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Establishing Online Meeting Climate Types and Developing Measurements: Impact on Meeting Satisfaction

Xiu Jin[1], Fusheng Zheng[2*], Sangwoo Hahm[3]
[1]Department of Business Administration, Honam University,
Gwangju, Korea(62399)
[e-mail: soojin@honam.ac.kr]
[2]School of Economics and Management, Lanzhou University of Technology,
Lanzhou, China(730050)
[e-mail: bsjung@lut.edu.cn]
[3]Department of Business Administration, Semyung University,
Jecheon, Korea(27136)
[e-mail: thehahm@semyung.ac.kr]
*Corresponding author: Fusheng Zheng

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Abstract

In the post covid-19 era, organizations will experience a new environment. Advances in technologies such as AI and big data, and new experiences such as online meetings and lectures, will increase the use of online communication. Businesses will increasingly engage in online-based information sharing, virtual team operations, and online meetings. This study focuses on meeting climate and satisfaction, to improve the performance of online meetings. Existing studies on meeting climate presuppose off-line situations. Offline and online communication methods and meeting formats are different. This paper proposes new climate types to develop an appropriate climate for online-based meetings. To apply these climates in online meetings, a measurement scale was developed and the impact on online meeting satisfaction was verified. As a result of the study, it was found that the creativity-oriented meeting climate was the most important, and relation-oriented and participation-oriented meeting climates also had a significant effect, while the direction-oriented and task-oriented climates were relatively less important. This study develops new variables and measurements for online meeting climates, and explains their importance. Companies will be able to leverage the appropriate climates for online meetings to improve performance.

Keywords: Online Meeting Climate, Online Meeting Satisfaction, Developing Measurement, Organizational climate, Meeting Type

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1. Introduction

In the 4th industrial and post covid-19 era, organizations will experience a new type of environment [1, 2]. New technologies, systems, cultures and climates will affect the operations of the organization. One foreseeable situation in the near future is an increase in online-based communication. Advances in technologies such as AI, big data, and IoT, and online experiences such as online-based lectures and meetings will expand the use of online communication [3, 4]. In particular, companies will use online-based information sharing through cloud computing, virtual team, and online-based meetings. These activities will have a positive effect on the velocity and amount of information sharing and communication, and on the diversity and creativity of workers [5]. Online-based meetings have the advantages of reducing space and time restrictions, helping workers to focus more on their work, and improving performance. This paper argues that online meetings offer humans more convenience by making it possible to attend anytime and anywhere. Therefore, it is worth to exploring which climates can affect satisfaction in online meetings.

Organizational climate refers to an embodiment of culture, and combines the attitudes, behavior, and feelings which shape life in organizations and the fact of organization with an objective concept [6]. Organizational climate is associated with aspects of performance, such as job satisfaction [7], organizational commitment, and job involvement [8]. Meetings are an important part of the decision-making process, and communication among members. Existing studies about meeting climates are premised on face-to-face conversation and offline-based meeting formats. However, offline and online communication methods and formats are different. Thus, it is necessary to develop a climate suitable for online-based meetings.

This study proposes that climates can be formed in online meetings, based on prior offline-based meeting climate research. First, participation-oriented meeting climate (POMC) refers to a climate in which members actively participate in meetings. This climate is characterized by a horizontal structure and open and interactive communication. Second, direction-oriented meeting climate (DOMC) refers to the climate in which leaders make decisions and employees follow them. This climate is characterized by a vertical structure and one-way communication. Third, relation-oriented meeting climate (ROMC) means a climate in which members value human relationships. In a meeting with this climate, other than work, human relationships and friendships are valued, and workers usually ask about each other's well-being before they start the meeting. Fourth, task-oriented meeting climate (TOMC) is a climate that emphasizes the tasks and roles of members in meetings. The climate is characterized by a clear division of labor and communication is related to work rather than private conversations. Fifth, creativity-oriented meeting climate (COMC) is a climate that encourages members to actively present creative ideas and try new things at meetings. In this climate, members are not afraid of failure, respect each other's opinions, and communicate in pursuit of diversity.

In this study, a measurement scale was developed to verify that these climate types can be applied in online meetings. The validity and reliability of the developed measurement tool were verified, and the relationship between individual climates and satisfaction with online meetings was investigated. Using this process, the climate types of online meetings will be presented. Furthermore, this article will explain the relationship between these types and their influence on online meeting satisfaction and performance. As a result of this study, organizations will be able to understand what their online meeting climate is. In addition, it will be possible to develop and utilize climates suitable to an individual organizations' environment. The development of an online meeting climate suitable for the situation will lead to improvements in satisfaction and performance with online communication and meetings.

The purpose of this study is to develop a measurement scale for the online meeting climate necessary for the 4th industrial era, and a corporate environment of the post-corona era.

2. Theoretical background and Hypotheses

2.1 Organizational climate of online meeting

Organizational climate is defined as organization members' recognition of their work environment [9]. Organizational climate refers to an embodiment of culture and combines the attitudes, behavior, feelings which shape the life in organizations and the fact of organization with an objective concept [6]. Organizational climate is expressed as a recognition by an organization member of work which is related to the organizational environment [10]. In addition, it also describes a material style that has an influence on organization members' views about the objectives and values of organization [10]. Organizational climate is defined as a durable characteristic of an organizational environment that organization members experience the environment and it impacts on their attitudes and behaviors [11]. Organizational climate is a comprehensive concept that includes various types of climate. Among the various types of organizational climates, this study focuses on the online meeting climate and tries to shape the new variables of climate for online meetings. The main reason for considering such variables is that online meetings have become more popular and can provide various conveniences in the Covid-19 and Omicron variant pandemic environment. In this study we define an online meeting as a type of meeting held in a virtual space using online applications or devices rather than face-to-face meetings. In addition, we divide the online meeting climate into five types, which are POMC, DOMC, ROMC, TOMC, and COMC. The specific explanations and conceptual definitions for each variable are as follows.

2.2 Participation-oriented meeting climate

Participative culture is primarily focused on organization members' participation, involvement, and environmental expectations, which can radically change [12]. In an organization such culture breeds a high level of engagement with the formulation of strategies [13]. In addition, participative management leads to decision making through participation, and subsequent performance in a better atmosphere of work, which increases job satisfaction [14, 15]. Participative decision-making is defined as employers encouraging or allowing their workforce to take part in organizational decision-making or shared decision-making [16]. Organizations with a high level of participation are more likely to facilitate organization members participation in decisions [13, 17]. In doing so, participative decision making leads to improvement in organization members' creativity by both affective and cognitive paths [18]. Drawing on the characteristics of the participative climate mentioned above, we define POMC as a type of meeting in which organization members freely present their own opinions and thoughts and then participate in organizational decision-making in online meetings. With POMC organization members discuss the future of the organization, and the decision making is carried out in the form of organization members negotiating with each other. In addition, decision making in a POMC is determined by organization members’ participation, rather than a leader's power.

2.3 Direction-oriented meeting climate

Directive leadership really exists as an independent leadership style. Directive leadership is defined as a type of behavior in which a leader gives orders on how tasks are to be done [19].

Directive leadership is regarded as a distinct behavioral style that includes assigned goals, command, instruction, intimidation, contingent reprimand, non-contingent reprimand, and direction as the primary mechanisms to impact subordinates' behavior [19]. Furthermore, directive leader behaviors include the initiating activity of the work group, emphasizing goal attainment, establishing clear communication channels, clearly defining the way to work, assigning subordinates to tasks, organizing group activity, coordinating subordinates' activities, and offering new approaches to problems [19-21]. Based on these characteristics of directive leadership, it can be predicted that directive climates in organizations are more likely to lead to leaders making their own decisions in the organization. In directive climates, there are few opportunities for organization members to present their opinions or thoughts, and instead, it is assumed the leader will make decisions in their own way. Therefore, we defined DOMC as a type of meeting in which most of the work methods are mostly decided by the leader alone, and all decisions in the online meeting are made according to the leader's opinion. In DOMC leaders accept their own ideas or perspectives and do not accept other suggestions.

2.4 Relation-oriented meeting climate

Organizational climate and leadership have a relationship with each other [22]. Leaders exhibit relational and task oriented behavior [23]. Relationship oriented refers to dealing with feelings or a need is to be understood [24]. In addition, relation-oriented behavior means a leader is willing to create an effective conversation with their followers and good interactions, which help guide followers to achieve their goals [25]. Relationship-oriented leadership indicates the level at which leaders expresses support and appreciation for subordinates, respect and concern for them, and look out for their welfare [26, 27]. Furthermore, leaders with relation oriented value interpersonal connections maintain positive interpersonal interactions [28], and they generate greater cohesion between the leader and subordinates [29]. Drawing on the relationship oriented behavior suggested above, we defined ROMC as a meeting climate type where each other's opinions are respected, progresses meetings friendly with each other, and the task is performed based on good interpersonal relationships. In addition to opinions related to work, ROMC is a climate style in which organization members discuss fun issues and have daily conversations with each other. In particular, organization members build a good relationships and value interpersonal connections.

2.5 Task-oriented meeting climate

Task orientation is the opposite of relationship orientation, and focuses on tasks. Task-oriented is defined by a manager's desire to accomplish an organizational task [30]. Task-oriented behavior mainly helps individuals and groups more clearly figure out key points, makes task more effective, provides them with the solution to a problem, and monitors task procedures, and control followers' performance on processes [25]. Leaders with task orientation contribute to tasks completion by directing and organizing the work of others [28]. In sum, task-oriented leadership indicates the level to which leaders define subordinates' roles, establish well-defined patterns related to communication, and focuses on goal achievement [26, 27]. A task-oriented organizational climate is highly likely to commit organization members to their tasks and is expected to eventually increase their task performance. According to these characteristics of task orientation, we defined TOMC as a meeting type in which organization members discuss only their task roles, performance standards for each other's tasks, and engage in work, and explore the way to improve organizational innovation in online meetings. On the contrary of ROMC, task oriented climate in which only task issues or problem-solving methods are explained in online meeting.

2.6 Creativity-oriented meeting climate

The concept of creativity refers to individuals who produce novel ideas by their own initiative, which are high quality and task-appropriate [31]. In addition, creativity refers to the production of useful and novel ideas in a given social context [32]. Organization members' creative behavior is typically enacted in a work team or group context, where their creative performance is regarded as a contribution to the achievement of team goals and a team's creative performance [33-35]. Creativity is seen as closely related to organizational performance and success. Work teams such as research and development, art, design, and advertising are associated with the development of new ideas, and so the success of such teams is highly determined by creative solutions to applied problems [34, 35]. Creativity occurs as organization members perform their task separately on a larger project, then interact with each other to share, build upon, and filter ideas together [33]. Drawing on the characteristics of creativity suggested above, we defined COMC as a meeting climate style where organization members prefer to provide and display creativity related to work and freely present innovative or constructive ideas. COMC is seen as an atmosphere where organization members can freely express their creativity in work without hesitation about coming up with new ideas. This type of climate is considered to facilitate and improve the sustainability and growth of an organization which requires innovation or creativity.

2.7 Online meeting satisfaction

A meeting is a place where organization members share information, make decisions, collaborate to solve problems, deliberate, and plan future actions [36]. Meetings are regarded as an important place to identify employees' behavior and attitudes. They also have a profound influence on employees' well-being [37]. Thus, we argue that the satisfaction with a meeting is significantly related to the organization members' positive attitude toward the organization or enthusiasm for their job. Meeting satisfaction refers to an affective arousal with positive valance related to individuals toward the meeting, and the degree of good feelings about the meeting [38]. In sum, meeting satisfaction is defined as an instance of satisfaction with meetings, and its outcomes are objects of satisfaction [39]. Online meetings have been rapidly increasing during the pandemic and this type of meeting has become very popular. Organization members are working at home and this has led to an increased use of online meeting platforms [40]. Based on the concept of meeting satisfaction mentioned above, we defined online meeting satisfaction (OMS) as organization members' positive attitudes and expectations toward the results, and the degree of overall satisfaction with the online meeting. We argue that online meetings offer humans convenience, by making it possible to attend anytime and anywhere. Therefore, it is worth exploring the climates that can determine satisfaction with online meetings.

2.8 Climate and satisfaction of online meetings

Organizational climate is one of the core element that significantly determines organization members' attitudes and behaviors [41]. Adjustments in organizational climate may lead to changes in organization members recognition of work pressure and control, and enhance productivity, creativity, and job satisfaction [41-43]. In addition, organizational climate is one of nature of psychological environment and working environment in organizations felt by organization members and it is considered may impact on organization members attitudes and behavior towards their job [44]. It is thought that organizational climate is related to the environment, and it plays a role in determining organization members' attitudes and behavior.

According to the person-environment fit theory, organization members function and are attracted to a work environment that matched their needs and preferences [45]. Person-environment theory suggests that an individual is likely to develop both a positive attitude and behavior including job satisfaction, prosocial behavior, and organizational commitment while a fit creates between actual situation and individual's preferences in their organizations [46]. It suggests that organization members are more likely to prefer an environment suitable for themselves and be more satisfied with the organization, team, and work atmosphere when working in such an environment. Furthermore, in the field of organizational climate research, job satisfaction is the most popular performance indicator of organizational climate and is positively related to job satisfaction [7], job involvement, and organizational commitment [8]. Therefore, we set the following hypotheses.

Hypothesis 1: Participation-oriented meeting climate(POMC) will be significantly related to satisfaction of online meeting.

Hypothesis 2: Direction-oriented meeting climate(DOMC) will be significantly related to satisfaction of online meeting.

Hypothesis 3: Relation-oriented meeting climate(ROMC) will be significantly related to satisfaction of online meeting.

Hypothesis 4: Task-oriented meeting climate(TOMC) will be significantly related to satisfaction of online meeting.

Hypothesis 5: Creativity-oriented meeting climat(COMC) will be significantly related to satisfaction of online meeting.

3. Research design and measurement development

This study conducted the first and the second surveys to develop an online meeting climate measurement scale. First, the major purpose of this research was to develop types of organizational climate for online meetings, namely POMC, DOMC, ROMC, TOMC, and COMC. The five types of organizational climates for online meeting were developed based on studies related to the existing organizational climate and meeting culture. Then, through exploratory factor analysis and reliability analysis, the questionnaire questions were refined. Questions with problems were deleted or modified, and a second survey was conducted. In the second questionnaire, validity was verified through exploratory factor analysis and confirmatory factor analysis. A reliability analysis also proved that the developed measurement tool was statistically usable. Then, the relationship between the online meeting climate questionnaires and online meeting satisfaction was empirically analyzed.

3.1 The first design

This research developed a measurement tool for a new type of organizational climate based on existing measurement tools. First, we defined the structural definitions of the variables. Second, measurement tools were explored for item development, and then the primary measurement tools were developed. Third, we conducted the first survey and demographic analysis using the first data. Fourth, we conducted reliability and exploratory analyses. Fifth, we investigated how the variables were loaded using the results of the exploratory factor analysis and refined the questions in the questionnaire.

3.1.1 Development of measurement

POMC is defined as a type of meeting in which organization members freely present their own opinions and thoughts, and participate in organizational decision-making in online meetings. POMC was assessed using a total of seven items. Specifically, five items were used by the instrument in [47] and two items were used by the instrument in [48] and [49]. We redesigned the contents of the items to be appropriate for the variables, based on these measurement tools. The sample item included “Members are participating in decision-making.”, “Members are participating in problem solving”.

DOMC is defined as a type of meeting in which most of the work methods are mostly decided by the leader alone, and all decisions in online meetings are made based on the leader's own opinion. To measure DOMC, we used the instrument in [47] which consisted of five items. In addition, we also used the instrument in [50] which consisted of two items. We redesigned the contents of the items to be appropriate for the variables based on these measurement tools. The sample item included “The leader usually directs on major issues”, “The leader pushes his own ideas”.

ROMC is defined as a meeting climate type in which members respect each other's opinions, are friendly with each other, and the task is performed based on good interpersonal relationships. ROMC was assessed a total of seven items. Specifically, two items were used using the instrument in [51] and five items were used using the instrument in [52]. We redesigned the contents of items to be appropriate for the variables based on these measurement tools. The sample item included “Members conduct the meeting with each other”, “Members ask each other how they are”.

TOMC is defined as a meeting type in which organization members only discuss their task roles, performance standards for each other's tasks, and engage in work, and explore ways to improve organizational innovation in online meetings. To measure TOMC, we used two items using the instrument in [48] and [49]. Furthermore, we also used the instrument of [52] which consisted of five items. We redesigned the contents of item to be appropriate for the variables based on these measurement tools. The sample item includes “Members mostly discuss only the tasks to be performed”, “Members only discuss only issues that can increase their contribution to work”.

COMC is defined as a meeting climate style with a meeting atmosphere in which organization members prefer to provide and display creativity related to work, and freely present innovative or constructive ideas. COMC was assessed using a total of seven items. Specifically, five items were used using the instrument in [53] and two items were used using the instrument in [54]. We redesigned the contents of items to be appropriate for the variables based on these measurement tools. The sample item included “Members are not afraid to come up with creative ideas”, “Members are not afraid to show creativity in their work and speak well”.

OMS is defined as organization members' positive attitudes and expectations toward the results and the degree of overall satisfaction with the online meeting. To measure OMS, we used six items using the instrument in [55]. We redesigned the contents of items to be appropriate for the variables based on these measurement tools. The sample item included “Overall, I am satisfied with the online meeting outcome”, “The online meeting results can be applied in practice”.

All of the items were measured using a Likert 7-point scale (1=Strong disagree to 7 Strongly agree).

3.1.2 Participants

The data used in this research were collected via online survey from general employees who were engaged in small and medium enterprises in China. The characteristics of the data for the first questionnaire can be summarized as follows. A total of 213 employees (138 male, 75 female) volunteered to take part in this survey. The employees' ages consisted of 1 (0.5%) that was less than 20 years old, 101 (47.4%) were aged 20-29, 71 (33.3%) were aged 30-39, 34 (16.0%) were aged 40-49, 5 (2.3%) were aged 50-59, and 1 (0.5%) employees were 60 years old or over 60 years old. In relation to their education, 27 (12.7%) were high school, 45 (21.1%) were college, 94 (44.1%) were bachelor's degree, 40 (18.8%) were masters degree, and 7 (3.3%) were doctoral degree. Their service year showed that 23 employees (10.8%) had worked less than one year, 36 employees (16.9%) had worked 1 to less than 3 years, 39 employees (18.3%) had worked 3 to less than 5 years, 31 employees (14.6%) had worked 5 to less than 7 years, and 84 employees (39.4%) had worked 7 or more years.

3.1.3 Reliability and exploratory factor analysis

The results of the first exploratory factor analysis (EFA) are displayed in **Table 1**. COMC was loaded as factor 1 and the item value showed from .749 to .815. POMC was loaded as factor 2 and the item value showed from .609 to .799. TOMC was loaded as factor 3 and the item value showed from .737 to .823. DOMC was loaded as factor 4 and the item value showed from .499 to .787. However, the item value of 7 was lower than .5. ROMC was loaded as factor 1 and factor 5. In addition, the value of KMO showed .939(p<.001). The reliability showed POMC=.926, DOCM=.905, ROMC=.897, TOMC=.951, COMC=.962, and OMC=.954. The reliability results showed a high level of reliability.

Table 1. The result of exploratory factor analysis(The first)

Variable	Item	Component					Cronbach's Alpha
		1	2	3	4	5	
POMC (A)	A1	.211	.799	.193	.113	.133	.926
	A2	.106	.756	.200	.276	.108	
	A3	.356	.722	.146	.170	.149	
	A4	.375	.699	.142	.148	.113	
	A5	.358	.737	.107	.118	.198	
	A6	.352	.672	.146	.012	.317	
	A7	.401	.609	.187	.160	.150	
DOMC (B)	B1	.341	.279	.122	.713	.020	.905
	B2	.222	.256	.252	.760	-.100	
	B3	.067	.116	.351	.748	.201	
	B4	.030	.003	.255	.772	.364	
	B5	.280	.314	.199	.718	-.067	
	B6	.148	.177	.287	.787	.119	
	B7	-.066	-.010	.335	.499	.494	

ROMC (C)	C1	.637	.433	.091	.362	-.012	.897
	C2	.580	.550	.095	.328	.054	
	C3	.507	.485	.146	.308	.210	
	C4	.570	.523	.144	.319	.045	
	C5	.311	.313	.142	.094	.762	
	C6	.330	.345	.166	.117	.723	
	C7	.183	.210	.155	.097	.833	
TOMC (D)	D1	.250	.232	.737	.258	-.052	.951
	D2	.191	.170	.795	.187	.232	
	D3	.237	.227	.823	.105	.069	
	D4	.224	.110	.806	.236	.122	
	D5	.181	.043	.756	.352	.179	
	D6	.194	.157	.813	.273	.134	
	D7	.297	.162	.817	.197	.116	
COMC (E)	E1	.749	.300	.320	.073	.183	.962
	E2	.805	.293	.258	.102	.108	
	E3	.803	.300	.216	.162	.097	
	E4	.815	.215	.289	.052	.158	
	E5	.772	.296	.286	.005	.186	
	E6	.767	.222	.214	.264	.185	
	E7	.802	.251	.215	.198	.193	
Total		7.283	5.841	5.694	4.831	2.843	KMO=.939 p<.001
% of Variance		20.810	16.690	16.270	13.803	8.122	
Cumulative %		20.810	37.500	53.769	67.572	75.694	

3.1.4 Refining the questionnaire

According to the results of the first EFA, we deleted one DOMC item (item7) and three ROMC items (items 5, 6, and 7). The content of DOMC item 7 was “Leader gives us his/her opinions rather than we provide opinions.” The content of ROMC item 5 was “Members not only discuss their work, but also talk about personal matters, interests, and their recent issues.” The content of ROMC item 6 was “Members try to get to know each other.”, and the content of ROMC item 7 was “Members also have daily conversations.”

3.1.5 Reliability and exploratory factor analysis for modified items

The results of the exploratory factor analysis (refining structure) showed that COMC was loaded in factor 1 and the item value ranged from .745 to .828, TOMC was loaded in factor 2 and the item value was from .734 to .826, POMC was loaded in factor 3 and the item value was from .612 to .773, DOMC was loaded in factor 4 and the item value was from .697 to .805, and ROMC was loaded in factor 5 and the item value was from .601 to .671. In addition, the value of KMO was .944. The result of the EFA indicated that each variable item represented the expected structures. Furthermore, it showed that each variable was independent. The

results of the reliability analysis were POMC=.926, DOMC=.918, ROMC=.937, TOMC=.951, COMC=.962, and OMC=.954. Following the refining, it was confirmed that the reliability of DOMC (from.905 to .918) and ROMC (from.897 to .937) had increased. The reliability results showed a high level of significant reliability. **Table 2** shows the results of the exploratory factor analysis (refining structure).

Table 2. The result of exploratory factor analysis(refining structure)

Variable	Item	Component					Cronbach's Alpha
		1	2	3	4	5	
POMC (A)	A1	.172	.202	.773	.117	.261	.926
	A2	.041	.219	.700	.248	.336	
	A3	.308	.159	.690	.168	.310	
	A4	.391	.117	.731	.208	.071	
	A5	.368	.099	.771	.165	.118	
	A6	.405	.141	.757	.089	-.011	
	A7	.384	.186	.612	.197	.179	
DOMC (B)	B1	.299	.109	.240	.720	.210	.918
	B2	.156	.235	.187	.766	.215	
	B3	.063	.364	.131	.774	.049	
	B4	.062	.283	.065	.801	-.028	
	B5	.195	.193	.221	.697	.327	
	B6	.131	.286	.171	.805	.102	
ROMC (C)	C1	.482	.129	.292	.281	.640	.937
	C2	.421	.145	.411	.245	.670	
	C3	.371	.217	.378	.242	.601	
	C4	.412	.194	.382	.225	.671	
TOMC (D)	D1	.196	.734	.164	.234	.221	.951
	D2	.216	.807	.202	.201	.018	
	D3	.238	.817	.223	.106	.074	
	D4	.213	.817	.102	.249	.078	
	D5	.154	.786	.025	.343	.141	
	D6	.197	.816	.162	.288	.046	
	D7	.283	.826	.151	.196	.119	
COMC (E)	E1	.768	.308	.336	.126	.100	.962
	E2	.792	.246	.291	.125	.212	
	E3	.755	.221	.270	.152	.328	
	E4	.828	.277	.243	.103	.112	
	E5	.780	.281	.322	.044	.144	
	E6	.745	.222	.220	.269	.253	
	E7	.797	.214	.268	.235	.182	

Total	6.219	5.658	5.105	4.552	2.599	KMO=.944
% of Variance	20.062	18.250	16.468	14.683	8.383	*p*<.001
Cumulative %	20.062	38.312	54.780	69.464	77.847	

3.2 The Second design

We refined the items in DOMC and ROMC. DOMC was assessed a total of six items. Specifically, five items were used using the instrument in [47], and one item was used using the instrument in [50]. ROMC was assessed a total of four items. Specifically, two items were used using the instrument in [51], and two items were used using the instrument in [52]. The other items in POMC, TOMC, and COMC were not refined. Finally, we conducted the second questionnaire using the instruments in POMC, TOMC, COMC, and OMS and the refined instruments.

3.2.1 Participants

The characteristics of the second questionnaire are summarized as follows. A total of 223 employees(145 male, 78 female) volunteered to take part. The employees' age showed 6(2.7%) were aged to less than 20 years, 106(47.5%) were aged 20-29, 67(30.0%) were aged 30-39, 38(17.0%) were aged 40-49, 5(2.2%) were aged 50-59, and 1(0.4%) employees are 60 years old or over 60 years old. The employees' education showed 32(14.3%) were high school, 40(17.9%) were college, 105(47.1%) were bachelor's degree, 44(19.7%) were master degree, and 2(0.9%) were doctoral degree. In relation to employees' service year, 40 employees (17.9%) have worked less than one year, 30 employees (13.5%) have worked 1 to less than 3 years, 35 employees (15.7%) have worked 3 to less than 5 years, 32 employees (14.3%) have worked 5 to less than 7 years, and 86 employees (38.6%) have worked 7 or more than 7 years.

3.2.2 Exploratory factor analysis

The results of the exploratory factor analysis showed that COMC was loaded in factor 1 and the item value ranged from .648 to .846, TOMC was loaded in factor 2 and the item value was from .777 to .861, POMC was loaded in factor 3 and the item value was from .654 to .783, DOMC was loaded in factor 4 and the item value was from .701 to .852, and ROMC was loaded in factor 5 and the item value was from .697 to .756. In addition, the value of KMO was .932. The result of the EFA indicated that each variable item represented the expected structures. Furthermore, it showed that each variable was independent. The results of the reliability analysis were POMC=.932, DOMC=.940, ROMC=.939, TOMC=.954, COMC=.963, and OMC=.960. The reliability results showed a high level of significant reliability. **Table 3** shows the results of the exploratory factor analysis.

Table 3. The result of exploratory factor analysis

Variale	**Item**	**Component**					**Cronbach's Alpha**
		1	**2**	**3**	**4**	**5**	
POMC (A)	A1	.271	.116	.766	.215	.094	.932
	A2	.239	.066	.721	.301	.240	
	A3	.337	.074	.741	.138	.248	
	A4	.462	.154	.697	.044	.227	

	A5	.290	.221	.783	.060	.127	
	A6	.327	.249	.745	-.004	.074	
	A7	.432	.194	.654	.031	.204	
	B1	.298	.279	.184	.701	.129	
	B2	.202	.256	.180	.771	.235	
DOMC (B)	B3	.095	.243	.050	.852	-.015	.940
	B4	.026	.291	.051	.845	.077	
	B5	.066	.295	.100	.843	.156	
	B6	-.008	.310	.102	.819	.124	
	C1	.372	.199	.293	.187	.756	
ROMC (C)	C2	.384	.186	.288	.195	.754	.939
	C3	.447	.191	.273	.101	.697	
	C4	.426	.196	.229	.288	.705	
	D1	.248	.778	.058	.270	.121	
	D2	.156	.777	.207	.269	.005	
	D3	.268	.817	.071	.231	.150	
TOMC (D)	D4	.127	.861	.108	.203	.147	.954
	D5	.067	.795	.170	.337	.084	
	D6	.144	.821	.223	.282	.109	
	D7	.126	.804	.177	.274	.185	
	E1	.784	.182	.355	.108	.247	
	E2	.772	.137	.338	.140	.200	
	E3	.740	.163	.359	.155	.270	
COMC (E)	E4	.846	.176	.346	.120	.136	.963
	E5	.810	.203	.305	.022	.228	
	E6	.684	.213	.333	.129	.361	
	E7	.770	.185	.346	.127	.227	
Total		6.050	5.619	5.110	4.847	3.020	KMO=.932
% of Variance		19.517	18.126	16.482	15.636	9.741	p<.001
Cumulative %		19.517	37.643	54.125	69.761	79.503	

3.2.3 Confirmatory factor analysis

After refining the ROMC items (items 5, 6, and 7) and DOMC item (item 7), we conducted the second survey. A confirmatory factor analysis (CFA) was performed using the second data received after refining the items. The results of model fit showed $X^2(p)$=1439.437(.000), X^2/df=2.403, RMSEA=.079, IFI=.915, TLI=.905, CFI=.914, PNFI=.776, and PGFI=.640. This indicates a significant and good model fit. In addition, the results of the average variance extracted (AVE) were POMC=.646, DOMC=.718, ROMC=.800, TOMC=.749, COMC=.782, and OMS=.798. All of the AVE values were higher than .5 and indicated significant values. Furthermore, the results of composite reliability (C.R) were POMC=.841, DOMC=.890,

ROMC=.902, TOMC=.899, COMC=.931, and OMS=.934. The C.R values were all higher than .7 and indicated significant values. Therefore, we determined that CFA satisfied the acceptability requirements. Finally, the reliability showed POMC was .932, DOCM was .940, ROMC was .939, TOMC was .954, COMC was .963, and OMS was .960. The reliability results showed a high level of significant reliability. The following **Table 4** shows the results of convergent validity.

Table 4. The result of convergent validity

Variables	Item	Estimate	S.E.	C.R.	*p*	Standardized Regression	AVE	C.R	Cronbach's Alpha
POMC (A)	A7	1				.805	.646	.841	.932
	A6	1.089	.070	15.486	***	.761			
	A5	1.111	.079	14.014	***	.821			
	A4	1.15	.073	15.844	***	.895			
	A3	1.02	.071	14.362	***	.835			
	A2	.886	.073	12.119	***	.739			
	A1	1.017	.081	12.623	***	.760			
DOMC (B)	B6	1				.886	.718	.890	.940
	B5	1.016	.047	21.814	***	.940			
	B4	.975	.054	17.977	***	.858			
	B3	.976	.061	16.021	***	.825			
	B2	.876	.054	16.225	***	.811			
	B1	.78	.055	14.219	***	.753			
ROMC (C)	C4	1				.887	.800	.902	.939
	C3	1.019	.058	17.517	***	.845			
	C2	1.048	.049	21.227	***	.922			
	C1	.985	.046	21.244	***	.922			
TOMC (D)	D7	1				.872	.749	.899	.954
	D6	1.017	.045	22.742	***	.878			
	D5	.943	.056	16.825	***	.842			
	D4	1.05	.057	18.563	***	.885			
	D3	1.096	.059	18.56	***	.885			
	D2	1.053	.073	14.512	***	.846			
	D1	1.001	.058	17.109	***	.849			
COMC (E)	E1	1				.899	.782	.931	.963
	E2	.918	.042	21.913	***	.853			
	E3	.877	.043	20.357	***	.887			
	E4	1.001	.045	22.099	***	.917			
	E5	.981	.049	20.012	***	.882			
	E6	.874	.046	18.895	***	.859			
	E7	.924	.045	20.535	***	.890			

OMS (F)	F1	1				.887	.798	.934	.960
	F2	.867	.053	16.36	***	.811			
	F3	.923	.047	19.641	***	.885			
	F4	1.027	.044	23.575	***	.951			
	F5	1.016	.047	21.501	***	.919			
	F6	1.044	.042	24.794	***	.901			
Model Fit Index	$X^2(p)$=1439.437(.000), X^2/df=2.403, RMSEA=.079, IFI=.915, TLI=.905,								

4. Analysis

4.1 Correlation analysis

In order to verify the relationship between the types of organizational online meeting climate and online meeting satisfaction, we conducted a correlation analysis. The results showed that POCM (r=.749, p<.001) was positively related to OMS, DOCM (r=.514, p<.001) was positively related to OMS, ROCM (r =.777, p<.001) was positively related to OMS, TOCM (r =.579, p<.001) was positively related to OMS, and COCM (r =.832, p<.001) was positively related to OMS. The results showed the strongest relationship between COMC and OMS. In addition, DOMC and OMS showed the weakest relationship. Thus, the hypothesis1, 2, 3, 4, and 5 were supported. **Table 4** shows the results of the correlation analysis.

Table 5. The result of correlation analysis

Variable	Mean	S.D	POMC	DOMC	ROMC	TOMC	COMC	OMS
POMC	5.048	1.314	-					
DOMC	5.327	1.213	.363***	-				
ROMC	5.559	1.204	.655***	.455***	-			
TOMC	4.955	1.358	.447***	.623***	.483***	-		
COMC	5.215	1.234	.769***	.365***	.763***	.472***	-	
OMS	5.3363	1.182	.749***	.514***	.777***	.579***	.832***	-

***:p<.001, **:p<.01, *:p<.05

4.2 Regression analysis

In order to compare the magnitude of the influence of independent variables on OMS, a regression analysis was performed. The results showed that POMC (β=.181, p<.001), DOMC (β=.120, p<.01), ROMC (β=.225, p<.001), TOMC (β=.115, p<.01), and COMC (β=.423, p<.001) had a positive influence on OMS. It was found that COMC had the strongest influence on OMS. In contrast, TOMC had the lowest influence on OMS. The following **Table 5** shows the results of the regression analysis.

Table 6. Regression analysis

Dependent variable: OMS			
Independent variable	**Model 1**		
	β	***t***	**VIF**
POMC	.181***	3.653	2.554
DOMC	.120**	2.939	1.732
ROMC	.225***	4.444	2.672
TOMC	.115**	2.727	1.862
COMC	.423***	7.297	3.485
R^2(Adj- R^2)	.791(.786)		
F	164.340***		

***:p<.001, **:p<.01, *:p<.05

5. Conclusions

5.1 Conclusions and implications

This study defined the climate types of online meetings and explained their characteristics. COMC, ROMC, POMC, DOMC, and TOMC are typical examples of online conferences. These climates entail the ways team members communicate, make decisions, collaborate, and interact. The study of these climate types will increase the effectiveness and efficiency of online meetings.

This paper creates a potential for future research by developing measurement scales for five climate types. To verify the developed measurement, items were deleted and corrected through exploratory factor analyses and reliability analyses in the primary analysis. Next, in the secondary analysis, items that could measure five climate types were composed through exploratory and confirmatory factor analyses and reliability analyses.

Furthermore, through empirical analyses, different correlations between climate types and online meeting satisfaction were investigated. Each climate type was more or less associated with meeting satisfaction. To make this relationship clearer, we verified through regression analysis the type of organizational climate that had a greater impact on OMS.

The results of the statistical analysis showed that COMC had the greatest influence on OMS. This means that team members with a creative climate are more satisfied with meetings and achieve higher performance. Then, it was proved that the influences of ROMC and POMC were significant. This means that cooperative relationships among members, opportunities for participation, and spontaneous communication can improve team performance. Finally, it was found that DOMC and TOMC had relatively little effect on OMS. When the leader makes decisions arbitrarily or members only emphasize their work, the satisfaction of the members decreases.

These results suggest the development of new variables for measurement, and emphasize the importance and role of these variables. The implications of the study are as follows.

First, this study demonstrated new types of climates. This has theoretical implications when presenting climate types for a specific situation, such as an online meeting, as new variables. In addition, a new measurement scale was developed, suggesting a plan for continuous research in the future.

Second, the differences between online and offline meetings was clarified. The online meeting climate suggests that online-based teams such as virtual teams may have different climates, communication styles, and leadership needs compared with traditional and offline teams.
Third, the importance of individual climates was demonstrated by proving the relationship between meeting climates and meeting satisfaction. This explains the relationship between the variableization of online meeting climate and other variables, and emphasizes the importance of climate, as suggested in previous studies.
Fourth, among the various climates, this paper explained which climates were more important. These results suggest ways of establishing the required climate in an online meeting situation. Teams and companies need to build a creative, relational, and participative climate to improve the performance of online meetings.

5.2 Limitations and suggestions for future studies

First, this study established five climate types. However, more diverse climate types may exist. For example, research on various climates such as individualism or collectivist climate, or role-oriented climate is also needed.
Second, the role of climate was explained in relation to online meeting satisfaction, Later, relevance to meeting performance, team satisfaction, job performance, and organizational commitment will need to be identified.
Third, in the context of this study, COMC was the most important, followed by ROMC and POMC. However, the climate that is important in other situations may be different. It is necessary to verify the influence of individual climate types in more diverse situations such as different industries, team characteristics, tasks, and member orientation.
Fourth, teams have their own climate types. It may have more or less of a particular climate. Also, as a relative concept, a team with one climate type may not have the opposite climate. Research to improve the performance of teams with these diverse situations and climates should be conducted. For instance, the leadership required for COMC and the job required for TOMC will be different. Therefore, future research on situational factors suitable to climate is needed.
Fifth, it is also necessary to make an effert to create a specific climate for a team. If a specific climate is more effective for a specific team, antecedent variables for forming this climate should be explored. These efforts will allow the team to adapt to the situation and improve performance.
Finally, in recent COVID-19 pandemic and Omicron situation, the importance of organizational members' innovative behavior was emphasized by [56]. It is expected that organizational climate has an influence on decision-making. Furthermore, organizational climate leads to organizational members' attitude and behavior. Future research should test the effect of organizational climate types on organizational members' innovative behavior.

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Appendix

	In an online meeting.
POMC	Members are participating in decision-making.
	Members are participating in the distribution of work.
	Members are participating in problem solving.
	Members participate in expressing their opinions for organizational development.
	Members play an equal role in the decision-making process.
	Decisions are made not by power, but by the participation of members.
	Decision-making is made through dialogue among members.
DOMC	The leader usually directs on major issues.
	Work is carried out after obtaining the permission of the leader.
	Most of the work is decided by the leader.
	The leader pushes his own ideas.
	Usually the leader makes decisions.
	It is mainly conducted under the direction and command of the leader.
RMOC	Members conduct the meeting with each other.
	Members respect each other's opinions.
	Members ask each other how they are.
	Members treat each other comfortably.
TMOC	Members mostly discuss only the tasks to be performed.
	Members mostly discuss only performance standards.
	Members mostly discuss only future work-related plans.
	Members mostly discuss only responsibilities.
	Members mostly discuss only their job roles.
	Members mostly discuss only issues that can increase their contribution to work.
	Members mostly discuss only ways to immerse themselves in their work.
CMOC	Members tend to freely present new technologies or methods without notice.
	Members are not afraid to come up with creative ideas.
	Receptive to others' new ideas
	Members do not hesitate to come up with new ideas.
	Members tend to present innovative ideas about their work without notice.
	Members tend to listen to the various opinions of others
	Members are not afraid to show creativity in their work and speak well.

Xiu Jin is currently an assistant professor of Business Administration at Honam University, Korea. He received his Ph.D in School of Business Administration from Soongsil University, Korea. His current research interests include human resource management, organizational behavior, leadership, sustainable development, organizational innovation, e-business, the fourth industrial revolution, and interdisciplinary research. His researches have published in SSCI, SCI, Scopus, and others journals.

Fusheng Zheng is currently an assistant professor of School of Economics and Management at Lanzhou University of Technology, China. He received his Ph.D in School of Business Administration from Soongsil University, Korea. His current research interests include human resource management, organizational behavior, leadership, sustainable development, innovative

Sang Woo Hahm is currently a professor of Business Administration at Semyung University, Korea. He received his Ph.D, MS and BS in School of Business Administration from Soongsil University. His current research interests include e-business, management, The fourth industrial revolution, organizational behavior, leadership, interdisciplinary research and the like.