

Expert Evaluation of comMCT, a Communication Model for Multicultural Teams

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Effective communication is a key factor for the success of teams. More recently, globalization and modern communication technologies have contributed to the prevalence of multicultural teams and fast communication paths, creating additional challenges for effective communication. To support multicultural communication, a web-based communication model for multicultural teams (comMCT) was previously developed. To the best of the authors' knowledge, this is the only communication model for MCTs that provides a web-based representation and includes modules addressing a wide spectrum of interpersonal, structural, functional, and organizational aspects of effective multicultural team communication. The objective of the current effort is to evaluate and enhance the model with the participation of subject matter expert end-users. In the study, an international sample of 15 project managers evaluated the comMCT model on 7 criteria: completeness, structure, language, redundancy, understandability, originality, and usefulness. On a scale of YES!; Rather yes; Partly yes, partly no; Rather no, and NO!, the model was rated as good (corresponding to answer option 'Rather yes') or very good (corresponding to 'YES!') on all criteria except for redundancy. In addition, participants' free text comments provided suggestions for improving the model in terms of complexity, interactivity, and calibration. Overall, the comMCT model was considered helpful and useful for supporting intercultural, work-related communication. Yet, further research and incremental optimization are needed in this domain.

Interaction Science Key Words: comMCT, multicultural teams, diversity, communication model, expert evaluation, project management, model criteria, translational case study

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1 INTRODUCTION

As a result of globalization, advances in communication technology, and increased mobility, multicultural teams (MCTs) are becoming the norm rather than the exception. Considering this observation, scholars have researched the effects of cultural diversity on team functioning. In this context, studies produced conflicting results with respect to effects of cultural variety on team performance and team processes [1-5]. In light of conflicting and inconclusive results, researchers proposed that cultural diversity in teams could have the potential to be an asset or a liability, depending on how differences were handled and how diversity was managed [6]. If diversity is managed effectively, differences and variety will create a balance (cohesion and unity) and result in creativity and innovation. Otherwise, they will create an imbalance (subgroup dominance, member exclusion, etc.) and result in conflicts, role ambiguity, and stereotypes. [7]

Moreover, scholars have drawn attention to effective communication as a key asset of (multicultural) teamwork [8-11]. For example, [9] stated that effective communication was concerned primarily with managing "expectations, misconceptions, and misgivings" (p. 11) in multicultural teams. The study confirmed that in order to establish, cultivate, and maintain strong working relationships, good communication strategies were essential. Research [12] suggested that communication was one the most 'fragile' processes in multicultural teams, since the risks related to multicultural teams would surface most prominently through interaction. Another study [11] suggested that effective communication would help in ensuring the synergistic and continuous learning stages of multicultural teams. [10] drew attention to the consequences of ineffective communication by stating that although good team communication would not guarantee good results, "poor communication leads to disastrous results" (p. 148).

Although effective communication is considered instrumental to handling cultural differences and managing cultural diversity, only a few studies have investigated how to effectively communicate within MCTs [11,13-20], and to the best of the authors' knowledge, only one study [12] proposed a comprehensive, web-based model for communication in multicultural teams (comMCT). The only model known to the authors that is loosely related to comMCT was proposed by Matveev, Rao, and Milter (2001, as cited in [19]). That study dealt with interpersonal aspects of multicultural communication; however – unlike comMCT – it does not address structural, functional, and organizational aspects and does not provide a representation on the web.

The model comMCT is based on a systematic literature review [21] and qualitative interviews involving 21 domain experts. Yet, the quality and practical relevance of the model for its target users needs a thorough

investigation in the field. This is the focus of the current study that concentrates on evaluating the comMCT model by international project managers with respect to seven criteria: completeness, structure, language, redundancy, understandability, originality, and usefulness.

Thus, the core contribution of this paper lies in its translational approach, i.e., the evaluation of a literature-based, academic model by subject matter experts as potential end-users/practitioners to assess the model’s relevance and enhance its transferability and acceptance in an applied setting. As such, the evaluation study presented in this article may serve as an illustrative and generalizable example of a translational case study. As [27] suggested, “without a readable, understandable, useful model all other efforts become obsolete” (p.33).

The remainder of the paper is structured as follows: after briefly describing the comMCT model and formulating the research questions, the next section presents the research methodology, followed by the results of the study. The fourth section discusses the results, limitations, and directions for further research. The final section summarizes the study.

1.1 A short description of comMCT as the subject of evaluation

The comMCT model exposes essential knowledge for effective communication in MCTs and provides a web-based resource to make this knowledge available in a systematic, structured, ubiquitously accessible, and comprehensive way. The model was developed through a comprehensive literature review and a qualitative field study. In the literature review, a total of 159 studies on cultural differences, the effects of diversity on teams, and the dynamics of multicultural teams were analyzed. In the field study, expert interviews were conducted with the involvement of 21 project management professionals who had worked as project managers in MCTs for five or more years. Based on insights from the literature review and the expert interviews, a communication model for MCTs (comMCT) supporting effective multicultural teamwork was developed and provided as an openly accessible web-resource [12].

Fig. 1 depicts the layout of the comMCT model where it places the team as the central element of attention. The arrows in the Figure indicate that the team is influenced by the project and organizational culture and reciprocally impacts these cultures. The comMCT model is partitioned into four modules, reflecting the structural, functional, organizational, and interpersonal/behavioral aspects of communication.



Fig. 1. Layout of the model ‘comMCT’

Each module includes several elements addressing technical, cognitive, behavioral, and attitudinal features and competencies required for effective communication in MCTs. For example, as demonstrated in Fig. 2, the

structural module includes the following seven elements: (1) an effective communication plan, (2) open communication structure, (3) an inter-connected communication system, (4) adequate communication procedures/processes, (5) a suitable technical environment, (6) ad-hoc calls with preparation, and (7) using the right communication tools. The model provides three kinds of details for each element: a definition/explanation, benefits/function, and advantages/opportunities to be utilized, or disadvantages/risks to be overcome along with the way this can be accomplished. As an example, the model suggests that in order to ensure an ‘open communication structure’, multiple communication channels should be available, opportunities for communication preferences should be given, and sufficiently frequent communication among team members should be ensured (see Fig. 3). ‘Open communication structure’ helps in dealing with, for example, problems emerging from language barriers, dispersion of team members, and different work habits. This element provides utilization of different viewpoints and work experiences as well as learning opportunities. The model was designed to serve as a reference point or digital “checklist” for experienced professionals who may want to expand their knowledge of communication-related features and strategies in the context of multicultural teams. Please visit <http://www.3mpati.com/comMCTv2/index.php> for the web-based presentation of the model ‘comMCT’ and refer to [12] for a detailed description.

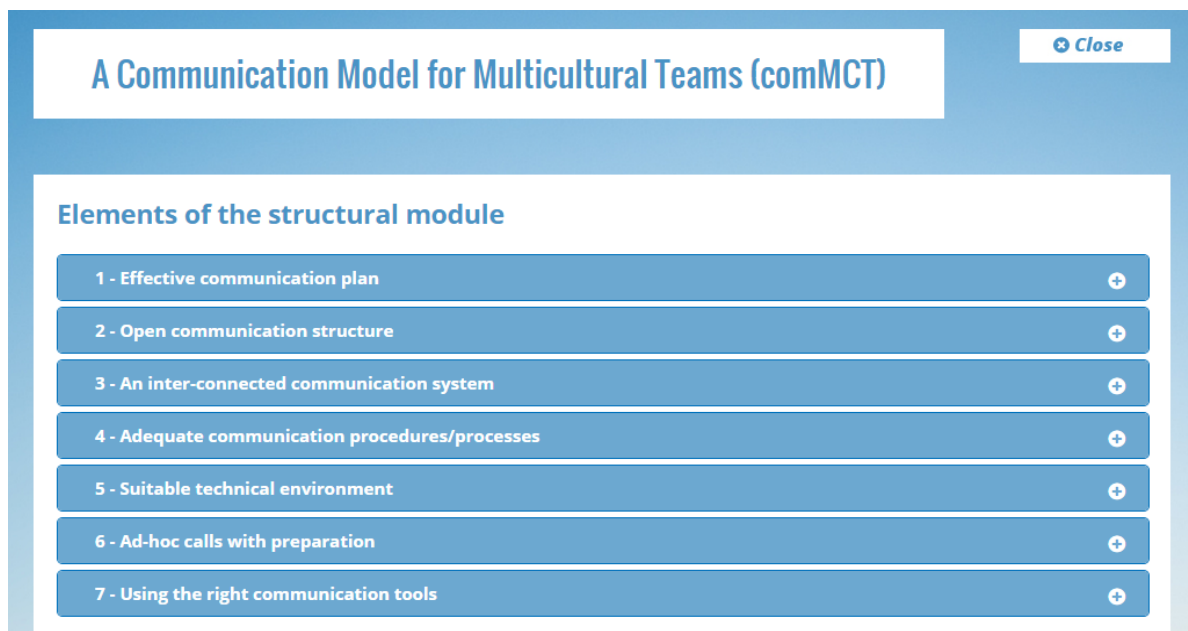


Fig. 2. Elements of the structural module as an example

2 - Open communication structure		
Definition/Explanation	Benefits/Function	Related advantages/disadvantages of MCTs
Availability and utilization of multiple communication channels Giving opportunities for preferences A balanced "open" structure: Ensuring flat hierarchy, allowing for horizontal and vertical communication; but with balanced limits Ensuring frequent enough communication among team members Fostering open communication (i.e. project manager serves as a model) Well-documented structure Providing opportunities for proper resolution of conflicts Ensuring agreement by all (as much as possible) Encouraging direct communication	Helps in dealing with problems emerging from language barriers (such as lack of language proficiency, trouble with accent and fluency) and dispersion of team members by providing various communication media to the team members. Provides better utilization of human resources by supporting enough participation and contribution of all parties. Facilitates idea/knowledge sharing by giving opportunity to the team members to communicate in an adequate frequency and with their preferred media, hence supports creativity and innovation within the team. Creates more opportunities for learning. Helps in dealing with conflicts and misunderstanding emerging from cultural differences. Increases satisfaction and motivation within the team.	<p>Provides utilization of the following advantages of MCTs:</p> <ul style="list-style-type: none"> ✓ Resource/skills pool ✓ Different viewpoints/approaches/ideas ✓ Decreased group-thinking ✓ Different work/life experiences ✓ More learning opportunity ✓ Potential for broadly valid outputs ✓ Access to multiple resources ✓ Cultural mediator/translator function of culturally different members <p>Helps in dealing with the following disadvantages of MCTs:</p> <ul style="list-style-type: none"> ✗ Language problems ✗ Difficulty of having common working hours ✗ Different work habits/norms ✗ Less participation/contribution tendency of minorities

Fig. 3. Element ‘open communication structure’ with its details as an example

1.2 Research Questions

The main objective of this work is to assess the quality of the ‘comMCT’ model through a series of expert interviews with the target users of the model and to expose the areas for improvements. In this regard, the following research questions were formulated:

1. How satisfied are subject matter experts, in this case experienced project managers, with the comMCT model regarding its completeness, structure, language, redundancy, understandability, originality, and usefulness?
2. Which adjectives would experienced project managers use to describe the model?
3. Which improvements of the comMCT model do its primary target users (i.e., project managers) suggest?

2 METHOD

In order to assess the user-perceived quality of the comMCT model, to find areas for improvement, and to assess the applicability of the model in the field, structured interviews with a sample of subject matter experts, in this case experienced project managers, were conducted. In this study, the expert interview method was used since expert interviews allow the researcher to access the special knowledge of the people who are involved in the situation and/or process of interest [22]. The interviews were analyzed in terms of the experts’ responses to the individual questions as well as by cumulative means. This current study investigates the model with a focus on the following seven criteria: completeness, structure, language, redundancy (minimalism), understandability (clarity), originality, and usefulness.

2.1 Participants

Sample Description. The target user group of the study was experienced project managers of MCTs. “Experienced” was defined as (i) having at least two years of project management experience, (ii) having been working or had worked in a multicultural environment for at least two years, (iii) having managed at least one MCT, and (iv) having work experience in at least two MCTs. The data were collected via a structured online questionnaire in two waves, using a convenience sample of $n=10$ and $n=5$ respectively. The time between waves was 13 months. Experts who volunteered to evaluate the comMCT model did not have any previous exposure to the model and had not been involved in model development activities.

Sample Recruitment. The recruitment strategies used in this study were personal contacts, internet search, and referrals. For the participation in the questionnaire a total of 22 project managers with the required qualifications were contacted and 15 of them participated; this is a 68% participation rate. Fifteen of the 22 project managers were contacted through personal contacts of the experimenters and referrals, of which 14 participated in the study. Seven of the 22 participants were contacted through internet sources, i.e., e-mail or LinkedIn, and only one of them participated. The number of participants per recruitment strategy is shown in Table 1 below.

Table 1. Participants of the study

Contacted via	Participated	Not participated	Total
Internet	1	6	7
Personal contact	14	1	15
Total	15	7	22

Demographic. In the questionnaire, the following demographic categories were foreseen: gender, age, nationality, and country. Eleven of the participants (73%) were male and four (27%) were female (see Fig. 4). Respondents, with ages varying between 28 and 53 (averaging at 45), were divided into four age groups: (a) 20-29, (b) 30-39, (c) 40-49, and (d) 50-59. More than half of the participants, 54% (8 out of 15), were in the age group 40-49, 13% (2 out of 15) in 30-39, another 13% in 50-59, and 7% (1 out of 15) of the participants were in the age group 20-29. Two of the respondents did not specify their age.

Professionals from eight different countries, namely Turkey, Austria, the United Kingdom, Germany, Czech Republic, Brazil, the United States, and Israel participated in the study. Six of the respondents (40%) were from Turkey, two (13%) from Austria, two (13%) from the United States, and one person from Germany, the United Kingdom, Czech Republic, Brazil, and Israel respectively. Participants of the study were of eight different nationalities, namely Turkish, Austrian, German, Czech, Israeli, British, American, and Brazilian-American. Eight of the participants (44%) were of Turkish nationality, three (17%) were of Austrian, two (11%) were American, and the remaining five (6%) were of one of the following nationalities: German, Czech, Israeli, British, and Brazilian-American respectively (see Fig. 5). One of the interviewees identified herself/himself as Turkish and British, and two other interviewees identified themselves as Austrian with Turkish background. Therefore, the total number of participants accounted for, in this regard, was 18.

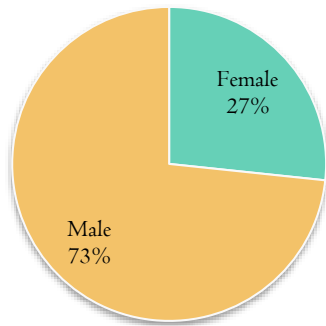


Fig. 4. Distribution of participants per gender

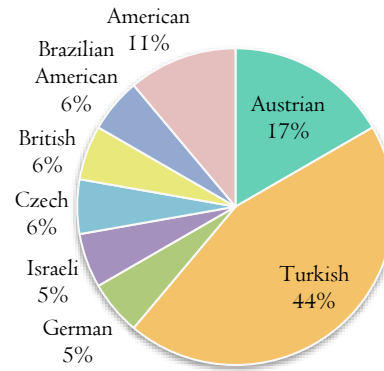


Fig. 5. Distribution of participants per nationality

2.2 Materials and Apparatus

The questionnaire consisted of two parts, the first of which included 20 questions (8 closed-ended and 12 open-ended) about the project manager’s evaluation of the comMCT model. In this part, project managers were asked to assess the model with respect to its completeness, structure, language, redundancy, understandability, originality, usefulness for a novice, and usefulness for project managers through closed questions with six answer options for each question. For each criterion, interviewees were also asked targeted questions based on the response they had given previously. For example, if they found the model incomplete, they were asked what, in their view, was missing and how the model could be improved (see Appendix A).

In addition, project managers were expected to share their general assessment about the model through three open questions addressing their overall impression of the communication model, a few descriptive words or sentences that characterize the model, and additional thoughts and comments they may have. The main reason for including open questions was to elicit the interviewees’ experiences and knowledge as comprehensively as possible. Since there was no comparable model for communication in MCTs, a holistic rather than just selective view on how international experts would conceive the model was sought-after. Moreover, it mattered not to overlook some dimension or (culturally relevant) aspect that might be crucial for the applicability or optimization of the model.

The second part of the questionnaire included 10 questions addressing general information about the project managers and their experiences/backgrounds. Project managers were asked about their experiences in project management and multicultural work environments, as well as, the number of MCTs they had worked in and had managed. In addition, participants were asked whether they had a project management certification (such as PMP, IPMA, etc.) in order to present their project management background from a more formal point of view. In this part, they were also asked some basic personal questions such as, gender, age, nationality, and country. Please see Appendix A for the whole questionnaire. Note that all materials and apparatus’ used in the study were in English, since participants were expected to be fluent in this language.

2.3 Measures

This current study assessed the quality of the model based on the following seven criteria: (1) completeness, (2) structure, (3) language, (4) understandability (clarity), (5) usefulness, (6) redundancy (minimalism), and (7) originality. These criteria were theoretically informed by the Guidelines of Modeling (GoM), introduced by [23] and the data model quality management framework proposed by [24-25]. GoM presents an evaluation framework “for the development and assessment of information models on the requirements definition level with consideration of the designer and the model user” (p.5) [23]. The quality criteria used in this study and the corresponding measures are explained as follows:

Completeness. A model is perceived complete when “there are no statements that are correct and relevant about the domain, but are not included in the model” (p.296) [26]. In the study, completeness of the model was measured through the question “In your view, is this model complete? Does it cover important communication-related issues of a multicultural team?” with answer options of ‘YES!’, ‘Rather yes’ (some minor issues are missing), ‘Partly yes’, ‘partly no’ (some important issues are missing), ‘Rather no’ (several issues are missing), ‘NO!’, and ‘I don’t know’. In addition, experts were invited to signify what was missing if they perceived the model as ‘not complete’.

Structure. This quality criterion reflects the conceptually appealing, understandable, and easy-to-use structure. With “structure” we were particularly interested in an addressee-oriented hierarchical decomposition, layout design (arrangement of the elements) and filtering of information [23] as essential aspects of the more general quality of understandability (see below). Structural quality of the model was investigated via the question “Do you like the structure of this model?” with answer options, ‘YES!’, ‘Rather yes’ (there are some slight structural

problems), 'Partly yes', 'partly no' (there are some important structural problems), 'Rather no' (there are many important structural problems), 'NO!', and 'I don't know'. Project managers were also invited to mention what they consider confusing or badly structured if they did not like the structure.

Language (adequacy). The criterion language adequacy refers to the "correct application of the language syntax and grammar" (p.7) [23] and theoretical appropriateness of the terms used in the model. In order to assess the adequacy of the language, the question of "Do you think the terms used in the model do appropriately describe what they stand for?" with following answer options; 'YES!', 'Rather yes' (there are only a few problematic terms), 'Partly yes', 'partly no' (there are some problematic terms), 'Rather no' (there are many important problematic terms), 'NO!', 'I don't know'. Project managers were also asked to state which terms they considered ambiguous, or not fitting, and what alternative terms they would suggest if they considered any terms to be problematic.

Redundancy (minimalism). A model is minimal when "no information objects can be removed from the model without an information loss for the potential model user" [23]. The question of "In your view, does the model contain redundancies?" with answer options of 'NO!', 'Rather no', 'Partly yes', 'partly no', 'Rather yes', 'YES!', and 'I don't know', were asked to the experts in order to assess the redundancy of the model. They were also asked to express their thoughts on features they considered redundant.

Understandability (clarity). Understandability refers to "the ease with which the concepts and structures in the data model can be understood" [25]. The question, "In your view, is the model understandable?" with answer options, 'YES!', 'Rather yes', 'Partly yes', 'partly no', 'Rather no', 'NO!', and 'I don't know' were directed to the subject matter experts in order to assess the understandability of the comMCT model. They were also asked to signify what makes the model hard to understand if they did not perceive the model as understandable.

Originality. This criterion externalizes whether the model is innovative and original, i.e., not repeating any other model/theory. The question of, "Do you consider the model original and innovative?" with answer options of, 'YES!', 'Rather yes', 'Partly yes', 'partly no', 'Rather no', 'NO!', and 'I don't know' were directed to the experts. Moreover, they were asked to explain which model(s) was/were already in place that cover(s) all the features of communication in multicultural teams, if they perceived the model as repeating already existing ones.

Usefulness. The criterion 'usefulness' subsumes perceived usefulness of the model and participant's intention to use it. Perceived usefulness refers to "the extent to which a person believes that the method would be useful", while intention to use refers to "the extent to which a person intends to use the method" (p.297) [26]. In the study, usefulness of the model both for experienced project managers and for novice users was investigated with the following questions:

- Does the model appear to be useful for you? (YES!, Rather yes, Partly yes, partly no, Rather no, NO!, I don't know)
- If you find this model not useful, what is it that makes the model unpractical for you?
- If you find this model useful, do you intend to change something in your next/current project based on the insight you gained from the model?
- Does the model appear to be useful to a person who has limited experience with working in or with multicultural teams? (YES!, Rather yes, Partly yes, partly no, Rather no, NO!, I don't know)
- If not, how should the model be modified to be useful to a person who has limited experience with working in or with multicultural teams?

2.4 Procedure

The data were collected through online expert interviews. As the study aimed to acquire specific perceptions, thoughts, and evaluations of individuals, an individual interview method was adopted. A data collection technique, the structured questionnaire, including both open and closed questions, was employed.

Project managers were invited to examine the model on the web-platform (please see, <http://www.3mpati.com/comMCTv2/index.php>) thoroughly and evaluate it by completing the questionnaire provided at the end (see Fig. 6). They were asked to begin with the background of the model (<http://www.3mpati.com/comMCTv2/index2.php>) which was followed by the basis and the layout of the model (<http://www.3mpati.com/comMCTv2/model.php>) (see Fig. 1 and 7). In this page, project managers were directed to visit the page for team success criteria (<http://www.3mpati.com/comMCTv2/list1all.php>) and the page for opportunities and risks of MCTs (<http://www.3mpati.com/comMCTv2/list4.php>). These are two important pillars of the model.

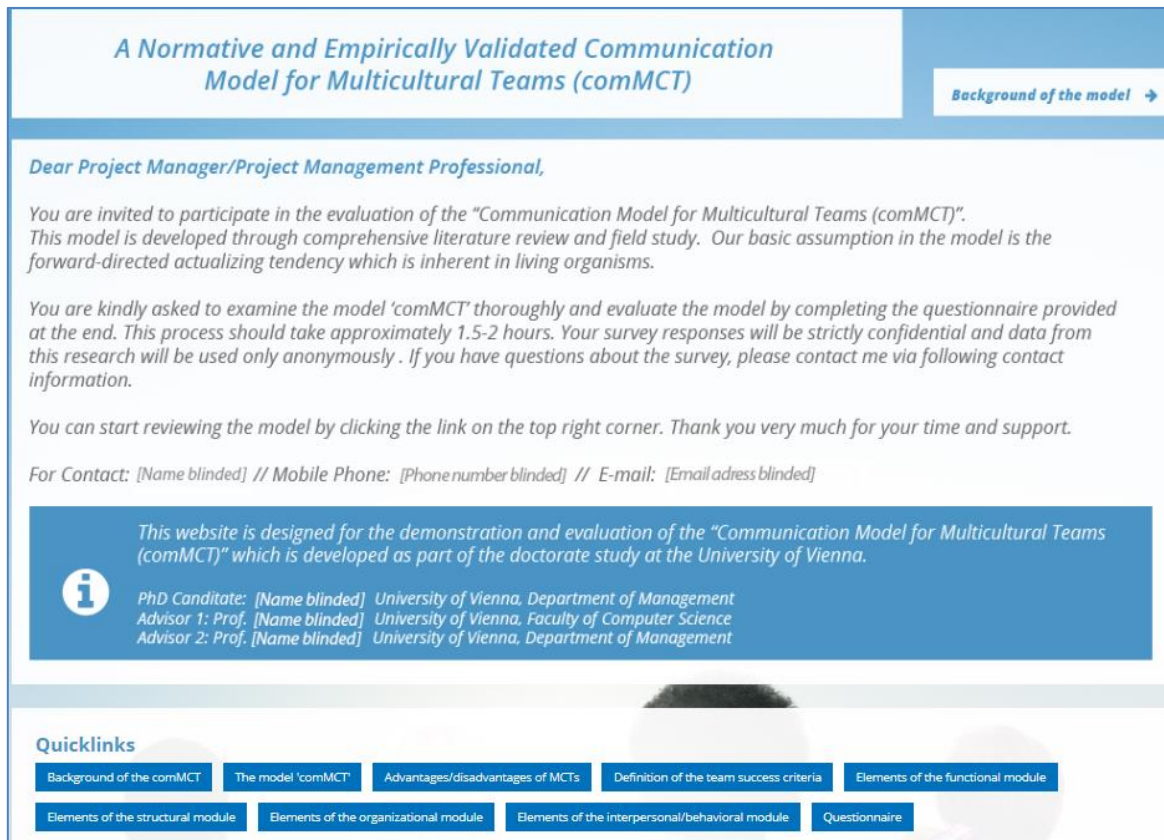


Fig. 6. Homepage of the comMCT model

Basis of the comMCT :

TEAM SUCCESS CRITERIA		
Team Processes	Team Outcomes	Long-Term Team Outcome
<ul style="list-style-type: none"> ➤ Decision making/ problem solving ➤ Planning ➤ Participation ➤ Turnover ➤ Communication ➤ Conflict ➤ Cooperation ➤ Role Expectations ➤ Sub-group formation 	<ul style="list-style-type: none"> ➤ Performance ➤ Satisfaction ➤ Learning ➤ Cohesion ➤ Commitment 	<ul style="list-style-type: none"> ➤ Viability

- 'Multicultural teams (MCTs)' in this model refers to the teams whose members have different nationalities from which, consequently, different cultures emerge.
- This model aims to demonstrate a communication model providing a successful teamwork for MCTs. In this model, teamwork is regarded successful when it reaches the project goals and achieves viability. We argue that successful team outcomes are reached through effective team processes, therefore they are also considered as team success criteria in the model. Team success criteria on which comMCT is based are shown in the table on the left (Please hover on each criterion to see its definition or [click here](#) to see all success criteria with their definitions).
- As the review and field studies revealed that cultural diversity brings along some advantages and opportunities as well as some disadvantages and risks into the team. This model aims to achieve and maintain a successful multicultural team work by overcoming these disadvantages/risks and supporting utilization of advantages/opportunities. Therefore, each element of the model is associated with the advantage and disadvantage factors which are also associated with team success criteria. (Please [click here](#) to see all advantages/opportunities and disadvantages/risks of MCTs with their explanations and their effects on team success).
- comMCT is a flexible model in which several factors (team culture, project culture, organization culture and four modules) are in interaction and the boundaries of this flexibility is determined by project constraints.

Fig. 7. Page for the basis of the comMCT model

Followed by the review of the background, basis, and layout of comMCT, project managers were asked to walk through each module (1. structural, 2. functional, 3. organizational, 4. interpersonal/behavioral) in the given order by clicking on them in the layout picture. Each module has several elements, details of which (definition/explanation, benefits/functions, related risks/opportunities, sub-elements), can be viewed in the designated page for that module (please see Fig. 2 and 3 as an example of some details of the modules). In these pages, project managers could also see the definition of each risk and opportunity factor by hovering the mouse on the factors. When project managers were done with reviewing the modules, they were asked to evaluate the

model by answering the questionnaire under the designated link (<http://demo.moreit.com.tr/anket/index.php/438667/lang-en>) (see Fig. 8).

ComMCT Evaluation Survey

Questionnaire for the Evaluation of the Communication Model for Multicultural Teams

Welcome to our survey. The questionnaire aims to evaluate the "Communication Model for Multicultural Teams (comMCT)" with respect to its completeness, structure, language, redundancy, understandability, originality, and usefulness. It will take approximately 15 minutes.
There are 20 questions in this survey.

A note on privacy
This survey is anonymous.

The record of your survey responses does not contain any identifying information about you, unless a specific survey question explicitly asked for it. If you used an identifying token to access this survey, please rest assured that this token will not be stored together with your responses. It is managed in a separate database and will only be updated to indicate whether you did (or did not) complete this survey. There is no way of matching identification tokens with survey responses.

Load unfinished survey Next > Exit and clear survey

Fig. 8. Invitation to participate in the survey

3 ANALYSIS

3.1 Preliminary Analysis

When analyzing the data with respect to the demography and experiences of the participants, overall experiences in project management and in multicultural work environments were grouped under three different experience levels: (a) less than 10 years, (b) 10 to 20 years, and (c) longer than 20 years. The number of MCTs managed and worked in was grouped in three levels: (a) less than 10 teams, (b) 10 to 20 teams, and (c) more than 20 teams. In addition, averages were calculated.

3.2 Primary Analysis

When analyzing the data, the responses with respect to the assessment of the model were presented in percentages first. To quantify interviewees' feedbacks and responses on each criterion, the criteria were scored on a scale from +2 to -2 where the item "redundancy" was reverse scored. The averages for each criterion and the overall average were computed. For response evaluation, the sufficiency-criterion was set at 1, which corresponds to agreement, 'rather yes'.

For the open questions in the "overall impression" section of the questionnaire, the comments of the project managers were reproduced as direct quotes to illustrate the experts' thoughts without omission. A word-cloud was used in order to depict the "descriptive attributes", to show a holistic perception of the experts and guide attention to the most frequently used terms. The experts' "additional thoughts" were used to extract potential improvements of comMCT.

4 RESULTS

4.1 Background in the Domain

Overall project management experiences of the participants (all of them subject matter experts) varied between 5 and 25 years and averaged at 9.5. 67% (10 out of 15) of the project managers had 10 to 20 years of experience, 20% (3 out of 15) had less than 10 years of experience, and 13% of them (2 out of 15) had more than 20 years of experience in project management (see Fig. 9). Distribution of the participants with respect to their experience in multicultural work environments was as follows: 53% of the respondents (8 out of 15) had 10 to 20 years of experience, 27% (4 out of 15) had less than 10 years of experience, and 20% (3 out of 15) had more than 20 years of experience (see Fig. 10).

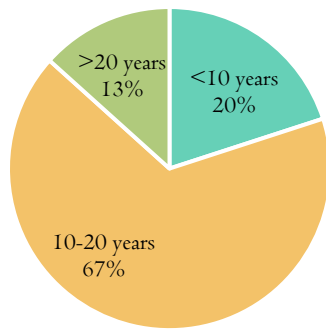


Fig. 9. Project management experience

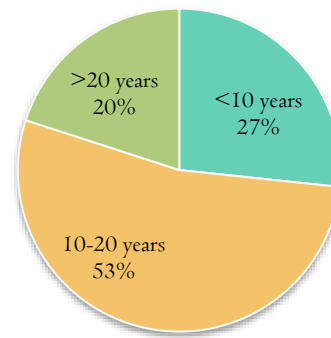


Fig. 10. Experience in multicultural work environment

The number of MCTs managed varied between one and 30 among project managers, with an average of eight teams. 67% (10 out of 15) of the respondents managed less than 10 MCTs, 20% (3 out of 15) of them managed more than 20 MCTs, and 6% (1 out of 15) managed between 10 and 20 MCTs (see Fig. 11). One of the respondents did not specify the number of MCTs s/he managed. The number of MCTs participants worked in varied between 2 and 40 averaging at 14.3. More than half of the interviewees worked in more than 10 MCTs. More specifically, 40% of them (6 out of 15) worked in more than 20 MCTs and 13% of them (2 out of 15) worked in 10 to 20 MCTs. The percentage of the participants who worked in MCTs less than 10 years was 40% (6 out of 15). One of the respondents did not specify the number of MCTs s/he worked in (see Fig. 12).

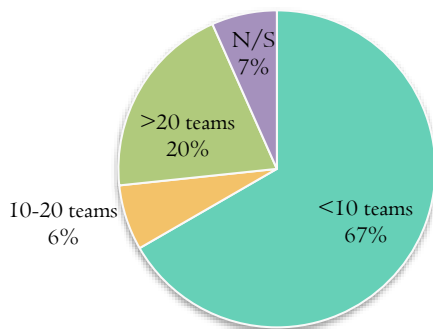


Fig. 11. MCTs participants managed

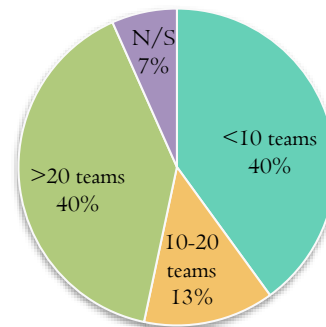


Fig. 12. MCTs participants worked in

33% of the interviewees (5 out of 15) had one of the following project management certificates, PMP (Project Management Professional), Prince2 (Projects in Controlled Environments), and IPMA (International Project Management Association) Level B (Certified Senior Project Manager). 20% (3 out of 15) of them had PMP certificate, whereas IPMA Level B and Prince 2 were owned by one respondent amounting to 7%, eight of the professionals (53%) did not have any project management certificate, and two of the project managers (13%) did not state whether or not they had a certification.

4.2 Model Assessment

In the following, project managers' evaluation of the model will be presented in detail at first. Secondly, results are evaluated cumulatively in order to achieve an overall conclusion with respect to the participants' perception regarding the overall quality of the model.

Completeness. As shown in Fig. 13, 67% (10 out of 15) of the interviewees answered 'YES!', when they were asked if the model was complete covering important communication-related issues of MCTs, and 33% (five of the 15) replied with 'rather yes' indicating that some minor points were missing. It was expressed in the study that learning aspects, external and environmental factors, intra-personal and behavioral aspects, and strategies to overcome problems were missing in the model. It was also suggested that the model should be tested in real life situations in order to find out if all aspects were covered. One of the project managers stated that, "MCTs are a sort of organization, and based on the modern system theory, every organization is somehow affected by the environment as it is impossible to be a closed system. Political, economic, geographical, or global factors may be some dimensions of the environment". In addition, another project manager shared that besides 'viability' as a team success criterion, evolution of the team and innovation should be considered. S/he noted: "It is not enough

just to continue to exist. Things change constantly. In order to succeed, we need to renew ourselves without ceasing."

Structure. 53% of the project managers (8 out of 15) answered, ‘YES!’, when asked whether they were satisfied with the structure of the model, 40% (6 out of 15) answered, ‘rather yes’, pointing out that there were some slight structural problems, and 7% (1 out of 15) with, ‘partly yes, partly no’ stating that there were many important structural problems (see Fig. 14). One of the project managers commented that s/he found the model too static and it could have been made more dynamic and more applicable by integrating project management processes into the model. One of the project managers suggested that it should include a calculation tool for the complexity level arising out of involving different nationalities and a dynamic model based on this level. It was also mentioned that the model would look nicer if it were more balanced in terms of the number of items in each module.

Language. 73% (11 out of 15) of the respondents agreed that the terms used describe what they stand for appropriately, and 27% (4 out of 15) of them stated that there are only a few problematic terms (see Fig. 15). One of the respondents expressed that some terms such as integrity and honesty, free space, being patient, and working under pressure need to be defined better.

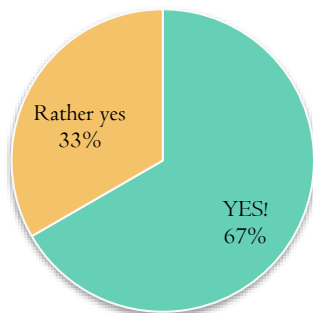


Fig. 13. Completeness of the comMCT

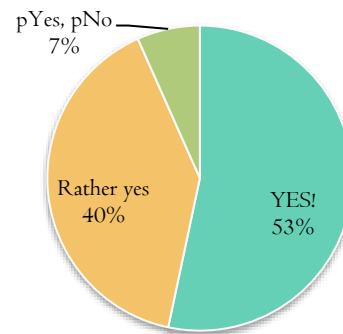


Fig. 14. Structural quality of the comMCT

Redundancy. As Fig. 16 demonstrates, 67% (10 out of 15) of the participants perceived the model as redundancy-free (selected ‘NO!’ or ‘rather no’), whereas 7% (1 out of 15) referred that the model contained redundancy. From the remaining, 27% (4 out of 15) participants responded ‘partly yes, partly no’. Some of the project managers argued that there were redundancies as a consequence of ‘overlapping’ elements among/within modules, especially between organizational and interpersonal, as well as, organizational and structural modules. Another group of respondents argued that there were totally redundant elements, as they would apply to any projects, irrespective of its multicultural nature.

For example, one of the project managers expressed that the element, ‘early involvement of culturally different team members’, is redundant because it, “*is a general rule which applies to all projects irrespective of their team members’ cultural background. I experienced a lot of problems due to allegedly late involvement of some of the stakeholders (including team members) in projects even in one single cultural environment*”. Similarly s/he stated that the element, ‘providing sufficient information and documentation’, was an important prerequisite for the successful achievement of the project goals and would apply to all projects and project teams. S/he also indicated that stressing this fact specifically in the context of an MCT was irrelevant.

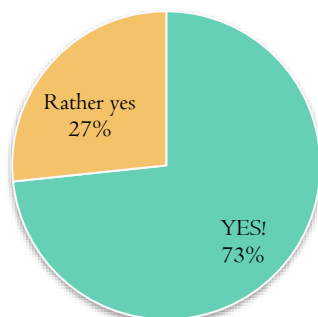


Fig. 15. Language of the comMCT

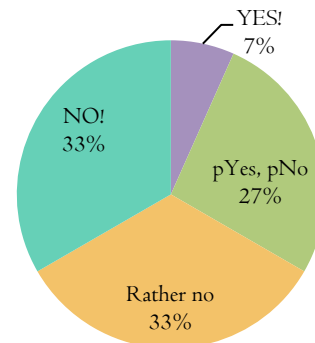


Fig. 16. Redundancy of the comMCT

Understandability. The entire project managers evaluated the model as understandable, 67% (10 out of 15) answered ‘YES!’ and 33% (5 out of 15) ‘rather yes’ (see Fig. 17). It was expressed that there were intersections between structural and organizational modules and some elements such as, ‘an inter-connected communication

system' was not defined sufficiently since no example was given and there was no clue as to how to establish such a system. Similarly, it was signified that some concepts like, 'shared vision', would be hard to understand, in particular, for newcomers lacking experience with MCTs. In addition, it was stated that in the overall diagram, it was not clear what the arrows on project culture and organizational culture circles would represent. Furthermore, it was not clear what was outside of the whole diagram, what interactions the arrows referred to, and what was meant by "traveling through the circles".

Originality. Fig. 18 depicts that almost all project managers (93%) found the comMCT model original and innovative, as 33% (5 out of 15) of them responded with 'YES!' and 60% (9 out of 15) with 'rather yes'. Only one of the interviewees (7%) responded 'partly yes, partly no'. This interviewee expressed that *"it is not repeating previous ones, but I could not find it so innovative. It is original but has way to go for innovation"*. Another respondent expressed that *"parts of the model are obviously covered in international project management standards, especially in IPMA (behavioral competencies) and certainly some in PMI. Still, I think especially the part interpersonal no.2 and no.3 adds some new structure to existing models"*. Moreover, one of the project managers stated, *"I am just missing one or two revolutionary and hitherto unknown or unheard of concepts regarding comms within MCTs but I am really nit-picking here!!"*.

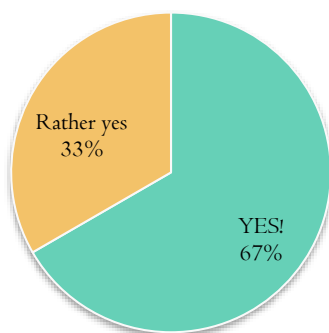


Fig. 17. Understandability of the comMCT

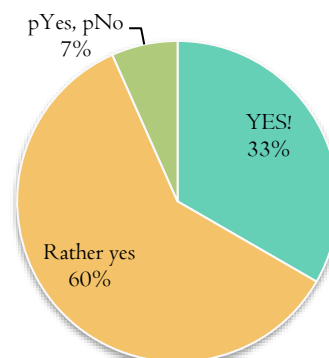


Fig. 18 Originality of the comMCT

Usefulness. Whereas 73% (11 out of 15) of the participants answered 'YES!' and 13% (2 out of 15) 'rather yes', 7% (1 out of 15) responded 'partly yes, partly no', and another 7% (1 out of 15) stated that they do not know about its usefulness for themselves (see Fig. 19). Project managers especially emphasized its usefulness as a checklist and as a common vocabulary when working in MCTs. One of the project managers stated that, *"it provides a great overview of what I should consider for a multicultural team"*, and another one expressed that it is *"definitely very useful for mapping of certain communication aspects. It brings a common vocabulary; it can serve as a checklist when setting up a team or communication environment. For me a breakthrough concentration of 'wisdom' in the communication, from the practical point of view"*.

Each participant found different modules more useful for them as one commented that *"I can follow the methodology told in the model. For example, most of the elements in the functional module are missing in my current project and I am looking forward to using them in my next project"* and another suggested that, *"I think I need to focus more on the elements of 'interpersonal/behavioral' part of your model. We tend to see the organization/project team as a machine and this leads us to ignore human dimensions. But success mainly will come from having a shared vision, shared soft-skills and being aware of shared values and attitudes"*. Last but not least, one of the participants stated that the model can be utilized by letting team members study the model and share their experiences and ideas on what to improve within the team.

On the other hand, two of the participants expressed their concerns regarding the possibility of the application of all features of the model. One of them argued that some components, especially the organizational ones, were out of her/his hands as a project manager, such as 'a balanced cultural mix of the team', and that s/he had no clue on how to apply components under the interpersonal module, such as valuing diversity. Another project manager emphasized the lack of resources to do everything foreseen by this model and suggested that a prioritization model would also be useful; that is to select which parts of the model will be more useful to observe based on the outcomes you need.

As Fig. 20 indicates, almost all of the participants agreed that the model would be useful to a person who had limited experience working with MCTs, 67% (10 out of 15) of them responding 'YES!' and 27% (4 out of 15) 'rather yes'. The remaining 7% (1 out of 15) of the participants answered 'partly yes, partly no'. One of the interviewees argued that the comMCT model could be adopted and layered by bringing a very simple model at the

beginning, and refining it later for more experienced users. One of the project managers emphasized its usefulness for a novice by expressing that:

Having a well-defined model to implement is always helpful for new starters. It will be a tool which is available at the first steps. Communication management is rather complex and practical and very much depends on the environment. This model will provide all the dimensions to a person with limited multicultural experience.

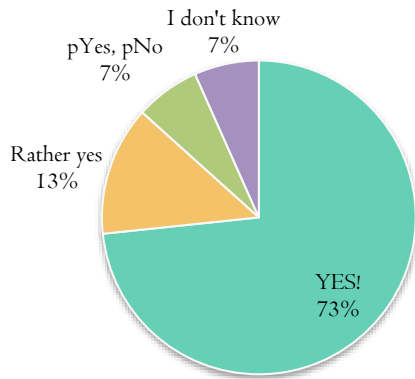


Fig. 19. Usefulness of the comMCT for themselves

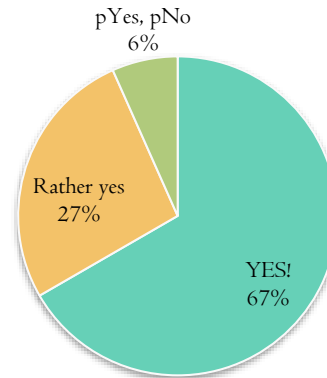


Fig. 20 Usefulness of the comMCT for a novice

Overall Evaluation. The perception of the project managers regarding the completeness, structure, language, understandability, redundancy, originality, and usefulness of the model are presented in Table 2. The table shows the average scores calculated for each criterion and the average score for the whole model. As seen in the Table, the model was found to be sufficient with respect to its completeness (1.67 points), structure (1.47 points), language (1.73 points), understandability (1.67 points), originality (1.27 points), and usefulness (1.66 points). The model was found to be insufficient with respect to its redundancy (0.87 points). The language of the module was the criterion with the highest average point (1.73 points), followed by completeness (1.67 points) and understandability (1.67 points). In addition, when an overall average was calculated, it was seen that the model as a whole was found to be sufficient (1.48 points).

Table 2. Score of the evaluation criteria

Criterion	Average points	Sufficiency
Completeness	1.67	sufficient
Structure	1.47	sufficient
Language	1.73	sufficient
Redundancy	0.87	insufficient
Understandability	1.67	sufficient
Originality	1.27	sufficient
Usefulness for participant	1.71	
Usefulness for a novice	1.60	
Usefulness	1.66	sufficient
Overall	1.48	sufficient

General view. Lastly, project management professionals were asked about their general thoughts regarding the comMCT model and their overall impression of comMCT. Their responses are shown in Table 3.

Another participant suggested improving the model by enabling comments, case stories, a forum, and user-generated extension. S/he argued that a true learning community could be built around the model.

5 DISCUSSION

5.1 Discussion of the Results

Overall, this evaluation study delivered responses to all three research questions. In particular, it pointed the researchers to aspects of the comMCT model that call for improvement. The most controversial criterion in this validation study turned out to be the model's redundancy. A number of explanations are possible on this outcome: first of all, it is very hard to avoid redundancies in a model covering a great number of intertwined aspects of communication. As criticized, there are intersecting elements but they are *inherently* in close connection and their classification will depend on the researcher's perception of closeness and distance regarding some category. Secondly, the model aims at classifying its features as differential and as modular as possible such that it can be easily adapted in practice by providing choices for the professionals as to what features will be considered to adapt. As one of the experts put it, *"There are redundancies, since some features fit into more than one category. Thus the redundancies make sense"*.

Thirdly, some of the project managers criticized that there were many elements which would apply to all types of teams, regardless of whether they were multicultural or not. Contrary to this suggestion, other project managers argued for the addition of further elements that would apply to all team types and, thus, make the comMCT model generic, rather than specific to multicultural teams. In this regard, it should be noted that it is very difficult to differentiate between the generic elements and MCT-specific elements. In any case, for the comMCT model, the design decision was made to include all elements that are specific to MCTs and to add more general elements exclusively in the case that they have a special importance for MCTs; for example, due to the quite fragile nature of such teams. For instance, 'involvement of the team members in early processes' is naturally important for all team types, but arguably more important for MCTs, especially when it comes to the integration of culturally different team members into a relatively homogenous team. Similarly, many generic elements such as, effective goal setting, rule setting, monitoring, etc., were covered in the model because of their special importance in dealing with the risks and in utilizing advantages of MCTs, while acknowledging their specific importance for MCTs. Eliminating some of the general concepts might have helped to make the model to be perceived as more 'focused', with the cultural dimension being more visible, but it also would have resulted in missing some of the very important aspects of communication in MCTs, compromising the model's completeness. In a nutshell, the evaluation reflected the researchers' design decision to favor the model's completeness over its non-redundancy. This leaves us with the challenge to reduce comMCT's perceived redundancy.

In this respect, the project management experts provided the following hints; some of the elements could be integrated into one element and some would be defined more extensively. For example, the advantage factor 'access to multiple resources' could be joined with 'resource/skills pool' and, similarly, the element, 'adequate communication procedures/processes' might be designed as a sub-item of another element, 'effective communication plan'. There were also some elements which are plausible to combine or to remain as separate items depending on the researcher's perception, for example, 'having technical skills and educational background in the task area', 'having time management skills', 'having good documentation skills', 'having sufficient language proficiency', and 'having intercultural experience' could be located under the element 'selecting right team members'. However, in this case its definition would be too extensive and this would compromise users' tracking of the causes and effects of the revealed advantages/disadvantages. Furthermore, combining the elements, which are perceived quite similar, might hamper the differentiation of factors. For example, 'having time management skill' is a responsibility of the team members, whereas, 'selecting right team members' is under managers' responsibility. Combining such items would hinder the practical usefulness of the model as a check-list. Avoiding redundancies in this case would have resulted in a superficial and somewhat arbitrary model.

In spite of the fact that simplifying the model by avoiding redundancies would make it more concise, especially when browsing/skimming through, it would compromise its usefulness in practice and impede its quality, especially in terms of completeness. However, if the model was used to prioritize aspects of communication to derive a communication strategy for a particular project, as suggested by one of the experts, redundancy would be pruned in the prioritization process and focus would be set on features with high priority only.

In any case, redundancy is perceived as a challenge for improvement and its reduction must be considered the interdependent criteria of completeness, structure, understandability, and usefulness. Further applications of the model would show how to minimize (potential) redundancies without diminishing other quality criteria. To summarize, based on the feedbacks from project managers, comMCT was associated with the following strengths and weaknesses:

Table 5. Strengths and weaknesses of comMCT

Strengths	Weaknesses
Based on a large literature	Static
Integrating professional's experiences and thoughts	Overlapping elements
Detailed, comprehensive	Out of project manager's hand
Connected	Lack of prioritization of features for different user profiles
Good use of web technology	Complex
Including social aspects	
Toolbox character	
Check-list character	
Implementable in practice	
Good structure, understandable	
Adaptable with its modular structure	

5.2 Limitations and Further Research

Due to the strict criteria for selecting professionals to participate in the empirical study and the necessary intensive immersion of the participants into the model, only a *limited number of qualified experts* were willing to spend a significant amount of time for our study. Another limitation was that – due to scarce responses of experts addressed via the Internet – two thirds of the experts who delivered their evaluation were directly known to one of the authors through their professional networks. However, none of them had any conflict of interest, which might have biased the result. All in all, we are aware that the statistical power of the study, more specifically, internal and external validity, could be increased with a larger sample size and a wider coverage of cultures.

Also, only experienced managers evaluated the model. A study with team members and novices and less experienced managers could provide insights to further improve the model regarding its quality and scope. Currently, bachelor-level computer science students at the University of Vienna are evaluating the model as part of their project management course. Interestingly, preliminary results show that students tend to evaluate the model very similarly to the experts' view: they mention redundancy as an area for improvement and otherwise consider the model understandable, useful, well structured, using understandable language, and original. As a next step, testing of the model in the course of a whole project would add value and facilitate case-based improvement and/or calibration of the model. The authors invite readers who may want to engage in such a case study to contact them.

In addition, this very study exposed intriguing areas for improvement that would guide the model's further development. For example, prioritizing the model's elements would support its utilization, especially for small projects. Similarly, stratifying the model according to project phases would support its application by practitioners who encounter phase-specific questions or challenges. A model having different layers would provide a basic level for beginners and more advanced layers for experienced managers. Similarly, another model extension would give the model a more dynamic structure by integrating it into the project management processes and including interactive functions to collect and share insights from the users.

6 SUMMARY

In this study, a communication model for multicultural teams (comMCT) was evaluated by project management professionals with respect to seven criteria: (1) completeness, (2) structure, (3) language, (4) redundancy, (5) understandability, (6) originality, and (7) usefulness (for project managers and for novices). The comMCT model was found to be sufficiently complete, understandable, useful, and original, and was found to have satisfactory structure and language. Valuing completeness over brevity of information, the model comes with some redundancies that were identified by some experts. Project managers defined comMCT as a comprehensive, connected, applicable, and well-researched model showing relations and interactions, considering social skills and person-centered issues, increasing ability to learn, and facilitating intercultural competencies.

This study showed that the comMCT model may serve especially as a checklist for experienced project managers and a learning resource for novices. The model has a modular structure, which allows for customization according to the need of the implementer and to incorporate specific elements needed. Although the model was found very useful for professionals, the application of all dimensions of this model – covering, structural, organizational, interpersonal, behavioral and functional aspects of communication – might exceed the scope of the authority and/or responsibility of project managers and team members. Therefore, in addition to efforts and willingness of all project actors, its practical application requires support from top management and stakeholders.

Effective communication being vital for all multicultural teams, the usefulness and applicability of the model applies, not only to project teams, but also, to other types of workgroups. Therefore, all intercultural organizations employing teams/workgroups can benefit from the model and the results of this study. In addition, organizations

that provide project management education, certification, and trainings can benefit from the model and from the results of this evaluation study.

Overall, with comMCT and its (ongoing) evaluation, we are destined to support multicultural teams to be more successful. Evaluating and improving the quality of the model constitute essential steps on our path to making a real contribution to the contemporarily vital field of interacting and cooperating across cultures.

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Appendix A. The comMCT Evaluation Questionnaire

Questionnaire for the Evaluation of comMCT

The questionnaire aims to evaluate the "Communication Model for Multicultural Teams (comMCT)" with respect to its completeness, structure, language, redundancy, understandability, originality, and usefulness. It will take approximately 15 minutes. *There are 30 questions in this survey.*

A note on privacy

This survey is anonymous. The record of your survey responses does not contain any identifying information about you, unless a specific survey question explicitly asked for it. If you used an identifying token to access this survey, please rest assured that this token will not be stored together with your responses. It is managed in a separate database and will only be updated to indicate whether you did (or did not) complete this survey. There is no way of matching identification tokens with survey responses.

Part 1

1. Completeness:

1a. In your view, is this model complete? Does it cover important communication-related issues of a multicultural team? (Choose one of the following answers)

- (a) YES!
- (b) Rather yes (some minor issues are missing)
- (c) Partly yes, partly no (some important issues are missing)
- (d) Rather no (several issues are missing)
- (e) NO!
- (f) I don't know

1b. If it is not complete, what is missing in your opinion? (Optional)

2. Structure:

2a. Do you like the structure of this model? (Choose one of the following answers)

- (a) YES!
- (b) Rather yes (there are some slight structural problems)
- (c) Partly yes, partly no (there are some important structural problems)
- (d) Rather no (there are many important structural problems)
- (e) NO!
- (f) I don't know

2b. If you do not like the structure, please mention what you consider confusing or badly structured. (Optional)

3. Language:

3a. Do you think the terms used in the model do appropriately describe what they stand for? (Choose one of the following answers)

- (a) YES!
- (b) Rather yes (there are only a few problematic terms)
- (c) Partly yes, partly no (there are some problematic terms)
- (d) Rather no (there are many important problematic terms)
- (e) NO!
- (f) I don't know

3b. If you think there are problematic terms, which terms do you consider ambiguous or not fitting and what alternative terms do you suggest to use? (Optional)

4. Redundancy:

4a. In your view, does the model contain redundancies? (Choose one of the following answers)

- (a) NO!
- (b) Rather no
- (c) Partly yes, partly no
- (d) Rather yes
- (e) YES!
- (f) I don't know

4b. If you think the model contains redundancies, which features do you consider redundant? (Optional)

5. Understandability:

5a. In your view, is the model understandable? (Choose one of the following answers)

- (a) YES!
- (b) Rather yes
- (c) Partly yes, partly no
- (d) Rather no
- (e) NO!
- (f) I don't know

5b. If not, what is it that makes the model hard to understand? (Optional)

6. Originality

6a. Do you consider the model original and innovative? (Choose one of the following answers)

- (a) YES!
- (b) Rather yes
- (c) Partly yes, partly no
- (d) Rather no
- (e) NO!
- (f) I don't know

6b. If you think the model repeats previous ones, please let us know which model(s) are already in place that cover all the features of communication in multicultural teams? (Optional)

7. Usefulness for you:

7a. Does the model appear to be useful for you? (Choose one of the following answers)

- (a) YES!
- (b) Rather yes
- (c) Partly yes, partly no
- (d) Rather no
- (e) NO!
- (f) I don't know

7b. If you find this model not useful, what is it that makes the model unpractical for you? (Optional)

7c. If you find this model useful, do you intend to change something in your next/current project, based on the insight you gained from the model? (Optional)

8. Usefulness for a novice:

8a. Does the model appear to be useful to a person who has limited experience with working in or with multicultural teams? (Choose one of the following answers)

- (a) YES!
- (b) Rather yes
- (c) Partly yes, partly no
- (d) Rather no
- (e) NO!
- (f) I don't know

8b. If not, how should the model be modified to be useful to a person who has limited experience with working in or with multicultural teams? (Optional)

9. General View

- 9a. What is your overall impression of the communication model? (Optional)
- 9b. Please share a few descriptive words or sentences that characterize the model for you. (Optional)
- 9c. Please provide additional thoughts and comments you may have. (Optional)

Part 2

10. Personal Data

(All of the questions are optional)

- 10a. Gender
- 10b. Age
- 10c. Country
- 10d. Nationality
- 10e. How many years of project management experience do you have?
- 10f. Do you have any project manager certificate (such as IPMA, PMP, Prince2)?
- 10g. How many years have you worked in multicultural environments?
- 10h. How many multicultural teams have you worked in?
- 10i. How many multicultural teams have you managed?
- 10j. Could you please briefly mention your experiences in project management and multicultural work environment (what kinds of duties have you had, in what kinds of projects have you worked etc.)?

Thank you very much! Your efforts and contribution in this evaluation is greatly appreciated.