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Development of the choir team perception scale

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The purpose of this study is to develop a valid and reliable scale to measure the team perception levels of choir members. In the first step, a draft scale comprising 54-items was administered to 332 choir members. With the KMO (Kaiser-Meyer-Olkin) test for sampling adequacy, KMO value was found to be 0.936. Factor analysis on the scale items showed that the scale comprised 34 items and 5 factors, namely choir and conductor relation, team spirit, negative emotions, responsibility and effort, emotional support and cooperation and total variance explained was found to be 56.368%. Internal consistency analysis conducted for reliability of the scale demonstrated a Cronbach alpha coefficient of 0.935 and a test retest reliability coefficient of 0.779. Linguistic equivalence tests showed that the scale and its sub-scales are adequate for both languages. Results of the study showed that the "Choir Team Perception Scale" was a valid and reliable assessment scale for measuring the team perception among choir members.

Key words: Choir Team Perception, team, teamwork, scale development.

INTRODUCTION

What is the common point of a choir and a team? Many people are not aware that both of them offer the same experiences. Teams are formations where all team work skills including leadership, cooperation, and responsibilities can be learned. One of the most important particulars relating with being in a team is to learn how to work together. Each individual should know how to work with his teammates, when to take a step or when to take a step backward. The same thing applies for a choir. All the members of a choir should learn how to use their voices, when to sing a song or when to support another sound band (Greiner, 2019). In this respect, a choir can be accepted as being a team.

Members of a choir benefit from physical, mental and social activities of the team they are part of. As being

similar to various other events, being in a choir creates a platform for people to meet with other people having similar areas of interest and this can create new friendships and a fuller social environment (Kerr, 2017). There are some researches showing that singing in a choir does not only help in creating social bonds but that it also especially acts as a perfect icebreaker in a rapid way at the same time. Singing as a group is an ideal formation to join big groups and to create wider social networks (Launay and Pearce, 2015).

Findings of a research being conducted show that singers in a choir perceive choir psychologically in a more meaningful way when compared with how sporters perceive their teams. This has been explained with the feeling of being part of a group in harmony with

synchronized performance, rather than being individuals having their own roles in a sports team. Furthermore, members singing in a choir have stated that they considered their choir to be a more consistent and meaningful social group with respect to how team sporters consider their teams (Stewart and Lonsdale, 2016). In another research, factors affecting the level of trust among choir singers have been examined and it was found out that peer interactions of choir singers had positive impact on performance quality perceived, benefiting from choir experiences, and level of trust among choir singers. Dimensions such as trust and harmony, musical and moral support, encouragement and affirmation, peer modeling, informal mentoring have been identified as important aspects of choral singers' interaction in rehearsals and performances (Bonshor, 2016). Common point desired to be emphasized in these two researches is related with positive impacts created by the feeling of being part of a team on choir members. It is required for choir members to be part of a harmonized team in order to have a good performance. However, maintaining the team's existence can sometimes create conflicts and difficulties. It can be possible to overcome these difficulties with the awareness of team structure and characteristics.

A team is constituted of people having complementary skills in line with their mutual responsibilities with regards to their common goals, performance targets, and approaches (Katzenbach and Smith, 1998). Teams enable the cooperation required to achieve the objectives exceeding individual strengths of people having adequate skills, experiences, and information; they promote their critical thinking, they include their members in events in fulfilling complex tasks requiring social support, they enable individuals to expend their limits and to achieve more success by means of social mutual dependency (Scarnati, 2001; Kocabaş and Gökbaş, 2003; Leshed, 2009; İlhan and İnce, 2015).

Members in a team can create a positive synergy by means of coordinated work. As a result of this situation, individuals coming together to realize a certain work in line with the team purpose, attain a relative freedom to manage themselves by taking responsibilities. Hence, individual efforts of team members reveal a performance level that is higher than total value of their single individual inputs. Team members make job distribution based on work sharing and they get detailed information about the works they will realize. In this way, each team member knows his area of authorization and responsibility and he can exhibit behaviors in conformity with this situation (Başaran, 2000; Çetin, 2009; İlhan and İnce, 2015).

Characteristics of a team

Characteristics of a good team member can be defined as being open to learning, diagnosing and analyzing a problem, paying attention to details, influencing, using initiative, willingness to work in an authorized environment, verbal communication, planning and organization, teamwork and cooperation, technical and professional competence, coping with stress, training, orientation and guidance, empathy, and high level of inner motivation (Baltaş, 2004). In this context, the features required to form an effective team can be listed as common goals, communication, appropriate team composition, leadership, trust, sharing of values and responsibilities and team spirit.

Team members need to know the common objectives relating with the team and future of project. Members who are interconnected, channeled within the framework of common goals, who strive intensely in achieving the goals and aim at high level of success constitute successful teams. (Ensari, 1999; Tarricone and Luca, 2002; İnce et al., 2004). Communication, being another characteristic of teams, is a tool enabling information and opinion exchange among team members and coordination of efforts and feedback (Pinto and Pinto, 1990). Another important dimension playing a role in the success of a team is related with establishment of an appropriate team. Supporting honest, trustworthy, team-respectful and affiliate members' ability to work effectively with each other and developing appropriate working methods to help reveal and improve the hidden aspects and creativity of members is important for creating successful teams (Tarricone and Luca, 2002; Öztürk, 2003). There is need for an effective leader for the management of information and skills of team members and for determing specialization requirement in a team and how to meet such requirement (Hoegl and Gemuenden, 2001; Faraj and Sproull, 2000). Leadership bears vital importance for team success with respect to important processes such as motivation of team members, development of work activities, decision taking, and problem solving (Tarricone and Luca, 2002). Team members' having trust in each other enable them to share their information and opinions more freely and to have more positive communication with each other. Having trust in a team creates a platform that enables members to cooperate in relation to dimensions of task conflicts, constructive criticism with different opinions, determination of mistakes, and elimination of problems in a mutual way. It is required for team members to be open to opposing opinions of one another and to be able to benefit from opportunities for creativity and learning revealed by these opinions (Kostopoulos and Bozionelos, 2011). Values are shaped according to different perspectives of team members relating with objectives and assignments and they influence team performance with regard to the efficiency, effectiveness and sustainability of team. In order for team members to share the same mission and vision, it is required for them to bear the same responsibility in relation to working rules

and team assignments. Shared responsibility network leads the individual to create an environment of a higher team (İnce et al., 2004; Weimar et al, 2017). Team members have an emotional and personal bond with the team in order to have a cooperation of high quality. This loyalty is the concept which is defined as team spirit and which constitutes the team's motive to act together. Motivations required to achieve team objectives is dependent on the feeling of belonging to the team. Without having this feeling, it is not possible for the individual to communicate with other members (Ensari, 1999; Weimar et al., 2017).

Choir as being a team

Chorus music aims for the individual to establish healthy relations with his musical environment by singing songs with correct and clean sounds and having musical sensitivity in a group, for him to participate in music consciously as being an interpretor and listener, and for him to contribute in cultural development by using song language (Çevik, 1997; Apaydın, 2006). Singing songs together causes important contributions to be made such as calling together, needing to speak and talk together, meeting / gathering / being a community, being in unity, organizing, giving the individual the habit of working collectively, contributing to eliminating others' mistakes and seeing their own shortcomings, being respected by respecting others, socializing, understanding the necessity of democratic values in community, developing a world view in national and international communication in art (Apaydın, 2006; Uçan, 2001).

Participating in a choir is similar to participating in a team. All the individuals in a choir are responsible for each other with regard to topics such as getting prepared and timing. Working on creating the beauty stipulated by the composer of work while signing in a choir requires a long time. Everyone signs his own part and each sound is equally important but the astounding thing is that members come together as a whole to sing in harmony without coming to the forefront individually. All choir members must be open-hearted and generous in order to present each note, sentence and melody in harmony. This situation requires one to learn to listen to others. Voice of each choir member can be correct and powerful but he should not sing louder than other choir members standing on both of his sides (Griswold, 2017; Greiner, 2019; Grummet, 2020).

Choir is a formation requiring team work and discipline. Getting prepared for concerts require much more than being disciplined to participate in weekly practices. Members coming together with the feeling of a specific purpose, develop their skills relating with listening in choir, having concentration, team work and having trust and they develop their feelings of belonging and community (The Rockville Bach Academy, 2020).

Communicating with other members, respecting and valuing them, being part of the team are some of the skills gained while signing in a choir (Griswold, 2017; O'Brien, 2018).

Choir functions as a whole but it is also a complex organism at the same time. This organism, consisting of subgroups (sopranos, altos, tenors, basses) as a whole, works only with synergistic teamwork. Each member contributes to the whole and they need to work together. As the team spirit is established, members feel more comfortable in communicating and working to evaluate each subject and to solve problems. Furthermore, members learn about each other's strong and weak aspects. In team work, individual weaknesses are covered with strong aspects of other members. In a choir, an individual feels the happiness of achieving things, which he can not achieve alone, as being part of a team. A gap created by a member is tried to be compensated without affecting the quality of the performance. Just like the case in any effective team, there is also the opportunity of cross learning in a choir. Some of the members may read music well or they may know techniques not applied by others and they can transmit fundamentals relating with them to choir members wishing to learn these (O'Brien, 2018; Laforet, 2010). The situation of testing a team is related to performance. Each practice in a choir creates an opportunity to learn team skills but a choir is not present for only making practices. Product of a choir is related with quality of sound. During the performance, it is never allowed for excitement or nervousness to shadow the works. These moments are the product of everything done by choir members and their working times and is highly important (Laforet, 2010).

Choir conductor as team leader

An important share of the choir's gains to the individual concerns the choir conductor. Individual differences in a choir are gathered under a common goal with the leadership of choir conductor and they are transformed into success. In order to make the group he is leading become successful, choir conductor should monitor the capacities and needs of individuals who are group members and he should focus on group objectives. He must know individual skills of choir members well and he shoul know each one of them closely. He should be a leader who does not act unethically and who makes continuous observations (Ersoydan and Karakelle, 2014).

Managing a choir effectively requires good organizational skills. Particulars relating with new beginners in a choir such as preparation of assessment form, rehearsal plans, space reservations, performances, and membership management, can be achieved by making planning and management in a good way. Besides, dealing with a group of people will inevitably

include being confronted with various different characters and preferences. When he is confronted with a problem, choir conductor is required to remain calm and to approach the group in a fair and diplomatic way. Another feature of a choir conductor is related with time management. It is important for him to be prepared for rehearsal before choir arrives. Furthermore, sense of wonder is one of the most important skills that a choir conductor should have. A motivated choir conductor creates exciting opportunities, he makes rehearsals become pleasant, and he always strives for development (Hopkins and Mulgrew, n.d.).

Choir conductor has a vision and an internal objective about how a work will be performed and how a sound will be created. Choir conductor provides coaching for the group and gives hints to help the choir understand what is important and where it is and finally, he is responsible from the outcome relating with the work. For this reason, choir conductor keeps the tempo which synchronizes the choir. This large, bulky organism takes action through the metronomic activity of the choir conductor. This can only be realized when choir members focus all their attention on the conductor. Allowing the choir conductor to guide the choir enables choir members to reach their goal. Following the choir conductor does not only enable coordination of everyone's efforts but it also opens new ways to review the targets and to interpret them or be successful (Laforet, 2010; Griswold; 2017).

The success of a choir under leadership or a conductor depends on the level of integrity, concentration and the ability of the team members to work with a team mindset. In this regard, certain dimensions are viewed as crucial in terms of the success of the choir. These dimensions include members' awareness of the goals of the choir and each other's skills, members' perception with regard to solving problems collectively, sharing feelings for success and failure, having a sense of trust and responsibility towards other members and the conductor, willingness to work, and being happy and proud to be a part of the choir (Küçük and Halvaşi, 2019). As a result of literature review being done, few number of studies emphasizing importance of team work in music can be found. In the study he conducted, Sağer (2002) emphasized that music education institutions must be evaluated as an organization and that it is required for this organization to bear the identity of a learning organization in order to be able to develop continuously; and he stated that this could be achieved with music education organizations allowing wide room for team work. In his study, Bulut (2006) stated that raising of quality music teachers required team work and that each worker constituting the team had an important role in the raising of quality music teachers as he would establish team spirit, motivation, performance and corporate loyalty. Uludağ (2015) determined that the group for which team work based strategies were applied in school instruments education lesson (guitar) was more

successful with respect to the group for which traditional method was applied, fulfillment of responsibilities and working and interpreting the works on time. In the music lesson where Student Teams-Success Departments Technique being among Collaborative Learning Techniques and traditional teaching technique were applied by Kocabaş (2000), it was investigated whether there was a difference between self concepts of students or not. As the conclusion of research it was determined that music education provided with Student Teams-Success Divisions Technique has had positive impacts on their emotions, beliefs, attitudes, perceptions and behaviors and that it improved their self concepts (Kocabaş, 2000). As the conclusion of study conducted by Sevinç (2017) to investigate the impact of team work based teaching on the academic success of students in Music Education Main Department Branch 3rd Class Choir Class, it was observed that students in experiment group worked in the form of small groups and achieved learning by helping each other and that they had face to face interactions, that group members borne learning responsibility with regards to each other, and that there was a good working relationship among members to enable learning of each member of group at the best degree. It was found out that team work based learning had positive impact of the academic success of students. In the study conducted by Apaydınlı and Şentürk (2012), on the tendency of general high school students to behave illegally and to participate in extracurricular musical activities in their own schools, it was concluded that students who did not participate in extracurricular musical activities tend to behave more illegally than students who participated in choral and orchestral activities. In accordance with this conclusion, it was determined that a student's singing in a choir or playing an instrument in the orchestra would give him the feeling of belonging to a group and that it would transform the desire of student to make himself be accepted by aiming for violence or any illegal behavior to a positive situation by working on music together (Apaydınlı and Şentürk, 2012).

It is seen that above mentioned studies generally focus on music education and especially on team work relating with choir education and importance and impact of team perception. In this regard, availability of a measurement tool for determining effectiveness of team work and team perception bears importance. As a result of literature review being made, it was determined that general purpose scale development studies on team perception were available but that there was no private scale development study relating with the area of team perception of choir members.

Atılgan et al. (2010) aimed to determine the level of perception of elementary school managers about themselves as a team together with their teachers. To find out whether the scale having 32 items could measure the general structure (team perception) and the three

dimensions named by the experts as Loyalty and Cooperation, Team Spirit, and Job Satisfaction and Trust, a valid and reliable team perception scale made up of a general factor and three sub-factors was obtained. Lower et al. (2015) designed a Team Work Scale for Youngsters to measure the perceptions of youngsters with regards to their competencies relating to team work; it was determined that the scale was a valid and reliable measurement tool. Akın et al. (2016) conducted validity and reliance study relating with the Team Work Scale for Youngsters; it was developed by Lower et al. (2015) in Turkish form on the adolescents. The results showed that Turkish form of Team Work Scale relating to Adolescents was a valid and reliable measurement tool that could be used in academic studies. In the study conducted by Henry et al. (1999), it was determined that Group Identity Scale was a valid and reliable measurement tool of 7 degrees, having 13 items; it consisted of three factors: Affective, Behavioral, and Cognitive factors. Tendency to Team Work Scale was developed by Tuncer (2008) to determine the team members' tendency towards team work. Team Effectiveness Audit Survey development study was conducted by Bateman et al. (2002) to explain attempts to go beyond team building and associate organizational development with team activity by attaching importance to the benefits of team building activities in achieving both team and organizational effectiveness.

As it can be understood from the studies above, scale development studies relating to team work and team perception have been realized in domestic country and abroad. However, a valid and reliable measurement tool to determine team perceptions of choir members has not been found. Choir members are people coming from different cultural environments, having different creation features and expectations, and being assigned in a very important musical formation. Each one of the members forming the choir develops their own levels and knowledge accumulations by realizing both individual and collective works within this musical formation. Hence at this point, importance of works done to make choir members reach their goal, singing together while becoming a choir, and creating an integrity out of this unequal structural difference comes out (Halvaşi, 2016; Çevik, 1997). It can be stated that adoption of positive common living particulars such as production, sharing, communication, trust, loyalty, mutual support and cooperation, problem solving, friendship, and love considered to have important impact on the performance success of choir, by the choir members can be achieved by establishing team consciousness. As being the sum of these dimensions, feelings of belonging come to the forefront. In this respect, it is important to know and reveal the viewpoints of choir members relating to the team and whether they perceive themselves as part of the team or not. Hence, a need arises for a measurement tool to determine the team perception levels of choir

members. Determining the team perception level of choir members will create awareness; it is an important dimension regarding choir performance and it will be possible to determine the deficiencies and probable problems regarding this subject. Based on these reasons, the study aims to develop a valid and reliable measurement tool to measure the team perceptions of choir members.

METHODOLOGY

This is a qualitative study to test validity and reliability of the potential assessment tool to be designed for demonstrating the team perception levels among choir members.

Study group

Study sample comprises a total of 332 individuals who are members of seven different choirs in Turkey, Croatia and Bosnia and Herzegovina. Study data were collected in 2018. Table 1 shows distribution of the study group members based on gender, age and choir name.

As seen in Table 1, 64.5% of the study group are females and 35.5% are males. 41.9% of choir members are in the 14-17 age group, 41% are in 18-21 age group and 17.2% are in 22 and above age group. Of the choir members comprising the study group, 16.6% are in MEF University Choir, 15.7% in Marmara University Polyphonic Choir, 3.9% in Mato Bucar Choir of Crotia, 21.1% in TRT İstanbul Radio Polyphonic Youth Choir, 3% in Bosnia and Herzegovina Bugojno Choir, 14.2% in Kocaeli University Polyphonic Choir and 25.6% in Aşık Veysel High School of Fine Arts Choir.

Validity and reliability analysis

As part of the validity analysis of the "Choir Team Perception Scale (CTPS)", the 32-item Team Perception Scale for Elementary School Administrators developed by Atılgan et al. (2010) was used to develop the draft scale and a pool of 65 items was obtained by analyzing the literature regarding team perception. For the draft scale, content analysis was carried out by three choir experts and reliability across expert views was calculated. As part of Construct Validity analysis, 54 items in the draft scale were administered to 332 choir members and exploratory factor analysis was carried out on the data obtained. In order to assess the distinctiveness of the scale items, every item in the scale and sub-scales was analyzed based on total scores and independent t-test analysis was carried out to determine the differences among the upper and lower groups. As part of the reliability analysis of the scale, for the scale as a whole and for each sub-scale, Cronbach Alpha coefficients were calculated and internal consistency analysis was conducted. For test-retest reliability, the draft scale was administered to a group of 30 individuals for a period of two weeks and Pearson Correlation Analysis was conducted to determine the relationship between two administrations. In order to ensure linguistic equivalence of the scale, Turkish and English versions of the scale were administered to a group of 30 individuals with 2 weeks period between administration of two versions and Pearson Correlation. Analysis was conducted to determine the relationship between two administrations and related sample t-test was carried out to determine the differences between two administrations of the scale. As part of the validity and reliability analysis of the scale, exploratory factor analysis and item analysis were carried out using

Table 1. Genders, age and choir names of study group.

Gender	f	%
Female	214	64.5
Male	118	35.5
Total	332	100
Age	**f**	**%**
14-17	139	41.9
18-21	136	41
22 and above	57	17.2
Total	332	100
Choir name	**f**	**%**
MEF University Choir	55	16.6
Marmara University Polyphonic Choir	52	15.7
Mato Bucar Choir of Croatia	13	3.9
TRT İstanbul Radio Polyphonic Youth Choir	70	21.1
Bosnia and Herzegovina Bugojno Choir	10	3
Kocaeli University Polyphonic Choir	47	14.2
Aşık Veysel High School of Fine Arts Choir	85	25.6
Total	332	100

SPSS 24 software and significance level for all statistical processes was assumed to be 0.05.

FINDINGS

Here, validity and reliability analyses of the Chorus Team Perception Scale are included in accordance with the purpose of the research.

Validity studies

Within the scope of validity studies, experts' opinions, content validity, construct validity, explanatory factor analysis, and discriminant validity analyses were performed.

Content validity

A 65-item scale draft created to measure the perceptions of the choir members was evaluated as content by three experts in the choral field. Reliability among expert views obtained to determine weather or not the items in the draft scale are appropriate for the target scale structure; it was calculated using the "Reliability= Consensus/Consensus + Disagreement x 100" formula defined by Miles and Huberman (1994; as cited Tavsancil and Aslan, 2001) as the internal consistency formula. Based on the coding audit that provides internal consistency, consensus among the expert views need to be at least .80 Miles and Huberman, 1994; Patton, 2002; as cited Baltacı, 2017). 11 items that remained below this rate were removed from the draft scale as a result of which the draft scale came down to 54 items following experts' views.

Exploratory factor analysis and construct validity

Exploratory factor analysis was conducted to determine the factor loads of the draft scale. Data fitness for factor analysis was determined using Kaiser-Meyer-Olkin (KMO) coefficient and Barlett Sphericity test. Kaiser-Meyer-Olkin (KMO) coefficient and Barlett Sphericity test are used to measure the adequacy of the sample to which factor analysis is applied. Kaiser-Meyer-Olkin (KMO) values falling between 0.5 and 1.0 are deemed to be acceptable values. In case the KMO value is less than 0.5, no factor analysis is applied to the data. Barlett Sphericity test is a statistical test that analyzes the levels of significance for all correlations in the correlation matrix. A statistically significant result from the Barlett Sphericity test indicates that the data are fit for use in the factor analysis (Bayram, 2004; Büyüköztürk, 2004; Altunışık et al., 2005).

Analyses conducted showed a Kaiser-Meyer-Olkin (KMO) value of 0.936, and a significance value of 0.000 ($\chi2 = 5567.388$, $p< 0.000$) from the Barlett Sphericity test. These two values found to be statistically significant indicate that the sample size is sufficient and that factor analysis can be applied to the data. Eigenvalue is a

Factor	Eigenvalue	Variance (%)	Cumulative variance (%)
Factor 1	11.928	35.084	35.084
Factor 2	2.537	7.461	42.545
Factor 3	2.100	6.176	48.721
Factor 4	1.413	4.156	52.876
Factor 5	1.187	3.491	56.368

coefficient that is used both in calculating the variance explained by the factors and in deciding on the number of important factors (Yaşlıoğlu, 2017). Factors with eigenvalue of 1 and above are considered to be significant. The criteria in selecting this threshold value is that a factor should have an equal value at least with one of the variables with a variance of 1.00 (Büyüköztürk, 2002). Factor analysis conducted showed that the scale came from a five-factor structure. Table 2 summarizes the factor eigenvalues and the explained rates of variance as a result of the analyses conducted.

In Table 2, it is seen that the explained variance value for the first factor is much higher than the other factors. Eigenvalue of the first factor is 11.928, and its explained variance value is 35.084%. Eigenvalue of the second factor is 2.537, and its explained variance value is 7.461%. Eigenvalue of the third factor is 2.100, and its explained variance value is 6.176%. Eigenvalue of the fourth factor is 1.413, and its explained variance value is 4.156%. Eigenvalue of the fifth factor is 1.187, and its explained variance value is 3.491%. The total variance regarding the scale explained by these five factors is 56.368%. It is stated that the variance explained by the factor analyses needs to explain 2/3 of the total variance and that variance values ranging between 40 and 60% are accepted as sufficient (Büyüköztürk, 2004; Şencan, 2005). Because the explained variance being high is interpreted as the related concept or the structure being measured quite well (Büyüköztürk, 2002), one can conclude that the total variance of 56.368% reflects a good ratio and that it is an acceptable level for use in social sciences.

In the Scree Plot graph which is created based on the eigenvalues of the factors, the factor which shows rapid declines with high velocity gives the number of important factors. In the graph, number of factors is decided based on the point where slope disappears (Büyüköztürk, 2004; Bayram, 2004). Accordingly, below is the eigenvalue based Scree Plot graph of CTPS factors.

In Figure 1, a five-factor structure is observed. In the graph, a rapid decline is observed after the first factor. Also, it is seen that the factors after the fifth factor do not have much affect on the variance and that the contributions of the variances they bring are close. To test this observation, with the goal of associating the factors with the items, Varimax vertical rotation method which is one of the most preferred vertical (orthogonal) rotation methods was used. In this method, the angle between factor axes is ensured to be a right angle and prevailing factors are created independently (Altunışık et al., 2005). Factor load values for items under the five factors obtained as a result of the analysis conducted are given in Table 3.

Factor loading is a coefficient that explains the relationship between the items and the factors. A factor loading of 0.45 or above is a good criterion for selecting an item; however, this threshold value can be brought down to as low as 0.30. (Büyüköztürk, 2004). In this study, all of the factor loading values are above 0.54. According to analysis results, the first factor contains 9 items with factor loading values between 0.760-0.563; the second factor contains 10 items with factor loading values between 0.768-0.549; the third factor contains 7 items with factor loading values between 0.742-0.577; the fourth factor contains 4 items with factor loading values between .705-.573, and the fifth factor contains 4 items with factor loading values between 0.718-0.614. Items 2, 9, 14, 15, 16, 19, 21, 22, 23, 24, 25, 26, 29, 31, 32, 34, 41, 46, 51 and 54 were not included in any sub-dimension in terms of factor loading and were removed from the scale after factor analysis. As a result the scale that had 54 items before the factor analyses was reduced to 34 items. Following calculation of factor loading values, the next step was naming the factor dimensions obtained. The contents of the items that loaded the factors were evaluated and emphasis was placed on giving the name that would best describe the intended meaning.

Accordingly, the first sub-dimension comprising items 1, 2, 3, 4, 5, 6, 7, 8 and 9 was named Choir and Conductor Relationship. Choir and Conductor Relationship sub-dimension expresses the trust that the choir members have towards the conductor, emotional integrity and motivation created between the choir and the conductor, and the integrity achieved in terms of problem solving, success focus and musical performance. This sub-dimension contains statements such as "We fully trust our conductor for his innovative and creative ideas", "Our conductor is always tolerant and constructive towards our mistakes" and "We would be in an emotional integrity with our conductor during the concert."

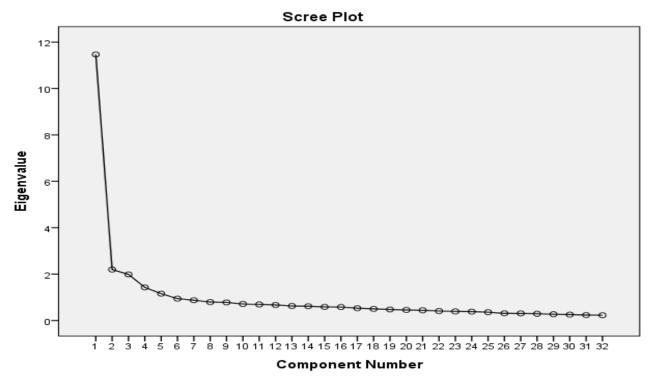The second sub-dimension comprising items 10, 11,

Figure 1. Scree plot graph for the eigenvalues of CTPS factors.

12, 13, 14, 15, 16, 17, 18 and 19 was named Team Spirit which indicates the awareness of being a team. Team spirit sub-dimension contains statements of choir members related to their perceptions such as happiness, pride, joy, excitement, desire to success and sense of ownership which they had as a result of being a part of the choir. This sub-dimension contains statements such as "We all support each other in order to have successful concerts", "We get excited when singing the pieces together." and "We enjoy being together during choir rehearsals."

The third sub-dimension comprising items 20, 21, 22, 23, 24, 25 and 26 was named Negative Emotions which emphasizes the challenges faced during team work and the way these challenges are perceived. In another way of expressing it, expressions containing negative approaches of members, having difficulty in solving communication problems among choir members and musical mistakes, being in conformity with rules that are unique to choir, and respecting emotions and opinions and not being in conformity with them are specified under this sub-dimension. This sub-dimension contains statements such as "When we face a communication-related problem during rehearsals, we have hard time finding a solution", "We have hard time solving our musical mistakes" and "We don't believe emotional and mental unity is important in our rehearsals." After the item contents of the items 27, 28, 29 and 30 in fourth sub-dimension are analyzed, this sub-dimension was named

Responsibility and Effort. This sub-dimension comprises statements related to choir members' perceptions regarding their efforts and participation in solving problems seen among choir members and regarding the sense of responsibility for reaching the success goal. Statements such as "When faced with a musical problem, we try our best until the problem is solved", "We never miss any choir rehearsal" and "As we perform the pieces successfully, we all strive to do our parts in the best way possible" represent the Responsibility and Effort sub-dimension.

The fifth sub-dimension was named Emotional Support and Cooperation due to the meaning that items 31, 32, 33 and 34 making up this sub-dimension convey. Emotional Support and Cooperation sub-dimension defines sharing of happiness and sadness relating to the success and failures experienced by choir members as a team and the support they provide to each other to eliminate performance worries. This sub-dimension contains statements such as "We share our sadness after an unsuccessful concert", "Performance anxiety we experience during rehearsals is minimized thanks to the support we give each other" and "We always support our soloist colleagues during concerts". Following naming of the factor dimensions, relationships across the whole scale and among sub-dimensions were calculated. Table 4 provides the results of Pearson Correlation Analysis for overall CTPS and sub-dimensions. As seen in Table 4, a statistically significant relation with significance level of

Table 3. Factor load values for CTPS items

Item	Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
47	We fully trust our conductor for his innovative and creative ideas.	0.760				
49	We would be in an emotional integrity with our conductor during the concert	0.738				
50	Our conductor contributes a lot to our success	0.736				
45	Our conductor always guides us in the right way	0.682				
53	We agree with our conductor because of his/her musical interpretation of the pieces we sing	0.654				
43	We are a one with our conductor	0.644				
52	Our conductor is always tolerant and constructive towards our mistakes.	0.642				
44	We seek solutions together with our conductor in case of a problem.	0.591				
48	Performance anxiety we experience prior to a concert would be eased thanks to motivation provided by our conductor	0.563				
5	We all support each other in order to have successful concerts		0.768			
6	We all become proud of each other when we succeed		0.720			
7	We enjoy being together during choir rehearsals		0.694			
4	We get excited when singing the pieces together		0.692			
8	Each of us is responsible to ourselves and our colleagues during concerts and rehearsals		0.645			
3	We strive to be successful in our concerts and rehearsals		0.641			
1	We are aware of the goals of our choir rehearsals		0.584			
20	We are happy to be members of the choir		0.561			
10	We try to provide support to our colleagues who might have difficulty singing the pieces		0.551			
11	We are happy to be sharing the success we achieve in our concerts		0.549			
30	When we face a communication-related problem during rehearsals, we have hard time finding a solution			0.742		
39	We have hard time solving our musical mistakes as a group			0.662		
28	It is difficult for us to apply all the rules during rehearsals			0.637		
27	We don't trust each other's performance during live performances of the pieces we rehearsed together			0.628		
33	We don't believe emotional and mental unity is important when working together			0.612		
40	We are negatively effected by the musical mistakes of our colleagues in the group			0.595		
42	It is boring to wait and not sing while other groups rehearse.			0.577		
18	When faced with a musical problem, we try our best until the problem is solved				0.705	
17	In all our musical activities, we all strive to do our best.				0.663	
13	As we perform the pieces successfully, we all strive to do our parts in the best way possible				0.608	
12	No choir member ever misses a rehearsal				0.573	
36	We discuss the possible causes of the failures we experience during concerts and work together to fix our shortcomings					0.718
35	We share our sadness after an unsuccessful concert					0.654
38	Performance anxiety we experience during rehearsals is minimized thanks to the support we give each other					0.630
37	We always support our soloist colleagues during concerts					0.614

Table 4. The relationship of CTPS and sub-dimensions with each other

Scale and Sub-dimensions	Choir and conductor relation	Team spirit	Negative emotions	Responsibility and effort	Emotional support and cooperation
Team spirit	0.629*				
Negative emotions	0.356*	0.362*			
Responsibility and effort	0.558*	0.674*	0.372*		
Emotional support and cooperation	0.567*	0.588*	0.337*	0.569*	
CTPS	0.862*	0.828*	0.645*	0.775*	0.738*

*$p < 0.01$.

0.01 was found between CTPS and its five sub-dimensions and among its five dimensions. After this step, discriminant validity of the items was calculated.

Discriminant validity

Discriminant validity analyses were applied to determine the extent to which the items of CTPS can discriminate between individuals based on the qualification measured. Based on scores obtained from the scale, the significance of the variances between item scores of upper 27% and lower 27% groups was assessed using the independent t-test. Variances in the desired direction among groups being significant is seen as an indicator of the internal consistency of the scale. Analysis results show the extent to which the items are able to discriminate individuals in terms of the behavior measured (Büyüköztürk, 2004). As part of discriminant validity analysis, scores obtained by 332 participants using the scale were sorted from highest to lowest. An intersection point was determined for the upper group which comprised the 90 participants that received the highest scores based on 27% value and the lower group comprising 90 participants that received the lowest score.Independent t-test was applied on the item scores, total scale scores and all sub-dimension scores of the participants in the lower and upper groups. Findings are summarized in Tables 5 and 6.

Tables 5 and 6 show that inter-group variances for scale item scores, and total scale scores and total sub-dimension scores are statistically significant. The results indicate that the items are able to measure the desired qualification within the context of the scale and all sub-dimensions. In line with these results, it can be said that the Chorus Team Perception Scale items can distinguish the choral members at a high level in terms of team perceptions.

Reliability studies

As part of CTPS's reliability assessment, internal consistency analysis and test-retest reliability calculations were made.

Internal consistency analysis

In order to calculate the reliability of the scale and all its sub-dimensions internal consistency analyses were conducted. Accordingly, Cronbach alpha coefficients for the scale and its sub-dimensions were calculated and findings are summarized in Table 7. Reliability coefficient calculated for this test being .70 and higher is perceived as being sufficient to ensure reliability of test scores (Büyüköztürk, 2004). Cronbach alpha coefficient of 0.935 calculated for CTPS in total, shows that the scale has a high level of reliability. It is seen that the Cronbach Alpha coefficient calculated for the sub-dimensions of the scale range between 0.779 and 0.904. Accordingly, it was found that sub-dimensions of the scale as well provide a sufficient level of reliability.

Test-retest reliability

Another test applied to measure the reliability of a scale is the test-retest reliability test (Altunışık et al., 2005). Accordingly, the final version of the Choir Team Perception Scale was administered to 30 choir members with two weeks of intermittence. For test-retest reliability, Pearson Correlation analyses were applied to determine the relation between two administrations of the scale and findings are summarized in Table 8.

According to Table 8, there are statistically significant relations between CTPS and sub-dimensions scores. This finding showed that CTPS and its sub-dimensions offered time-dependent test-retest reliability.

Linguistic equivalence analyses

Turkish and English versions of CTPS and its sub-dimensions were administered to the same group of 40 choir members with 2 weeks of intermittence and the variances and relations between two administrations were determined. Findings are summarized in Table 9. As seen in Table 9, while there is no statistically significant variance between the Turkish and English administrations of the CTPS and its sub-dimensions, a highly significant relation was found between the two

Table 5. Independent t-test results on CTPS's item discriminant validity

Item	Groups	n	x	sd	df	t	p
1	Upper Group	90	3.9222	0.26932	109.266	10.196	0.000
	Lower Group	90	3.0222	0.79291			
2	Upper Group	90	3.9444	0.27483	111.590	9.854	0.000
	Lower Group	90	3.1000	0.76511			
3	Upper Group	90	3.7889	0.50823	148.103	9.360	0.000
	Lower Group	90	2.8333	0.82448			
4	Upper Group	90	3.9222	0.26932	107.016	12.637	0.000
	Lower Group	90	2.7444	0.84216			
5	Upper Group	90	3.9444	0.23034	104.895	12.099	0.000
	Lower Group	90	2.9222	0.76772			
6	Upper Group	90	3.9556	0.20723	102.234	13.281	0.000
	Lower Group	90	2.8556	0.75790			
7	Upper Group	90	3.9000	0.30168	115.846	11.246	0.000
	Lower Group	90	2.9222	0.76772			
8	Upper Group	90	3.8222	0.38447	129.868	11.519	0.000
	Lower Group	90	2.7667	0.77966			
9	Upper Group	90	3.9889	0.10541	93.403	13.521	0.000
	Lower Group	90	3.0222	0.67003			
10	Upper Group	90	3.4556	0.67310	177.115	9.394	0.000
	Lower Group	90	2.4778	0.72248			
11	Upper Group	90	3.9222	0.26932	117.478	13.380	0.000
	Lower Group	90	2.9111	0.66442			
12	Upper Group	90	3.9667	0.18051	100.655	15.666	0.000
	Lower Group	90	2.7667	0.70392			
13	Upper Group	90	3.8111	0.47154	154.439	10.982	0.000
	Lower Group	90	2.8222	0.71230			
14	Upper Group	90	3.9778	0.14823	96.300	13.279	0.000
	Lower Group	90	2.9333	0.73132			
15	Upper Group	90	3.7000	0.62621	166.157	10.598	0.000
	Lower Group	90	2.5444	0.82327			
16	Upper Group	90	3.4889	0.72274	171.129	7.470	0.000
	Lower Group	90	2.5889	0.88552			
17	Upper Group	90	3.4667	0.69022	174.622	9.318	0.000
	Lower Group	90	2.4333	0.79394			
18	Upper Group	90	3.8111	0.49479	141.732	12.813	0.000
	Lower Group	90	2.4667	0.86375			

Table 5. Contd.

19	Upper Group	90	3.6889	0.55373	165.804	9.882	0.000
	Lower Group	90	2.7333	0.73132			
20	Upper Group	90	3.8556	0.35351	123.491	11.360	0.000
	Lower Group	90	2.8222	0.78723			
21	Upper Group	90	3.9222	0.26932	115.454	10.806	0.000
	Lower Group	90	3.0778	0.69067			
22	Upper Group	90	3.8778	0.32938	121.759	12.936	0.000
	Lower Group	90	2.7556	0.75418			
23	Upper Group	90	3.5444	0.58369	162.011	9.306	0.000
	Lower Group	90	2.5667	0.80797			
24	Upper Group	90	3.7667	0.58155	177.790	10.167	0.000
	Lower Group	90	2.9000	0.56190			
25	Upper Group	90	3.2000	0.86375	177.979	7.721	0.000
	Lower Group	90	2.2111	0.85452			
26	Upper Group	90	3.9889	0.10541	92.457	12.701	0.000
	Lower Group	90	2.9667	0.75625			
27	Upper Group	90	3.9556	0.20723	108.786	14.238	0.000
	Lower Group	90	2.9778	0.61768			
28	Upper Group	90	3.9111	0.46554	151.785	10.648	0.000
	Lower Group	90	2.9444	0.72455			
29	Upper Group	90	3.9444	0.27483	112.974	13.856	0.000
	Lower Group	90	2.7889	0.74191			
30	Upper Group	90	3.7444	0.75790	174.772	8.071	0.000
	Lower Group	90	2.8889	0.66102			
31	Upper Group	90	3.8556	0.48716	156.832	10.709	0.000
	Lower Group	90	2.8778	0.71623			
32	Upper Group	90	3.9889	0.10541	93.118	12.634	0.000
	Lower Group	90	3.0556	0.69284			
33	Upper Group	90	3.8222	0.57236	168.114	8.841	0.000
	Lower Group	90	2.9556	0.73303			
34	Upper Group	90	3.9333	0.25084	110.328	15.081	0.000
	Lower Group	90	2.7222	0.71936			

administrations. This finding showed that the scale and its sub-dimensions are suitable for use with both languages.

DISCUSSION

A team is generally related to the act of improving quality

Table 6. Independent t-test results on discriminant validity of CTPS and its sub-dimensions.

Factors and CTPS	Groups	n	x	sd	df	t	p
Choir and conductor relation	Upper Group	90	39.7111	0.45579	91.258	26.795	0.000
	Lower Group	90	28.2111	4.04607			
Team spirit	Upper Group	90	35.8889	0.31603	90.591	30.489	0.000
	Lower Group	90	25.1000	3.34210			
Negative emotions	Upper Group	90	25.1778	1.59759	148.448	31.248	0.000
	Lower Group	90	15.1778	2.58160			
Responsibility and effort	Upper Group	90	15.7333	0.44469	105.908	33.651	0.000
	Lower Group	90	10.4000	1.43629			
Emotional support and cooperation	Upper Group	90	15.8111	0.39361	99.538	29.933	0.000
	Lower Group	90	10.5667	1.61489			
CTPS	Upper Group	90	128.9667	3.54886	113.901	32.218	0.000
	Lower Group	90	94.8667	9.39304			

Table 7. Reliability coefficients for CTPS and its sub-dimensions

Factors and CTPS	Number of Items	Cronbach alpha coefficient
Choir and conductor relation	9	0.895
Team spirit	10	0.904
Negative emotions	7	0.784
Responsibility and effort	4	0.798
Emotional support and cooperation	4	0.779
CTPS	34	0.935

and efficiency at organizational level, by a group of people sharing and combining their skills, talents and information. Without doubt, to achieve this development, it is required to give authorization and responsibilities to team members. Furthermore, basic components such as common and shared goals, commitment, values, norms, rules and work habits, and mutual responsibility and cooperation are also required (URL, 2019).

Music is present in all human cultures in the world. Presence of music in social environments ranging from religious rituels to football games in a frequent way, makes one consider that music can be an evolved behavior to create communal harmony. People are interested in the unity and sincerity seen by singing songs with others and in the connections they have with one another. Choir makes people come together with a feeling of purpose. It makes people of every age and region to become informed about life experiences of other people in the choir and to form bridges for social gaps. Members in the choir gain a very special value by contributing to the success of a group through singing together while it would not be possible for them to

achieve this individually (Launay and Pearce, 2015; O'Brien, 2018; The Rockville Bach Academy, 2020).

In this study, concepts of choir and team have been identified and common points among these two groups have been emphasized. In this respect, Choir Team Perception Scale has been developed to determine their opinions about whether they perceived themselves as a part of the team or not and whether they possessed the skills required for being a team. Choir Team Perception Scale (CTPS) measures team perception levels of choir members in relation to the choir. When the literature is reviewed, it was seen that there are scale development studies with general purpose to measure team perception (Henry et al., 1999; Bateman et al., 2002; Tuncer, 2008; Atılgan et al., 2010; Lower et al., 2015; Akın et al., 2016), but that there was no team perception scale which was developed as being private for choir area. For this reason the study bears importance with respect to developing a scale that is private for the field.

The draft scale comprising a total of 65 items went through content analysis by 3 choir experts; 11 items which were found not to be adequate for the targeted

Table 8. Findings of pearson correlation analysis.

CTPS and factor	Pearson correlation coefficient	
	r	p
Choir and conductor relation	0.849	0.000
Team spirit	0.434	0.017
Negative emotions	0.881	0.000
Responsibility and effort	0.846	0.000
Emotional support and cooperation	0.758	0.000
CTPS	0.779	0.000

Table 9. Findings of related group t-test and pearson correlation analysis

Scale	Group	Related group t test						Pearson correlation coefficient	
		n	Mean	sd	df	t	p	r	p
CTPS	Turkish	30	115.000	10.65	29	0.326	0.747	0.768	0.000
	English	30	114.566	10.71					

scale structure were removed and validity and reliability analyses were started on the initial trial version with 54 items. As a result of the KMO (Kaiser-Meyer-Olkin) test of sample adequacy applied to determine the adequacy of the draft scale for factor analysis, KMO value was found to be .936. As a result of the factor analysis conducted, it was found that CTPS explained 56.368% of total variance and comprised, 34 articles (Annex Table 1) and five sub-dimensions. Sub-dimensions were named as Choir and Conductor Relation, Team Spirit, Negative Emotions, Responsibility and Effort, Emotional Support and Cooperation. Highly significant relations were found across the overall scale and among its sub-dimensions. Item discriminant analyses of the scale showed that variances among groups for item scores, total scale scores and total scores for all sub-dimensions were statistically significant and measured the intended qualification. Cronbach Alpha coefficient of the scale was calculated to be 0.935. It was found that the scale provided test-retest reliability and the linguistic equivalence analyses showed that the scale was adequate for use with both languages. The scale is a 4-point Likert type assessment tool using responses of "StronglyAgree", "Agree", "Disagree" and "Strongly Disagree". The highest score that can be obtained from the scale is 136 while the lowest is 34. High scores obtained indicate that the choir members have high level of team perception. Based on these findings, it is found that Choir Team Perception Scale (CTPS) developed to measure team perception levels among choir team members is a valid and reliable assessment tool. With its current format, the scale qualifies for use in assessment of choir team perception levels among members of polyphonic youth and adult choirs.

Conclusion

In the studies to be conducted in the future, CTPS can be used as a measurement tool to determine probable differences between team perceptions of choir having different cultural structures and to determine the relationship of team perception with concepts such as emotional intelligence and organizational communication. Furthermore, it can be recommended that CTPS should be used as a data collection tool to evaluate affective dimensions of approaches in experimental researches aiming to determine the impacts of cooperative learning and team based learning approaches on the success of choir.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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Annex Table 1. Choir team perception scale (CTPS).

Item No	Items	Strongly Disagree	Disagree	Agree	Strongly Agree
1	We are aware of the goals of our choir rehearsals.				
2	We strive to be successful in our concerts and rehearsals.				
3	We are happy to be sharing the success we achieve in our concerts.				
4	We have hard time solving our musical mistakes as a group.				
5	We seek solutions together with our conductor in case of a problem.				
6	We are happy to be members of the choir.				
7	We always support our soloist colleagues during concerts				
8	We don't believe emotional and mental unity is important when working together.				
9	Performance anxiety we experience prior to a concert would be eased thanks to motivation provided by our conductor.				
10	In all our musical activities, we all strive to do our best.				
11	Our conductor contributes a lot to our success.				
12	No choir member ever misses a rehearsal.				
13	We all become proud of each other when we succeed.				
14	We try to provide support to our colleagues who might have difficulty singing the pieces.				
15	Our conductor always guides us in the right way.				
16	When we face a communication-related problem during rehearsals, we have hard time finding a solution.				
17	As we perform the pieces successfully, we all strive to do our parts in the best way possible.				
18	We enjoy being together during choir rehearsals.				
19	We are negatively effected by the musical mistakes of our colleagues in the group.				
20	We would be in an emotional integrity with our conductor during the concert.				
21	We share our sadness after an unsuccessful concert.				
22	It is difficult for us to apply all the rules during rehearsals.				
23	Our conductor is always tolerant and constructive towards our mistakes.				
24	We all support each other in order to have successful concerts.				
25	We don't trust each other's performance during live performances of the pieces we rehearsed together.				
26	We fully trust our conductor for his innovative and creative ideas.				
27	We discuss the possible causes of the failures we experience during concerts and work together to fix our shortcomings.				
28	We get excited when singing the pieces together.				
29	We are a one with our conductor.				
30	It is boring to wait and not sing while other groups rehearse.				
31	Performance anxiety we experience during rehearsals is minimized thanks to the support we give each other.				
32	We agree with our conductor because of his/her musical interpretation of the pieces we sing.				
33	When faced with a musical problem, we try our best until the problem is solved.				
34	Each of us is responsible to ourselves and our colleagues during concerts and rehearsals.				