Manisa, the theory was affirmed [19]. Daşdemir conducted a survey on companies in the province of Manisa to measure the applicability of Habermas' theories [20]. Urhan analyzed the proof-making processes of university students according to the Habermas rational action model in his study [21]. Urbay aimed to determine the rationality levels of companies through communicative action theory. According to the research company in Turkey working on management–employee relations, objective-rational action in the mold has been found to be in line with the liberalization and loss of legitimacy [22]. These studies can also be seen in Table 1 below.

Table 1. Research information.

Researchers	Research Title	Subject
Power, M.; Small, N.; Doherty, B.; Pickett, K.	The incompatibility of system and lifeworld understandings of food insecurity and the provision of food aid in an English city	They consider food insecurity using Habermas' distinction between the system and lifeworld.
Rezapour, M.; Bahrainy, S.; Tabibian, M.	Analysis and assessment of communicative action indicators and variables; a case of Tehran city, Iran	They aim to identify communicative action indicators and variables and assess the communicative action in Tehrancy. They derived seven indicators: urban space, lifeworld, amenity, social capital, communicative rationality, critical viewpoint and economic development.
Duckett and others	Scenario planning as communicative action: Lessons from participatory exercises conducted for the Scottish livestock industry	They critique the transparency and legitimacy of participatory scenario planning, considering a case study of scenario development for the livestock industry within Scotland by applying Habermas' theory.

Murtagh, F.; Pianosi, M.; Bull, R.	Semantic mapping of discourse and activity, using Habermas' theory of communicative action to analyze process	They studied Habermas' communicative action in eight Twitter campaigns in their research.
Brody, D.	Citizen involvement in environmental bureaucratic decision-making: Communicative action in forest service NEPA projects	Brody evaluated current Forest Service decision-making processes and looks to better understand the public's perspectives of these processes by applying communicative action.
Chan, S.W.	Using Habermas' theory of communicative action to analyze the changing nature of school education in Hong Kong (1945–2008)	Chan focused on how social reproduction was possible in school education, how school education was worked in general, and how school education was developed. He used Habermas' theory of communicative action, and a study of school education in Hong Kong was conducted, with a span of more than sixty years from 1945 to 2008.
Duran, B.; Bayrak, A.Z.	Comparison of the participation and traditional banks in terms of communicative rationality in Turkey	Duran and Bayrak conducted a field study on communicative rationality in participation banks and traditional banks within the province of Rize.
Çamlı, A.Y.	A Habermasian look at the stakeholder model: The communicative rationality theory and the firm example	Çamlı evaluated the stakeholder's model, which is a current trend in business science, with the communicative rationality theory in his study.
Daşdemir, M.K.	Applicability of communication theory of Habermas to the economy in practice (Example of Manisa)	He conducted a survey on companies in the province of Manisa to measure the applicability of Habermas' theories.
Urhan, S.	Analysis of proof process based on Habermas rational behavior construct	Urhan aimed to analyze the proof-making processes of university students according to the Habermas rational action model in his study.
Urbay, T.	Researching of rationality level in Turkish private sector within the frame of Jurgen Habermas' theory of communicative action	Urbay aimed to determine the rationality levels of companies through communicative action theory. According to the research company in Turkey working on the management–employee relations objective-rational action in the mold has been found to be in line with the liberalization and loss of legitimacy.

3. Sub-Dimensions

3.1. Rational Action

Rationality, which is at the center of the economics discipline, is a multi-dimensional concept. It may include various meanings due to different perspectives and disciplines. According to Weber, rationalism is individuals acting by rational principles in all their decisions and activities. The goal or goals of meeting the needs perfectly are determined during the rationalism process. Minimum cost methods or channels and ways to achieve the goals are searched. Various results of the preferences are predicted and risks are taken into consideration. That is, it is about controlling, directing and carrying out an action. In other words, rationalism requires foregrounding of intelligence. In general terms, intelligence is effectively active in organizing the values, determining the principles, bringing into force, supervising and similar phases of economy, politics, science, law, justice and finance [23]. Weber's rationality concept includes properties such as calculability, controllability, logicalness, how scientific it is, consciousness, universality and systematicity.

Rationalism is based on the principle of individuals acting rationally. Individual uses mechanism of intelligence in daily practices, relations with other people, business, and family life, short and long-term plans and similar conditions. Therefore, individuals' mental activities, action motivations and contents, comparing and focusing on target activities, are at a developed level. The rationalism process designs the individual's life from beginning to end. In terms of macro evaluations, rationalism is building intelligent relations between a state and its institutions and private sector firms [24]. Rationalism is

acting with intelligence, reaching the goals more easily and with minimum cost in order to peak individual's benefits. This may be indicated as cost minimization and profit maximization.

Weber mentions various views of rationality in his works. Habermas classifies them as essential-rationality, formal-rationality, value-rationality, moral-rationality, cognitive-rationality, methodological-rationality, technical-rationality, structural-rationality and choice-rationality. Although Weber uses different names, some of them have the same meanings. For example, formal-rationality and structural-rationality have the same meaning. These are kinds of rationality in which an individual only focusses on their benefits. Individuals set goals and determine necessary instruments in accordance with their own benefits. Individuals do not act vis a vis emotions and traditions. Furthermore, they do not use subjective values and judgements [25]. According to Weber, formal rationality is the best in capitalist economic activities. Thus, obtaining maximum benefit from minimum sources or maximum profit with minimum cost forms formal-rational activities. Therefore, formal rationality occurs mostly for firms and Weber uses the concept for business administrators [26].

Purposive rationality constitutes individuals acting by only thinking of his benefits. Individual determines measurable, calculable and systematized targets in order to increase his benefits and presents necessary tools, methods and applications. Individuals choose the minimum cost and the most effective tool. Moral values or traditions do not have a place in decision process. Individual acts reasonable instead of being emotional [27]. Thus, individuals only focus on increasing his benefit, success, and power.

Habermas describes purposive-rational action more elaborately. According to him, purposive-rational action can be expressed by two concepts: instrumental action and strategic action. Instrumental action is realizing the action by establishing the respondent negatively. The rationality of the goal is not important, but the method used to reach the goal is important. Individual uses force, lies and makes a trick in order to reach his goal. However, this action ensures individual's benefits and instrumentalization of the respondent. Individual's activities such as robbery, extortion, abuse, cheat and states' colonialism can be expressed in this group. Thus, instrumental activities have final sanctions [28].

On the other hand, individual contacts with respondent to reach his targets in strategic action. However, individual does not use power. Individual considers the respondent as an instrument and finishes contact as soon as target emerges. Modern firms and administrators naturally use strategic action. According to Habermas, firms and administrators should internalize communicative action as well as strategic action for an ideal society.

3.2. Value-Rational Action

Weber's value-rationality, essential-rationality and moral-rationality all have the same meaning. Value-rationality may be mentioned if an individual acts in principle or with values. In this phase, the individual acts vis a vis a principle or a value rather than benefits [29]. Value-rationality includes binding of instruments. These are motivation sources such as beliefs, social responsibility, glory, and loyalty. This type of action takes place in the individual's mind as a direct goal. Ensuring the ideal benefits is not important. A value should be generally accepted and principled in order to be rational [30].

3.3. Practical-Rational Action

Practical-rational action comes into being by combining the action conditions of purposive-rational action and value-rational action. Practical-rational action requires expressing rational goal or goals to meet needs. It includes searching and comparing the most appropriate and effective tools, methods, and applications. Additionally, it requires being ready for realization or failure of expectations and generating strategies for

unexpected conditions. It is important to ensure individual's benefits, success and profit during decision and action processes. At the same time, the action must be ethical [31].

An individual conducting economical actions naturally acts with the aim of profit maximization. Individuals who carry out practical-rational actions try to realize the benefits, success and profit. At the same time, they consider the respondents' rights and increase common welfare. Individuals protect and internalize the environment like their own homes and try not to cause harm. Additionally, they try to increase the sources of the next generations [32].

Politics, activities, institutions, precautions, etc., about economics or other disciplines can be organized with practical-rationality so practical-rationality may be expressed as social norm dynamics. Thus, collective actors may carry out activities which care people, firm family, environment, and consumption sources of next generations by leaving mechanic activities that focus on profit maximization.

Fundamentally, these form a wide range of ideal dimensions of sustainable growth, which is one of the most important macroeconomic goals of modern day's business world. Certainly, there is no place for negativity in this legal organization. Activities that give harm to social values and human values such as colonialism, corruption, injustice, and cruelty are not approved, as practical-rational economical activities are not expected to be ungenerous, selfish, self-serving and hedonist. On the contrary, practical-rational economy suggests and encourages fair, participative, solidarist and merciful activities.

3.4. Rational Communication

Rational communication requires the existence of some conditions and principles. These principles can be adopted as mutuality, validity, ideal conversation, integrity, and argumentation. The mutuality principle is the right to express ideas equally for actors that carry out communication actions. Equal conditions and not accepting inappropriate actions are desired with the value principle. Therefore, definite values must be considered as principles during the action process. Values such as respect, solidarity, sincerity, and honesty form many principles. Individuals must defend their opinions with appropriate evidence and arguments due to the validity principle. Thus, competition between different ideas exists in communicative rational action. Individuals who defend their ideas must behave according to the conditions expressed before. Therefore, individuals' ideas must be comprehensible, correct, and valid and be expressed clearly to the respondent and individuals should believe an agreement can be reached. Certainly, individuals must express their discourse accurately, act vis a vis common norms and in sincerity. The ideal conversation principle occurs by expressing ideas without any pressure and restriction. According to an agreement based on an ideal conversation principle, expressed opinions are considered accurate and valid. People try to understand each other in equal conditions. Generally, people are considered to satisfy the conditions of communicative rational action and act in principle. According to Habermas, an accurate idea is an idea that is accepted by the respondent at the end of the discussion. Thus, the accuracy principle is important in terms of ensuring general harmony in society. The opinion expressed as accurate in the discussion can be defended, unaccepted or approved. The idea accepted at the end is valid. Normative legality and sincerity can also be mentioned with the accuracy principle. Therefore, an individual's discourse must be clear, accurate, confirmed, and sincere [33]. Accuracy and validity principles of communicative rational action require argumentation. Accuracy needs confirmation so an opinion needs to be supported by factual elements. Arguments have the property of ensuring the accuracy of assertions. In order to reach an agreement, joining the discussion with rational arguments is important or may even be a must. Arguments can validate the opinions and also lead respondents to be persuaded. Furthermore, the argumentation process is accepted as a part of ideal conversation principle. From that point of view, a valid argument is stronger and more persuasive than the other.

As can be understood from the indicated conditions and principles, communicative rationalism suggested by Habermas expresses a condition formed by activities based on communicative rationalism. This theory indicates a process that generally leads to agreement in society. People act without expecting any benefit in communicative action. This action includes people expressing their opinions and reaching an ideal mutual agreement. Thus, societies must be established on the principle of communicative action according to Habermas. States, societies, firms, and individuals that accept communicative action solve their problems by expressing their ideas mutually. They decide by considering all partners' ideas and benefits. Universal principles can be reached by generalizing this process. Thus, Habermas emphasizes that individuals may express their opinions and rational arguments independently, without any pressure, and equally in communicative ethics [34].

Habermas argues that communication ethics can be valid in each part of social life and so considers sub-systems such as economy, politics, and law in this perspective. For example, communicative rationalism in the economy can be explained as the establishment objective of firms being to make profit a priority. Naturally, firms have strategic activities. In addition to this, firms must consider communicative rationalism while reaching their goals. This view has two dimensions—state, and environment (firm family). The first one indicates responsibilities for the subjects related to the public. Firms must organize their activities with an eye to protecting public benefits. Firms' other responsibility is related to people and units. These people, workers, shareholders, customers, and suppliers, etc., form a firm family. According to Habermas, the higher the increase in rational communication of family members, the more profit. The main objective is that people must consider each other as humans or actors, solve the problems by communication and decide by considering mutual benefits.

3.5. Firm Family

The free market economy converts firms into institutions that only focus on their benefits, maximize their profits and that are indifferent to values. In other words, an organization that instrumentalizes everything, including people, is built in order to reach a rational goal. Recently, firms tried to become prominent as socio-economic organizations instead of being just an economic and mechanic organization. Profit cannot be expected as the only reason to direct a firm's activities. Furthermore, firms must consider all partners' benefits. These internal and external environments are made up of called stakeholders [35].

Ideas and research on stakeholder theory are often put on agenda by westerners and especially American philosophers. This theory was added to such agenda at the beginning of 1980s but it was first put forward in 1960s [36]. It was seen that stakeholder theory was developed as a reaction to the free market economy. According to this theory, different units that gain favor to each other are collected at a business. The total benefits of individuals and units in the intersection set corresponds with the power of a business. Therefore, individual members and units should act accordingly with a firm's activities and avoid benefit conflicts. These behaviors ease firms' problems, reaching their goals and allow them to be successful [37].

Communication between units of a firm family is generally strategic nowadays so all units are self-possessed. Big problems exist in terms of trust. Acting together is weak. Channels for interdependence and co-operation are mostly closed. All units only consider their own benefits, so they develop various methods to ensure their benefits. However, gaining profit for all units is difficult in this type of relation [38]. Thus, Habermas indicates that strategic action and communicative rational action must be carried out collaterally. All actors gain when relations in the firm family and with other firms are organized in this way. It is not reasonable to remove strategic action from firm relations. Firms must develop definite strategies and maintain continuity in order to reach their goals. Attaching rational communication to a relations network may result in all partners being benefitted.

This process is formed by respecting and listening to each other, putting forward rational arguments, and deciding with mutual agreement and without lying and forcing others [39].

Since a firm family is a community formed by individuals and units that have common benefits, making profits for the firm is at the same time making profits for members. Workers feeling themselves as a part of the firm provides their self-confidence, being happy and embellishing their environment. Additionally, it increases institutional involvement and motivation. Moreover, it ensures firms establish communicative rational relations with respondents instead of mechanical relations and form an environment of trust. The main point is forming mutual consent [40].

In a firm that accepts communicative rational action, important procedures organized by senior administrators such as stress management, crisis management, conflict management, time management, marketing management, production management and human resources management are realized in the most effective way. Problems that occur during the production process are solved immediately. Employee satisfaction is provided at a high level. Loyalty of workers becomes stronger. The institutional culture is reflected in the staff's thinking system [41]. Different production methods, marketing strategies, finance systems and solution offers are developed. A benefit–cost analysis is realized. Social responsibility projects are applied easily due to interdependence and co-operation. Motivation of workers are increased by awarding. Eventually, firm family members benefit as a whole [42].

As can be understood, communicative rational action fundamentally idealizes simplifying the daily lives of people, making life and the environment more livable, increasing benefits and profits to the optimum ethical point, establishing social consent, ensure people grow up independent and happy individuals, increasing social welfare and building a peaceful society.

4. Methods

This study, in which validity and reliability studies are carried out in order to develop a Communicative Rational Action Scale, is a methodological research. Thus, definite steps are followed in the study and all steps of scale development are implemented. There are ten steps and three phases in the scale development [43]. The steps followed in the study in accordance with the literature can be summarized as follows: Primarily, the scope of the scale was defined. At this stage, a literature review was conducted and expert opinions in the field were consulted. For this, an item pool was created. Content validity of the items was discussed. The Candidate Scale form draft was developed. Since an original scale was developed, there is no translation of a foreign scale. The Candidate Scale was subjected to a pilot study. Then, the sampling and data collection phase began. Scale dimensions were revealed. Reliability was evaluated. All stages were completed with the investigation of the construct validity [44].

Firm owners and administrators whose companies are in business in various Organized Industrial Zones and Free Zones participated in the research. Statistics about participants are expressed in Table 2.

Table 2. Research population.

	Participants					
	Factory Owner	CEO	General Manager	Assistant General Manager	Human Resources Manager	Marketing Manager
Manisa OIZ	12	11	23	5	17	13
İzmir Atatürk OIZ	3	5	5	5	6	4
İzmir Kemalpaşa OIZ	1	5	4	3	4	5
Bursa OIZ	2	5	5	2	3	3

Kestel OIZ	2	4	3	5	6	1
Uludağ OIZ	1	5	3	5	1	4
Aydın OIZ	3	5	5	3	3	2
İstanbul Tuzla OIZ	2	2	3	2	3	2
Mersin Tarsus OIZ	1	2	2	1	3	3
Eagean Free Zone	2	4	3	5	3	3
Kayseri Free Zone	2	3	2	2	1	3
Gaziantep Free Zone	1	2	3	2	2	1
Total	32	53	61	40	52	44

Almost 11.35% of participants are factory owners, 18.44% of participants are chief executive officers, 21.63% of participants are general directors, 14.19% of participants are deputy general managers, 18.44% of participants are human resources managers and 15.6% of participants are marketing managers. In total, 28.72% of participants are firm owners or administrators in Manisa organized industrial zone, 9.93% of participants are in İzmir Atatürk organized industrial zone, 7.8% of participants are in İzmir Kemalpaşa organized industrial zone, 7.45% of participants are in Kestel organized industrial zone, 7.45% of participants are in Aydın organized industrial zone, 7.09% of participants are in Bursa organized industrial zone, 7.09% of participants are in Eagean free zone, 6.74% of participants are in Uludağ organized industrial zone, 4.96% of participants are in İstanbul Tuzla organized industrial zone, 4.61% of participants are in Kayseri free zone, 4.26% of participants are in Mersin Tarsus organized industrial zone and 3.9% of participants are in Gaziantep free zone.

Data were collected with the Communicative Rational Action Scale, which is a 30-article scale and was developed by the researchers so as to test validity and reliability. Data for Exploratory Factor Analysis were collected between 1 January and 1 March by the researchers. Researchers contacted the participants by telephone or online at first and then sent the questionnaire form to the ones who agreed to join the study. Participants filled in the questionnaire form and sent it back. Data for test–retest were collected between 1st July and 1st September 2019. During the phase of exploratory factor analysis, participants interested in the research were determined and they were filled out the same form. Applications for test–retest were completed at definite intervals. Data for confirmatory factor analysis were collected between 1 October and 15 November 2019.

In the phase of content validity, the Content Validity Index was calculated. Data collected in the phase of exploratory factor analysis were analyzed using the IBM SPSS Statistics 21 program with average, standard deviation, Pearson product–moment correlation coefficient, Cronbach Alpha reliability coefficient and exploratory factor analysis. Data collected in the phase of confirmatory factor analysis were assessed using the AMOS 22 program with confirmatory factor analysis. In order to test the five-factor structure, after exploratory factor analysis, confirmatory factor analysis was carried out with the AMOS 22 software. The Communicative Rational Action Scale is in five-point Likert-type scale and the ratings are: 1 = totally disagree, 2 = disagree, 3 = no decision, 4 = agree, 5 = totally agree. Minimum point of the scale is 30 points and the maximum is 150. As the point increases, the communicative rational action concept also increases. Since the data do not fit multi-normality hypothesis, the ordinary least squares method was applied. Therefore, to examine the time invariance of the candidate scale applied in the exploratory factor analysis phase, test–retest was applied. Thus, the candidate scale was applied to 112 people who were determined in the phase of exploratory factor analysis for the second time.

Additionally, according to the research, the Communicative Rational Action Scale has a five-dimensional structure. The scale's total Cronbach' Alpha reliability coefficient was 0.949 and all dimensions' reliability coefficients were over 0.79. The scale can be used as a whole and each dimension can be used alone since the Cronbach' Alpha coefficient

value is high enough. A correlation coefficient of a similar scale was found as 0.979 and test–retest coefficient was found as 0.793. The analyses carried out will be discussed and interpreted in more detail in the following sections. Values with a Cronbach α coefficient above 0.70, which may be sufficient in a Likert-type scale, are considered sufficient for test reliability. This value should be as close to 1 as possible. Generally, the reliability coefficient is predicted to be around 0.90 for “perfect”, 0.80 for “very good” and around 0.70 for “sufficient”. The total Cronbach’s alpha reliability coefficient of the scale was 0.949 and the reliability coefficient of all dimensions was over 0.79. As the scale can be used as a whole, it may be possible to use each dimension alone, since the Cronbach’s alpha value of the dimensions is high. Similar scale correlation coefficient was determined as 0.979. This correlation coefficient is a measure of the co-variation between the scores of the two scales. If this measure is high, it indicates that both scales measure similarly. In other words, it can be said that the scale similar to the scale being developed is compatible. On the other hand, the test–retest coefficient was found to be 0.793. The fact that the test–retest correlation value is at this level indicates that the measurement capability of the scale does not change at different times.

5. Results

Criterion related validity, construct validity and content validity methods were applied for validate the Communicative Rational Action Scale. Whether the articles in the scale measure the properties that require measuring is determined by content validity. Expert opinions were used in order to test the comprehensiveness of the scale. A content validity method known as the Lawshe technique was applied in this phase. Therefore, respectively, expert group was formed, the candidate scale was prepared, expert opinions were obtained, content validity indices were calculated, the content validity index was obtained, and the candidate scale form was organized using the content validity index [45].

Primarily, the literature tries to determine the expressions that exist in the scale and a 96-article pool was formed with the help of experts. These articles were reviewed by the researchers and a draft scale consisting of 45 articles was formed. The draft scale was presented to 12 academics of the related area and their opinions were used for content validity. Experts were asked to mark each scale question between 1 and 4 points. In this evaluation, to measure the suitability of the articles, 1 point was “not suitable”, 2 points was “a little suitable, article must be made suitable”, 3 points was “quite suitable, but needs minor changes”, and 4 points was “pretty suitable”. The views of the experts who mark an article with 3 or 4 points are accepted as necessary. The content validity index of the articles was obtained by dividing the number of experts who say necessary (ng) into the total number of experts (N). Articles that have the content validity index figures of 0 or negative are the first to be eliminated. Acceptable content validity index figures may change due to the number of experts, but it is suggested in the literature that this figure should not be under 0.78 [46]. Lawshe indicates the minimum KGI figures of the articles that are taken to the scale due to the number of experts. Accordingly, KGI figures must not be lower than 0.56 in a research in which 12 experts’ opinions are taken. In this study, articles whose KGI figures are bigger than 0.78 are accepted and figures lower than 0.78 are rejected and excluded from the scale. Thus, 15 articles out of 45 articles were excluded and a candidate scale form of 30 articles was formed. Minor change proposals of the experts were taken into consideration and the last form of expressions was obtained.

KGI (I-CVI) values of the articles in the scale vary between 0.83 and 1.0. The scale content validity index for the whole scale was calculated as 0.9333. The content validity index for the whole scale was over 0.80, which is an acceptable figure [46]. Accordingly, the KGI values of the scale and articles are at acceptable level.

This situation highlights the measurement ability of the scale about the related contents or structure. It is the process of understanding what the points of scale mean in reality. Structural validity has primary importance for psychological scales [47]. In order

to test structural (content) validity of the scale, exploratory factor analysis and confirmatory factor analysis were used. Exploratory factor analysis is a statistical technique that aims to find new meaningful dimensions by collecting numerous varieties related with each other [48]. In terms of content validity, the Kaiser–Meyer–Olkin (KMO) coefficient and Bartlett test must be carried out before factor analysis. The Bartlett test is expected to be bigger than 0.05 ($p < 0.05$) and the KMO value is expected to be bigger than 0.50. The KMO value is accepted if it is between 0.50 and 0.70, accepted as good between 0.70 and 0.80, accepted as very good between 0.80 and 0.90 and accepted as perfect over 0.90. Meaningful test results from the Bartlett test indicate a correlation between expressions of scales and shows that the data set is suitable for exploratory factor analysis [49]. The KMO value of this study is 0.840, which indicates that the sample size is perfect. Bartlett’s test sphericity analysis result is $\chi^2 = 7,044,098$ and $p = 0.000$. This value is statistically meaningful and indicates that the sample is adequate.

While deciding factor number, variance percentages and the line chart (Figure 1) were taken into consideration. As the factor deduction method, “Principal Components Analysis” was used; as the conversion method, “Varimax” is used. As can be seen in Table 3, a structure having five factors and whose eigenvalue is over 1, explaining 81.011% of the total variance, emerges as a result of the applied factor analysis. Factor 1 explains 21.728% of the total variance, factor 2 explains 18.912% of the total variance, factor 3 explains 13.988% of the total variance, factor 4 explains 13.396% of the total variance and factor 5 explains 12.987% of the total variance.

Table 3. Total variance explained.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	(Total)	% of Variance	Cumulative %	(Total)	% of Variance	Cumulative %	(Total)	% of Variance	Cumulative %
1	10.974	52.259	52.259	10.974	52.259	52.259	4.563	21.728	21.728
2	2.181	10.386	62.645	2.181	10.386	62.645	3.972	18.912	40.640
3	1.558	7.420	70.065	1.558	7.420	70.065	2.937	13.988	54.627
4	1.213	5.776	75.841	1.213	5.776	75.841	2.813	13.396	68.024
5	1.086	5.170	81.011	1.086	5.170	81.011	2.727	12.987	81.011
6	0.683	3.255	84.266						
7	0.656	3.125	87.390						
8	0.505	2.407	89.797						
9	0.433	2.060	91.857						
10	0.401	1.910	93.767						
11	0.305	1.454	95.221						
12	0.252	1.202	96.422						
13	0.174	0.828	97.250						
14	0.129	0.612	97.862						
15	0.105	0.502	98.364						
16	0.102	0.486	98.849						
17	0.081	0.385	99.234						
18	0.056	0.267	99.501						
19	0.046	0.219	99.720						
20	0.033	0.158	99.878						
21	0.026	0.122	100.000						

The variance was high and was interpreted as a perfect measurement of the related content. It was accepted as important that two-thirds of the total variance is explained by the variances included in the analysis. However, it is difficult to reach this rate in social

and behavioral sciences. Variance rates between 40% and 60% are accepted as adequate in social and behavioral sciences [50]. Since the variance of the developed scale is 81.011%, it was deemed to be adequate.

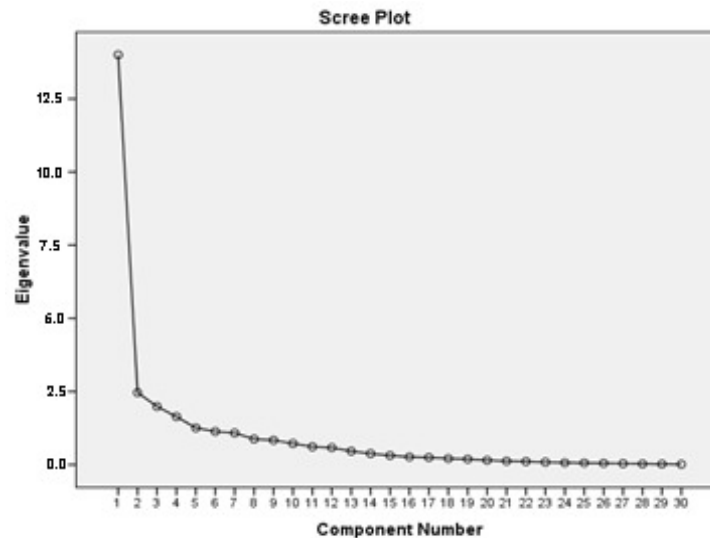


Figure 1. Communicative rationality action scale eigenvalue scree plot.

The line chart was organized by combining the eigenvalues of articles. Breaking points in the graphic indicate factor numbers [50]. It is understood from the figure that factors numbered 1, 2, 3, 4 and 5 are the components that have highly accelerated breaking points. Thus, the scale includes five meaningful factors. While the explained percentage of variance for a one factor structure without the application of varimax method is 52.259, it is 21.718 after application of the varimax method (Table 3). However, while deciding the factor number, the ones whose eigenvalues are 1 or higher than 1 are taken into consideration. This situation is in accordance with the literature and a much higher percentage (81.011%) of variance is also provided for the scale.

5.1. Examining the Factors and Giving Entitles

Five factors that emerge as a result of exploratory factor analysis applied with varimax method and articles' factor loads are indicated in Table 3. Factor load explains the correlation between the article and factor. If a factor load value of an article is low, it indicates that a strong relation between the factor and article does not exist. Moreover, this condition is taken into consideration in terms of excluding the article. The factor load value of an article must not be lower than 0.30. Additionally, there are some theorists who argue that this value must be 0.40. In this study, articles whose factor load values are lower than 0.50 are excluded. Furthermore, overlapping of an article depends on two conditions. The first one is that article give a higher load value than accepted with one or more than one factor. The second is that the difference of load values of an article is lower than 0.1 for two or more than two factors [50]. As a result of the research, question 23 is excluded from the scale due to low article-total correlation; questions 6, 12 and 14 are excluded from the scale due to same roots; questions 9 and 21 are excluded from the scale due to low factor loads and questions 18, 19 and 27 are excluded from the scale due to overlapping of two factors. Therefore, factors determined are indicated in Table 4.

Table 4. Factor structure and factor loads of articles ($n = 282$).

	Factor				
	1	2	3	4	5
s22	0.833				
s29	0.801				
s28	0.740				
s4	0.714				
s25	0.666				
s8	0.573				
s13		0.885			
s16		0.848			
s15		0.815			
s17		0.665			
s2		0.519			
s24			0.803		
s26			0.796		
s20			0.784		
s30				0.720	
s11				0.697	
s1				0.639	
s10				0.634	
s3					0.877
s5					0.784
s7					0.662

In the study, questions 4, 8, 22, 25, 28 and 29 measure rational communication. Questions 2, 13, 15, 16, and 17 measure practical-rational action, questions 20, 24, and 26 measure rational action, questions 1, 10, 11, and 30 measure value-rational action and questions 3, 5 and 7 measure firm family.

5.2. Confirmatory Factor Analysis

Confirmatory factor analysis is the phase of confirming the model that emerges as a result of exploratory factor analysis. Mistakes and degree of harmony regarding the articles of the Communicative Rational Action Scale as a result of Confirmatory factor analysis are indicated in Table 5 [51].

Table 5. Communicative Rational Action Scale error and goodness of fit values ($n = 282$).

Fitness Indices	Reference Value		Calculated Value	Fitness
	Good Fitness	Acceptable Fitness		
χ^2/SD	$0 < \chi^2/SD \leq 2$	$2 < \chi^2/SD \leq 3$	2.39	Acceptable
RMSEA	$0 < RMSEA \leq 0.05$	$0.05 < RMSEA \leq 0.08$	0.07	Acceptable
RMR	$0 < RMR \leq 0.05$	$0.05 < RMR \leq 0.10$	0.03	Good
NFI	$0.95 < NFI \leq 1.00$	$0.90 < NFI \leq 0.95$	0.97	Good
NNFI	$0.97 < NNFI \leq 1.00$	$0.95 < NNFI \leq 0.97$	0.97	Good
CFI	$0.97 < CFI \leq 1.00$	$0.95 < CFI \leq 0.97$	0.98	Good
GFI	$0.95 < GFI \leq 1.00$	$0.90 < GFI \leq 0.95$	0.95	Acceptable
AGFI	$0.90 < AGFI \leq 1.00$	$0.85 < GFI \leq 0.90$	0.89	Acceptable

The X-square value obtained from confirmatory factor analysis is $\chi^2 = 105.16$ (degree of freedom—df = 44) and the *p* value (0.000) was found to be meaningful. First value to be examined as a result of this analysis is *p* value. This value gives information about the meaningfulness of the difference between the expected covariance matrix and observed covariance matrix and the *p* value is expected to not be meaningful. However, this value is generally meaningful due to surplus of samples or the number of variables. Therefore, the meaningfulness of *p* value is tolerated [51]. Another way of testing harmony sufficiency is X2/df examination. If this rate is between 0 and 2, it shows perfect harmony, and if this rate is between 2 and 3, it shows good harmony. In this study, X2/sd is 2.39 and this rate shows acceptable harmony. RMSEA value is 0.07 as it can see in Table 4. RMSEA value is accepted as good between 0.05 and 0.08 [52]. Thus, this value shows good harmony. The RMR value of the scale (0.03), NFI (0.97), NNFI (0.97) and CFI (0.98) show good harmony.

The GFI value of the scale is found 0.95 and AGFI value is found 0.89. GFI and AGFI values between 0 and 1. A value of 0 indicates that there is no harmony and 1 shows perfect harmony. Values of 0.95 and over 0.95 show perfect harmony and 0.90 and over 0.90 show good harmony. A GFI value over 0.90 indicates acceptable harmony and GFI value over 0.95 indicates good harmony. If the AGFI value is over 0.85, it shows acceptable harmony and if the AGFI value is over 0.80, it shows good harmony [53]. GFI and AGFI values of the scale indicate acceptable harmony.

The Communicative Rational Action Scale is a good model in terms of CFA results. The road scheme about the dimensions of the Communicative Rational Action Scale is shown in Figure 2.

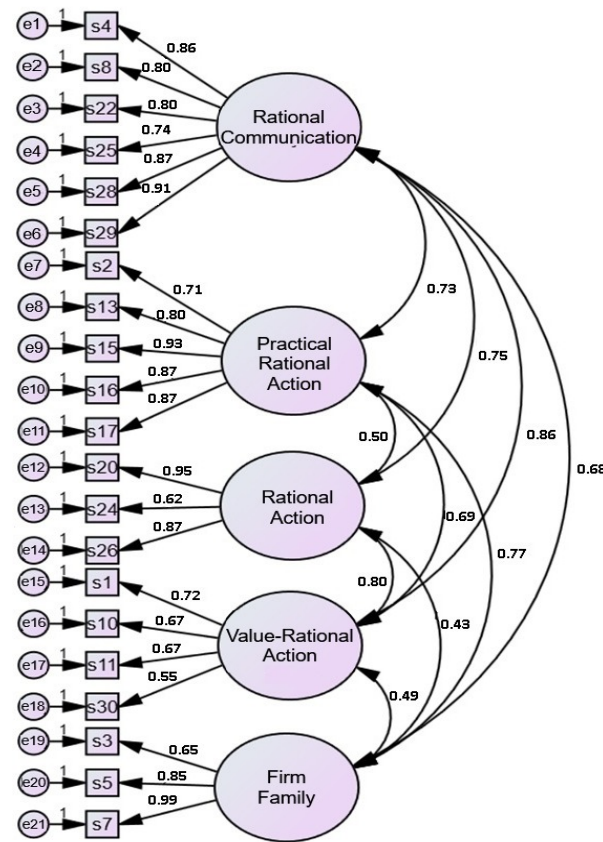


Figure 2. Model tested in confirmatory factor analysis.

In Figure 2, it is seen that error variance in sub-dimensions of the Communicative Rational Action Scale is 0.35–0.75 in the rational action dimension, 0.43–0.65 in the value-rational action dimension, 0.38–0.66 in the practical rational action dimension, 0.45–0.83 in the rational communication dimension and 0.40–0.73 in the firm family dimension, and these error variances are at acceptable level. The tested factor structure is shown in Figure 2.

In the road diagram, one-way arrows that seek potential variables and observed variables show a one-way linear relationship. These variables explain how well each article represents its own potential variable. In the diagram, it is seen that article loads in dimensions of rational action change between 0.62 and 0.95, in value-rational action dimension between 0.55 and 0.72, in practical-rational action dimension between 0.71 and 0.93, in rational communication dimension between 0.74 and 0.91 and in firm family dimension between 0.65 and 0.99. *T* values for clarification of potential variables by the observed variables when it is over 1.96 is at the level of 0.05 and at 0.01 level when it is over 2.56 meaningfully [54]. In these terms, *t* values of all articles are between 9.429 and 24.319 and all articles give meaningful *t* values at the level of $p < 0.01$.

Criterion-dependent validity is an objective and practical validity test. In this test, the relationship between scale scores and some external criteria (similar scales) is sought. In this study, the correlation coefficient between the Organizational Democracy Scale [55], which was used as a similar scale, and the Communicative Rational Action Scale, which was being developed, was found to be $r = 0.979$ (Table 6). This correlation coefficient is a measure of the co-variation between the scores of the two scales. The higher this measurement, the more similar the measure of both scales. The agreement between these two scales was found to be high.

Table 6. The correlation between the Communicative Rational Action Scale and Organizational Democracy Scale.

Scales	Number (N)	Mean \pm Standard Deviation	R	P
Communicative Rational Action Scale	166	95.886 \pm 10.331	0.979	0.000
Organizational Democracy Scale	166	127.548 \pm 12.760		

5.2.1. Reliability

The main techniques for estimating the level of reliability are internal consistency/homogeneity, stability, and interoperability between and within independent observers. Measurement reliability (agreement between and within independent observers) is a technique that is used especially in cases where data are obtained through observation and multiple observers are used but was not used in this study, which was conducted by survey. “Internal consistency” and “Invariance” tests were used for the reliability test in this study.

Article analysis of the scale is presented in Table 6. Correlation calculation between each article and scale point is the first objective supervision suggested by Likert. If one article’s correlation with the total point is low, this article measures a different qualification. Articles whose total correlation coefficients are negative, zero or near zero must be excluded from the scale. The coefficient must be over 0.30 [52] but 0.20 is also taken into consideration by most researchers in various applications [56]. In this study, 0.40 was taken into consideration in order to have high reliability.

Question 23 is excluded from the scale because article the total correlation coefficient is lower than 0.40, questions 6, 12 and 14 are excluded from the scale due to having the same root, questions 9 and 21 are excluded from the scale due to low factor load and questions 18, 19 and 27 are excluded from the scale due to overlapping. Factor analysis was carried out with 21 articles of the scale. As a result of factor analysis, a scale of 21 questions and five factors was formed.

As it is seen in Table 7, the total point average of Communicative Rational Action Scale is 100.053 (standard deviation: 11.75). Articles’ averages change between 4.259 and 4.791, total article correlations change between 0.420, and 0.828, article-factor correlations change

between 0.519 and 0.885. Article analysis based on average differences of the bottom-up group, which is an interconsistency criterion, was conducted. It was expected that 27% of either the bottom or top group was positive with the scale and that the other group was negative with the scale. Both groups were expected to give different point averages for any article and this difference is expected to be meaningful ($p < 0.05$). If an article is answered without a meaningful difference by the groups, it is understood that the article cannot distinguish positive and negative attitudes and so must be excluded from the scale. It is seen in Table 7 that point averages of the articles are meaningfully different ($p < 0.001$).

Table 7. Item analysis values of Communicative Rational Action Scale ($n = 282$).

Items	Mean	Std. Deviation	Item- Total Cor.	If Item Deleted Cron.	Item- Factor Cor.	Lower % 27 (n = 85)		Upper % 27 (n = 85)		T test	P (2-tailed)	Common Factor Variances
	\bar{x}	S	r	α	R	\bar{x}	S	\bar{x}	S	t		h ²
Item 1	4.5035	0.67623	0.638	0.947	0.639	3.741	0.601	5.000	0.000	-19.32	0.00	0.683
Item 2	4.5603	0.63547	0.721	0.946	0.519	3.776	0.497	5.000	0.000	-22.69	0.00	0.650
Item 3	4.4220	0.84950	0.545	0.948	0.877	3.329	0.679	5.000	0.000	-22.67	0.00	0.848
Item 4	4.6844	0.65596	0.828	0.944	0.714	3.953	0.815	5.000	0.000	-11.84	0.00	0.882
Item 5	4.2589	0.96947	0.684	0.946	0.784	3.012	0.715	5.000	0.000	-25.62	0.00	0.902
Item 7	4.5461	0.71561	0.787	0.944	0.662	3.647	0.631	5.000	0.000	-19.78	0.00	0.846
Item 8	4.5284	0.92470	0.810	0.944	0.573	3.435	1.063	5.000	0.000	-13.57	0.00	0.787
Item 10	4.5106	0.87770	0.614	0.947	0.634	3.376	0.845	5.000	0.000	-17.72	0.00	0.764
Item 11	4.3936	0.90335	0.627	0.947	0.697	3.294	0.843	5.000	0.000	-18.66	0.00	0.768
Item 13	4.6099	0.77573	0.614	0.947	0.885	3.706	0.911	5.000	0.000	-13.10	0.00	0.918
Item 15	4.5142	0.84879	0.776	0.944	0.815	3.471	0.867	5.000	0.000	-16.26	0.00	0.892
Item 16	4.5284	0.79651	0.710	0.945	0.848	3.447	0.646	5.000	0.000	-22.18	0.00	0.896
Item 17	4.7021	0.63967	0.804	0.945	0.665	4.012	0.824	5.000	0.000	-11.06	0.00	0.845
Item 20	4.5993	0.75863	0.636	0.947	0.784	3.671	0.822	5.000	0.000	-14.91	0.00	0.810
Item 22	4.6702	0.62090	0.677	0.946	0.833	3.906	0.666	5.000	0.000	-15.15	0.00	0.805
Item 24	4.3050	0.88034	0.420	0.950	0.803	3.188	0.627	5.000	0.000	-26.65	0.00	0.724
Item 25	4.6915	0.61465	0.659	0.946	0.666	3.976	0.723	5.000	0.000	-13.05	0.00	0.770
Item 26	4.6454	0.70215	0.658	0.946	0.796	3.824	0.819	5.000	0.000	-13.24	0.00	0.883
Item 28	4.7908	0.56800	0.787	0.945	0.740	4.306	0.859	5.000	0.000	-7.45	0.00	0.814
Item 29	4.6950	0.61353	0.789	0.945	0.801	3.988	0.732	5.000	0.000	-12.75	0.00	0.883
Item 30	4.3475	0.68524	0.490	0.948	0.720	3.600	0.493	5.000	0.000	-26.19	0.00	0.642
Total	100.053	11.75										

As seen in Table 7, common factor variances of articles (h²) change between 0.642 and 0.918. This value indicates the contribution of the article to the total variance and is between 0 and 1. If this value approaches 1, the articles' contribution to the variance is high. If this value approaches 0, it indicates that articles' contribution to the variance is low. If the h² value is lower than 0.20, that article must be excluded from the scale. In this study, the values lower than 0.50 are excluded from the scale.

5.2.2. Cronbach Alpha Coefficient

In order to test the reliability of a Likert-type scale, a coefficient that was developed by Cronbach (1951) and uses his name is used. The Cronbach α coefficient of a scale that consists of articles having high relations is also high. The Cronbach α coefficient is a measurement of the interconsistency criterion and homogeneity. Total and factor Cronbach alpha coefficients of the scale are indicated in Table 8.

Table 8. Cronbach alpha coefficients of total Communicative Rational Action Scale and factors.

Factors or Scale	Cronbach Alfa	N
Factor 1: Rational Communication	0.929	6
Factor 2: Practical-Rational Action	0.925	5
Factor 3: Rational Action	0.850	3
Factor 4: Value-Rational Action	0.791	4
Factor 5: Firm Family	0.898	3
Communicative Rational Action Scale	0.949	21

As seen in Table 8, total Cronbach Alpha coefficient of the scale is 0.949. The coefficient is 0.929 for factor 1, 0.850 for factor 2, 0.791 for factor 3, 0.791 for factor 4 and 0.898 for factor 5. A Cronbach α coefficient value over 0.70 is accepted as adequate for test reliability for a Likert-type scale, but this value should approach 1. Generally, it is considered perfect at a value of 0.90, very good at 0.80 and adequate at 0.70. Thus, internal consistency criterion for the total of Communicative Rational Action Scale is perfect and internal consistency of factors is very good.

5.2.3. Stability

For stability, test–retest or parallel form reliability can be used. In this study, parallel form was used for the external criterion. For stability test, test–retest was used.

Test–retest reliability: Test–retest reliability of a measurement instrument is the power of stability and gives consistent results from application to application. This test is suitable for measuring variables that do not change rapidly. Intermittent and continuous use are the two alternatives for test–retest applications. In the continuous method, the test is applied to the group continuously or with a very short break. For the intermittent method, two to four weeks of break time is recommended. To find the reliability of the developed scale, the correlation between the two tests' points is calculated. Since test points have an interval scale and a permanent variable, Pearson product–moment correlation coefficient must be used.

The scale was applied to a group of 112 members two times with a break of two weeks for test–retest. As it is seen in Table 9, the value obtained with the Pearson product moment correlation equation is calculated as 0.793 (p : 0.000).

Table 9. Correlation analysis of the test–retest scores of the Communicative Rational Action Scale.

Communicative Rational Action Scale	Mean	Standard Deviation	r	P
First Measurement	98.179	9.11	0.793	0.000
Second Measurement	95.909	10.61		

The high test–retest correlation value shows that the measurement ability of the scale does not change with time.

5.2.4. Cut-Off Analysis

Rapidminer Studio 9.6.000 software and an x-means clustering algorithm was applied to classify the participants who answered the questions. Cluster analysis was performed on the answers given by the 22 distance measures provided by the application. To determine the distance measure that gives the best result, the clustering success of 22 distance measures was compared with the Davies Bouldin Index. It was found that the best result was given by the "Itakura Saito Distance" (0.278). The distribution of the data is shown in Figure 3 below.

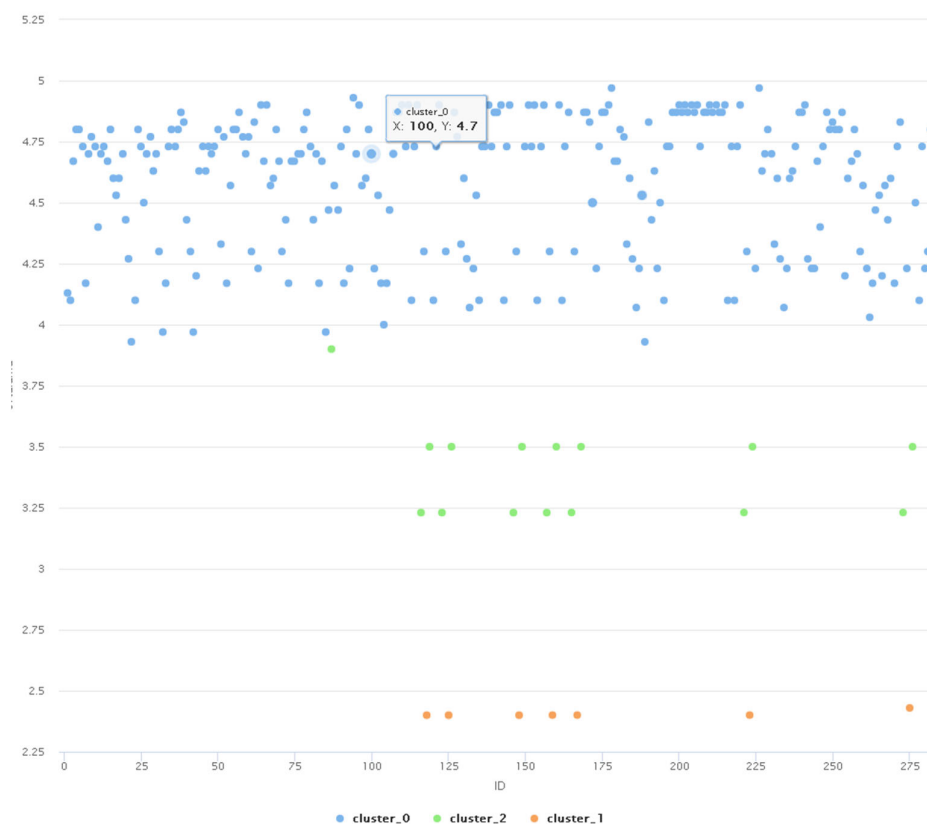


Figure 3. Distribution of data and formed clusters.

In total, 91.55% of the respondents (260 people) are in cluster 0. The lowest scale score in this cluster is 3.93, the maximum score is 4.97 and the average score is 4.59. In total, 2.82% (eight people) of those who answered the questionnaire take part in cluster 1. The lowest score in this cluster is 2.40, the highest score is 2.43 and the average score is 2.41. In total, 5.63% of the respondents took part in cluster 2. The lowest value in this cluster is 3.23, the highest value is 3.9 and the average score is 3.4. Cut-off points calculated according to mean scores and ± 1.5 standard deviation ranges are shown in Table 10.

Table 10. Average score range and communicative rationality degrees.

Average Score Range	Communicative Rationality Degree
2.5 and below	Low Degree of Communicative Rationality
3.1–3.7	Moderate Communicative Rationality
4.1 and above	High Degree of Communicative Rationality

As seen in Table 10, among the respondents, those with an average score of 2.5 or less are low. Among the respondents, those with a score between 3.1 and 3.7 are intermediate. Respondents with a score of 4.1 and above can be defined as those who display highly communicative rational behaviors.

Similarly, using statistics for total scores in these clusters, cut-off points were determined according to ± 1.5 standard deviation ranges. The score ranges and the “communicative rationality” role levels obtained according to the cut-off points determined for the general total scores are given in Table 11.

Table 11. Score range and communicative rationality degrees.

Score Range	Communicative Rationality Degree
50 and below	Low Degree of Communicative Rationality
65–78	Moderate Communicative Rationality
89 and above	High Degree of Communicative Rationality

What is the adequate height point for the measured communicative rational action? According to the cut-off analysis, those with a total score of 50 or less among the respondents behave in a low degree communicative rationality. Among these people, those who score between 65 and 78 are moderately communicative and rational. Managers who score 89 and above are among the respondents who show a high degree of communicative rational behavior.

6. Conclusions

In this study, we aimed to explain and examine the organization theory of communicative rational action. A reliability and validity analysis was carried out in order to develop a scale that measures communicative rational action. As a result of the analysis, the Communicative Rational Action Scale is concluded to be a valid and reliable measurement instrument. Thus, the Communicative Rational Action Scale is an original scale that was developed by following all the phases of the scale developing method. Moreover, the research model can also serve as a model for the researchers in this domain.

The values that will be obtained by using the scale depend on administrators' opinions. When the communicative rational action points of the administrator or a firm whose communicative rational action level is measured increase, the results will be more reliable and valid. If the points are not high enough, it can be expressed that administrators' and firms' communicative rational action level is weak. It can be put forward that the administrators and firm owners participating in this study took communicative rational actions at a total level of 100.053. Additionally, it can be claimed that they perform communicative rational action at an average level of 4.47. The fact that the average score is close to 5 indicates that the communicative rational action levels of the managers are high. Additionally, it can be said that an individual who has completed the questionnaire has a weak average score of 2.5 and below, moderate if it is 3.1–3.7, and a high level of communicative rational action if it is 4.1 and above. Similarly, those with a total score of 50 and below can be classified as weak, those between 65 and 78 as moderate, and those with 89 and above as high level communicative rational.

In total, 87 firm owners or senior executives whose firms operate in notably Manisa Organized Industrial Zone and in different Organized Industrial Zones and Free Zones of Turkey, participate in the study. Since the participants operate in 9 different Organized Industrial Zones and three different Free Zones, the findings and results can be generalized. It can be put forward that the scale can be applied to all administrators in private sector. In addition to this, validity and reliability of the scale should be tested in applications for different universes (state institutions and organizations, etc.) and samples. The scale questions that emerged as a result of the analysis of the data obtained from the participants are given in Table A1 below.

During development of the Communicative Rational Action Scale, numerous national and international publications were used. This situation strengthens the international qualification of the scale and may enable international usage. Cultural properties of Turkish society may increase the validity and acceptability of communicative rational action. Naturally, firms or administrators' level of communicative rational action will be low in countries that accept strategic or instrumental action.

Why is it important to develop a communicative rational scale of action? Max Weber states that specialists without spirit and sensualists without hearth dominated the business life nearly a century ago. Afterwards, Habermas softened (modernized) Weber's

discourse and argued that these specialists took strategic action. Today, it is a fact that individuals display interest-oriented strategic behaviors at the core of the business and bureaucratic system. However, in the essence of strategic action, the individual is seen as a tool. To achieve ideals such as good and fair society, fair economy and fair management, humans should be seen as goals and subjects. In communicative rational action, the understanding of taking humans as a subject is dominant. In this respect, to reach the ideal of a good society, such actions should be generalized and expressed in academic, political, business, and practical life.

In subsequent studies, the differences between measurements made with this scale according to demographic variables can be examined. Whether there are cultural differences between the measurements made by ensuring the application of the scale in other countries can be investigated. How the communicative rational behavior to be measured with this scale affects organizational outcomes such as productivity, job satisfaction, and organizational commitment may be other topics worth researching.

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Appendix A

Table A1. Communicative Rational Action Scale.

Factors	Statement No	Communicative Rational Action Scale Statements	Totally Disagree	Disagree	No Decision	Agree	Totally Agree
Rationality	1.	I realize all my decisions are in accordance with a strategy.					
	2.	I try to determine my decisions and actions considering the principle of maximum profit.					
	3.	I use intelligence in all my decisions and actions.					
Value-Rational Action	4.	I always prefer making the ethically correct choice.					
	5.	I try to be fair in all my decisions and actions.					
	6.	I give priority to competence in employment, promotion and rotation.					
	7.	I try to be a model for my employees.					
Practical-Rational Action	8.	I reward successful and devoted employees.					
	9.	I take our firm's social responsibility policy and principles into consideration in all activities.					
	10.	I ensure all employees' rights are not being infringed upon.					
	11.	I do not carry out any unethical actions even though I am sure it would lead to high profits.					
	12.	I consider not only the firm's benefit but also society's benefit when considering policies and activities.					

Rational Communication	13.	All employees can communicate with anyone in working hours.
	14.	I consult while deciding.
	15.	I listen to employees to make them feel important.
	16.	Employees can easily communicate with me in and out of working hours.
	17.	I talk with sad and depressed employees.
	18.	I realize employees' and partner's beneficial opinions and suggestions.
Firm Family	19.	I consider employee satisfaction prior to customer satisfaction.
	20.	I consider employees as humans at first.
	21.	I consider not only the firm's benefits but also employees' and partner's benefits.

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