



Impact of Team Identification on the Online Dynamic Team's Effectiveness: The Mediating Role of Team Size

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Abstract. Online dynamic teams have become a popular trend. Under this trend, the resource role of individuals in teams has been strengthened, which challenges the theories and conclusions in the traditional team literature. This study explores the impact of team identification on team effectiveness in the online dynamic context. Drawing on the social identity theory, this study presents and confirms a model that investigates the mediating role of team size between team identification and team effectiveness. Based on the sample of 238 teams from an O2O activity-organizing community, we conducted an empirical analysis using multiple linear regression models and the bootstrapping technique. The results revealed that in the online dynamic context, team identification positively correlates with team effectiveness. Additionally, team size fully mediates this correlation. This study has implications for dynamic teams seeking effectiveness in the online context.

Keywords: Online dynamic teams · team identification · team size · team effectiveness · mediation analysis · empirical study

1 Introduction

With the rapid transformation of membership, team goals and tasks, and the need for flexible interaction, new team forms constantly emerge [1] and their common points are dynamicity and fuzzy boundary [2]. As a result, the relationship between individuals and teams and the role of individuals have undergone significant changes, which are manifested in three aspects: 1) fluidity. Teams are not stable and individual-team relation becomes dynamic as individuals frequently leave and join [3, 4]. 2) Overlap. Individuals commonly participate in different teams simultaneously [5–7]. 3) Dispersion. Individuals involved in a team are in different organizational units or geographical locations [8, 9]. Although these features help teams to cope with the rapid transformation of goals and tasks and meet the needs of flexible interaction, they bring challenges of team cooperation, coordination, and control [2, 10, 11].

The combination with information technologies helps to realize the online practice of dynamic teams, and brings some solutions to team management from the technical aspect

[12, 13]. Information technologies show the reinforcement to the team by matching the cooperation process of dynamic teams [13]. In the organizational network environment based on information technology, the team's competitiveness lies in the ability to identify and absorb new talents and resources, as well as the ability to effectively integrate and redistribute these resources [4]. However, teams are embedded in a more open and complex organizational network, which magnifies the dynamic features of the new team forms. In this context, individuals have transformed from team member to team resources, and the competition among teams for individuals has been intensified [14]. Thus, information technologies have brought help to dynamic teams, but also increased the pressure on teams.

Researchers believe that team identification is the way out of the dilemma faced by teams [10, 15], while in the online dynamic context, the specific and effective impact path of team identification is vague. At the same time, the online dynamic organization environment highlights the resource-dependent characteristic [4], but few studies take this into account. In this sense, some related concepts and their roles in team management need to be reconsidered, especially team size. Traditional empirical research is based on the background or assumptions of clear team boundaries, stable membership, and fixed team size, and the relevant conclusions about team identification and team size may not be applicable to online dynamic teams [16–19]. Thus, to address these questions in the online dynamic context, utilizing the empirical dataset from an O2O activity-organizing community, this research further investigates the impact of team identification on team effectiveness and then constructs a mediating model that team identification impacts team effectiveness through team size.

The contribution of this study is in the following two aspects. First, this study examines the impact of team identification on team size, which expands the outcome variables of team identification in the online dynamic context. Second, this study considers team size as the key mediating variable in the impact of team identification on team effectiveness based on the competition of individuals (which play as resources) among teams in the online dynamic context. This expands the effective path for team identification to play its meaning and brings new insights into uncovering the “fundamental black box” between team identification and the effectiveness of online dynamic teams.

2 Related Works and Hypotheses

According to the theory of social identity, individuals psychologically believe that they are related to the fate of the group, and behavioral actions and the effects based on their social identity, such as efforts and loyalty, are often regarded as the outcomes of social identity [20]. Based on the social identity theory, team identification advocates that individuals psychologically think that they are intertwined with the fate of the team, and the team benefits from a high level of team identification [20–22]. A high level of team identification means lower turn-over intention [23, 24], higher member satisfaction [25], and deeper and broader cooperation in teams [26]. Especially in the online dynamic context, fluid individuals and teams interweave to form a more open organizational network. With a higher level of team identification, it is not only easier to get the support of individual members within the team, but also possible to get the support of individuals outside the team. Therefore, we put up our first hypothesis.

H1: In the online dynamic context, team identification positively impacts team size.

These positive results are essentially due to the fact that members with higher team identification are willing to make efforts to achieve team goals and values, which are conducive to team outcomes and team effectiveness [20–22, 27, 28]. In online teams, team identification is considered to alleviate the pressure caused by the geographical dispersion of members, and its positive effect on team effectiveness is supported by previous research [10, 29].

Although the above theories and results are based on traditional face-to-face teams or relatively stable online teams. However, considering that the essence of team identification is psychological, we believe that positive psychological effects of team identification still exist in the online dynamic context. Hence, we anticipate that:

H2: In the online dynamic context, team identification positively correlates with team effectiveness.

At the same time, considering the individual's "resource role", team effectiveness may benefit from team size. Although previous studies have not reached an agreement on the role of team size, Hill (1982) pointed out that in a resource-dependent environment, team size has a positive impact on team effectiveness [30]. With the highlight of dynamics, the competition between teams for individuals is more intense, and team organization is more dependent on individuals. Therefore, the team size in the online dynamic organizational environment is more likely to show a positive effect on team effectiveness. Hence, we have the following hypothesis:

H3: In the online dynamic context, team size positively impacts team effectiveness.

Based on the literature review and the above hypotheses, it was necessary for us to explore the mediating role of team size in the relationship between team identification and team effectiveness. Consequently, we hypothesize:

H4: In the online dynamic context, team size plays a mediating role between team identification and team effectiveness.

3 Methodology

3.1 Data Collection

For the hypothesis verification, we took an O2O activity-organizing community, DaZhiYouQiu WeChat mini program, as the research background. We tracked and investigated teams and their activity-organizing processes in the community, and collected the real organization data of teams. In this community, teams' creators and managers (both are team activity organizers) can publish public activities online to attract individuals; Individuals can participate in activities of different teams. Both individuals and teams have a certain autonomy. The community conforms to the characteristics of the online dynamic organizational environment. The data set of this study contains 238 teams in the community in December 2020, involving 1392 activities organized by these teams and 6522 different participants; These individuals and teams form 6839 individual-team relationships.

3.2 Variables

Team Effectiveness.

Mathieu et al. (2017) pointed out that there is no clear set of criteria for measuring team effectiveness [31]. Researchers need to select appropriate methods to measure team effectiveness according to team tasks and the organizational environment. In the current online dynamic organizational environment, individuals are often the teams' serving objects. In this study, team effectiveness is measured by the average number of participants in each activity. In the process of organizing a team's activities, more individuals participating in each activity means that the team can serve more people at the one-time work of organizing, namely, the team shows higher team effectiveness.

Team Identification.

We measure team identification with the number of team members who followed the team organizers in the O2O community. This measurement agrees with Wang and Rode (2010) that identification with team managers can be used to measure team identification [32].

Team Size.

Traditionally, team size is the number of team members. In the current context, teams are fluid and have no fixed size. For evaluation, we assess team size with the number of individuals that have participated in the activities of focused teams in our research period (December 2020).

Team Duration.

We introduce team duration as a control variable and measure it by the time span since the team's establishment in the O2O community.

4 Results

4.1 Descriptive Statistical Analysis

Descriptive statistics are shown in Table 1, including means, standard deviations, and correlations of focal variables. The correlation between team identification and team size is significant ($r = 0.666$, $p < 0.001$) and team duration is only significantly related to team identification ($r = 0.378$, $p < 0.001$). Moreover, the results indicated no potential threat of multicollinearity as values of variance inflation factor (VIF) ranged from 1.000 to 3.626 [33].

4.2 Hypotheses Testing

First, we used a series of ordinary least squares (OLS) regressions to test main effect relationships [34]. Table 2 demonstrates the regression results. Model 1 shows the significant positive impact of team identification on team effectiveness ($\beta = 0.340$, $p < 0.001$), in support of H2. Model 2 demonstrates that team identification ($\beta = 0.753$, $p < 0.001$) has a positive and significant effect on team size. Therefore, H1 is supported. Further, Model 3 reveals that team identification ($\beta = 0.091$, $p = 0.314$) has no significant effect

Table 1. Descriptive statistics: means, standard deviations, and correlations of the variables

	Mean ^a	SD ^b	1	2	3
1. Team identification	1.836	3.080			
2. Team size	28.735	23.716	0.666***		
3. Team duration	230.101	167.217	0.378***	0.054	
4. Team effectiveness	13.028	3.740	0.321***	0.392***	0.079

Table 2. Results of main effects

Variables	Team effectiveness	Team size	Team effectiveness
	Model 1	Model 2	Model 3
<i>Focal variables</i>			
Team identification	0.340***	0.753***	0.091
Team size			0.330***
<i>Control variable</i>			
Team duration	-0.049	-0.230***	0.027
<i>Df</i>	235	235	234
<i>R</i> ²	0.105	0.489	0.161
Adj. <i>R</i> ²	0.098	0.485	0.150
<i>F</i> value	13.805	112.455	14.939

Note. N = 238; Coefficients are standardized. *** $p < 0.001$

on team effectiveness. However, the positive effect of team size on team effectiveness has been verified ($\beta = 0.330$, $p < 0.001$). Thus, the results support H3. Notably, in Model 4, as team identification's direct effect on team effectiveness is insignificant when all predictors are considered, the results imply that team size fully mediates the relationship between team identification and team effectiveness, which is consistent with H4.

Mediating Analysis

Further, we applied the bootstrapping technique to test the mediation effect of team size (5,000 samples, Model 4) [35], with team identification as the independent variable, team size as the mediating variable, team duration as the control variable, and team effectiveness as the dependent variable [36]. Table 3 presents the results.

Team identification's indirect effect on team effectiveness through team size is significant ($\beta = 0.249$, $SE = 0.091$, 95% CI [0.090, 0.459]), which supports H4. Noteworthy, as the total effect of team identification on team effectiveness is significant ($\beta = 0.340$, $SE = 0.115$, 95% CI [0.199, 0.654]) and the direct effect is not significant ($\beta = 0.091$, $SE = 0.446$, 95% CI [-0.678, 1.089]), we have verified the full mediation effect of team size in team identification's relationship with team effectiveness.

Table 3. Bootstrap results of mediation effect

Effect	Estimate	Boot SE	Bootstrap 95% CI	
			LLCI	ULCI
Total effect	0.340	0.115	0.199	0.654
Direct effect	0.091	0.446	-0.678	1.089
Total indirect effect	0.249	0.091	0.090	0.459

Note. N = 238. Coefficients are standardized. Bootstrap sample size = 5000; CI = confidence interval; LL = lower limit; UL = upper limit

5 Discussions and Conclusions

Based on the social identity theory, we explored the influence mechanism of team identification on team effectiveness in the online dynamic context through the full-mediated role of team size. The main findings of the current study are as follows. This research establishes that team identification has a significant positive impact on team effectiveness. Specifically, teams with high identification perform better in terms of team effectiveness, with more individuals willing to make efforts for team goals and team values. In the online dynamic context, team size plays a fully mediating role in the impact of team identification on team effectiveness. Precisely, when teams have a high level of team identification, they have advantages in competing for individuals and attracting individuals to join in, thus expanding the team. And in the resource-dependent context, teams with more members usually perform better as they have more resources to allocate and more potential resources to reach.

Two theoretical contributions in the current study are notable. First, this study expands the outcome variables of team identification with the empirical verification of team identification's impact on team size in the online dynamic context, which has not been discussed in previous research. Second, investigating the mediating role of team size in the impact of team identification on team effectiveness based on the individual's resource role in the online dynamic organizational environment expands the effective path for team identification to exhibit its value and the verification from an empirical perspective supplements the relevant literature on the path.

This study has managerial implications for teams in the online dynamic context. First, team leaders should try to build a high level of team identification to improve the team's competitiveness, as team identification positively relates to team expansion and team effectiveness. Second, team leaders should attach importance to the role change of individuals from team member to team resources when considering team strategies. We have made an assumption and verified it by examining the relationship of team size with team effectiveness, which conversely demonstrates the resource-dependent characteristic of the online dynamic context. In the current environment, dynamic teams need to maintain their attractiveness to individuals at all times.

The current study has some limitations. First, according to the social identity model related to motivation and performance, there might exist some other mediators between team identification and team effectiveness [37], while in this study only team size is

considered. Second, team size is a relatively general concept in demography. Future research can divide team members more delicately, such as core members, marginal members, new members, old members, etc., and distinguish the different kinds of team identification according to the different member categories. In addition, groups of different members may show different roles in the impact path of team identification on team effectiveness.

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