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An Investigation of Teacher Collaboration According to the Instructional Leadership Behaviors of Principals *

Zümre Öğretmenler Arasındaki İş Birliği ile Okul Yöneticilerinin Öğretimsel Liderlik Davranışları Arasındaki İlişkinin İncelenmesi

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ABSTRACT

This correlational study examines the relationship between the instructional leadership behaviors of school administrators and the collaboration behaviors among the teachers in the same branch according to teachers' perceptions. The research sample was determined by an easily accessible sampling method and consisted of 403 teachers working in public primary and secondary schools in the central districts of Ankara. The data in the study were collected using the "Instructional Leadership Behavior Scale" and "Scale for Determining the Level of Collaboration of Group Teachers." Mean and standard deviation values were calculated in the data analysis, and correlation and hierarchical regression analyses were conducted. The study results show that principals exhibit high levels of instructional leadership behaviors according to teachers' perceptions. Similarly, teachers' collaboration behaviors are also high. A positive and significant relationship was found between principals' instructional leadership and teachers' collaborative behaviors. According to the regression results, principals' instructional leadership behaviors significantly predicted teacher collaboration. Based on the results, some implications for the future were made, and suggestions were made to researchers and practitioners.

Yazar Bilgileri

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ÖZ

Bu korelasyonel çalışma, okul yöneticilerinin öğretimsel liderlik davranışları ile zümre öğretmenler arasındaki iş birliği davranışları arasındaki ilişkiyi öğretmen algılarına göre incelemektedir. Araştırmanın örneklemi kolay ulaşılabilir örnekleme yöntemiyle belirlenmiş olup Ankara ili merkez ilçelerindeki kamu ilk ve ortaokullarında görev yapan 403 öğretmenden oluşmuştur. Araştırmada veriler "Öğretim Liderliği Davranışı Ölçeği" ve "Grup Öğretmenlerinin İş birliği Düzeyini Belirleme Ölçeği" kullanılarak toplanmıştır. Verilerin analizinde ortalama ve standart sapma değerleri hesaplanmış, korelasyon ve hiyerarşik regresyon analizleri yapılmıştır. Araştırma sonuçları, öğretmenlerin algılarına göre müdürlerin yüksek düzeyde öğretimsel liderlik davranışları sergilediklerini göstermektedir. Benzer şekilde öğretmenlerin iş birliği davranışları da yüksektir. Yöneticilerin öğretimsel liderliği ile öğretmenlerin iş birlikçi davranışları arasında pozitif ve anlamlı bir ilişki bulunmuştur. Regresyon sonuçlarına göre müdürlerin öğretimsel liderlik davranışları öğretmen iş birliğini anlamlı düzeyde yordamaktadır. Sonuçlara dayalı olarak geleceğe yönelik bazı çıkarımlarda bulunularak araştırmacılara ve uygulayıcılara önerilerde bulunulmuştur.

Makale Bilgileri

Keywords
Instructional Leadership, Teacher Collaboration, Principal, Teacher

Anahtar Kelimeler
Öğretimsel Liderlik, Öğretmen İş Birliği, Yönetici, Öğretmen

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* This study is based on the first author's master's thesis.

Introduction

Many school activities require teamwork, and teachers are directed toward teamwork through various committees and projects (Albez, Sezer, Akan & Ada, 2014). Effective collaboration among teachers is essential to increase success in education and teaching (Çelebi, Vuranok & Turgut, 2016). Studies examining collaboration among teachers have shown that collaboration has various benefits at the teacher, student, and school levels (Levine & Marcus, 2010; Lomos, Hofman & Bosker, 2011; Patrick, 2022; Schuster, Hartman & Kolleck, 2021; Vangrieken, Dochy, Raes & Kyndt, 2015) and has a positive effect on student achievement (Lomos et al., 2011), teacher job satisfaction and confidence (Reeves, Pun & Chung, 2017), and teachers' professional development (Jong, Meirink & Admiraal, 2019). One of the critical ways to increase student achievement in schools is to increase interaction and relationships among teachers (Utley, Basile & Rhodes, 2003).

Principals are essential in strengthening school collaboration, developing a positive attitude towards collaboration, and sustaining this (Schuster et al., 2021). Principals should motivate their teachers to work in a team spirit, reward group work among teachers, and support their team spirit to create an effective collaboration environment (Nwagwu, 1998). The presence of instructional leaders who can affect all stakeholders in education is essential for the effectiveness of schools. The role of principals in improving instruction through their instructional leadership qualities is emphasized, and their focus is on increasing the school's student achievement and learning outcomes (Gümüşeli, 2014; Hallinger, 2005; Krug, 1992; Özdemir & Sezgin, 2002; Şişman, 2018).

Many studies in the literature show the impact of principals' instructional leadership behaviors on organizational behaviors and outcomes (Çalık, Sezgin, Kavgacı & Kılınç, 2012; Hallinger, 2005; Krug, 1992; Özdemir & Sezgin, 2002; Serin & Buluç, 2012; Şişman, 2018). Principals' instructional leadership behaviors positively impact organizational dynamics by increasing teachers' collaborative practices and contributing to student achievement (Mora-Ruano, Schurig & Wittmann, 2021). Although teachers play a crucial role in collaborative practices, principals have an essential influence on creating an environment where collaboration can be successful (McHenry, 2009).

When the literature is examined, some studies search for the relationship between school principals' instructional leadership behaviors and school experiences, organizational outcomes, professional learning communities, and organizational learning. However, studies need to directly examine the relationship between school principals' instructional leadership behaviors and teacher collaboration. Therefore, this study contributes to the literature on this aspect.

Instructional Leadership and Teacher Collaboration

One of the essential variables examined in this study is instructional leadership. Instructional leadership focuses on improving teaching to achieve the school's goals and mission (Krug, 1992). Unlike other types of leadership, instructional leadership refers to the power and behaviors that school principals use to influence all individuals and situations related to learning and teaching processes in the school to achieve effective learning and the expected goals (Şişman, 2018). Instructional leadership is leading the teaching process by principals, keeping in mind that the school's existence is to ensure the students' growth (Özden, 2020). Adopting instructional leadership roles will help principals achieve their schools' goals and contribute to effective schools. Principals who are strong in both managerial and instructional leadership can unite all personnel in the school around a common purpose and achieve success (Özdemir & Sezgin, 2002). Instructional leaders are goal-oriented in their mission and

focus on student's academic achievements (Hallinger, 2003). To achieve this mission, instructional leadership by principals takes place in three basic dimensions, which include identifying the school's mission, managing the curriculum, and developing a positive learning climate (Hallinger & Murphy, 1985).

Another variable examined in the study is teacher collaboration. Collaboration studies in education discuss the relationships between principals and teachers, the school's relationships with families, and the relationships between teachers and their colleagues (Tschannen-Moran, 1998). Nowadays, as the development of collaboration and teamwork skills is expected from employees, it is undeniable that collaborative behaviors among teachers will positively contribute to the school, the professional development of teachers, and student achievement (Yılmaz & Çelik, 2020). Teacher collaboration can be achieved in various ways, including professional learning communities, organizational learning, learning organizations, teamwork, and teacher teams.

The instructional leadership roles of principals significantly impact the quality of educational activities in schools, and their instructional leadership behaviors will impact the collaboration among teachers in schools. In this context, the research aims to examine the relationship between principals' instructional leadership behaviors and teacher collaboration behaviors according to teachers' opinions and to answer the following questions:

1. To what extent do school principals show instructional leadership behaviors?

2. What is the level of teacher collaboration?

3. Is there a significant relationship between principals' instructional leadership and teacher collaboration?

4. Are principals' instructional leadership behaviors a significant predictor of collaboration behaviors among teachers?

Method

Context, sample, and procedure

This research uses the quantitative correlational research method to reveal the correlation between principals' instructional leadership behaviors and the collaboration of teachers. The study population consists of teachers working in public primary and secondary schools in the central districts of Ankara province. Due to the pandemic, the study sample was selected using the convenient sampling method. The distribution of demographic characteristics of the participating teachers according to continuous and discontinuous variables is given in Tables 1 and 2.

Table 1. Distribution of Teachers Participating in the Research by Gender, School Type, Branch, and Educational Status Variables

Variables	Category	Frequency	%
Gender	Male	114	28,3
	Female	289	71,7
School type	Primary	112	27,8
	Secondary	291	72,2
Branch	Science and Mathematics	124	30,8
	Fine Arts	71	17,6
	Classroom teaching	96	23,8
	Social Areas	112	27,8
Educational status	Undergraduate	316	78,4
	Graduate	87	21,6
Total		403	100

Table 2. Distribution of Teachers Participating in the Research by Age, Professional Seniority, Number of Teachers at School, Length of Service at School, and Number of Teachers in the Same Group

Variables	M	SD	Min	Max
Age	36,89	8,47	23	62
Professional Seniority	11,92	8,55	1	41
Number of Teachers at School	63,55	26,19	5	160
Length of Service at School	5	4,03	1	25
Number of Teachers in the Same Group	6,88	3,6	2	25

Approximately three-fourths of the teachers participating in the study are female. The vast majority of the participating teachers work in secondary schools (72.2%). About one out of every five teachers has received graduate-level education. The age distribution of the participants from different branches ranges from 23 to 62, with an average of 37. The service periods of the teachers range from 1 to 41 years, with an average of 12. The current service periods of the teachers in their schools range from 1 to 25 years, with an average of 5. The number of teachers in the same group ranges from 2 to 25, with an average of 7

Ethical Statement

This study was conducted by the approval of the Ethics Committee on 10.08.2021, with reference number 11.

Data Collection Tools

In this study, the "Teachers' Collaboration Level Determination Scale," developed by Çelebi et al. (2016), and the "Instructional Leadership Behaviors Scale," developed by Şişman (2016), were used as data collection tools. In order for the surveys to be used to collect data for the research to be applied

in schools, the necessary permissions were obtained from Gazi University Scientific Research Ethics Commission and Ankara Provincial Directorate of National Education. After permission was obtained, the surveys were administered to teachers online due to the COVID-19 pandemic. In the first part of the scales, there are personal information (gender, age, professional seniority, branch, education status, school type, number of teachers at school, length of service in the school and number of teachers in the same group), and in the second part there are scales to measure teacher perceptions.

Teachers' Collaboration Level Determination Scale

The scale created in a five-point Likert-type rating scale consists of 19 items and three sub-dimensions. These sub-dimensions are "group formation" (6 items), "early development and rule-making [transformation]" (8 items), and "team building" (5 items). The scale is rated from "never" to "always." Exploratory Factor Analysis (EFA) conducted within the scope of the research revealed that the scale has a three-factor structure, and the total explained variance percentage is 68. In contrast, the factor loadings of the items range from 0.55 to 0.90. Confirmatory Factor Analysis (CFA) conducted with the final data shows that the goodness-of-fit indices of the model (x2/sd= 4.13; RMSEA = 0.09; CFI = 0.91; GFI = 0.85) are at an acceptable level (Çokluk, Şekercioğlu & Büyüköztürk, 2021), and the three-factor structure of the scale is confirmed. In the reliability analysis conducted for the scale factors, reliability Cronbach's alpha coefficients were calculated as 0.92 for group formation, 0.90 for transformation, 0.88 for team formation and 0.91 in total.

Instructional Leadership Behaviors Scale

The scale, created in the form of a five-point Likert-type rating, consists of a total of 50 items, with ten items in each dimension, and five sub-dimensions: "determination and sharing of school purposes," "management of the educational program and teaching process," "teaching process and evaluation of students," "support and development of teachers," and "creating a stable teaching-learning environment and climate." The scale was scored from "never" to "always." EFA conducted in the scope of the research showed that the scale had a five-factor structure, with a total variance percentage of 63.68, and the factor loadings of items varied between 0.32 and 0.89. CFA performed with final data revealed that the model's goodness of fit index values (x2/sd=2.84; RMSEA=0.07; CFI=0.86; GFI=0.73) were at an acceptable level (Çokluk et al., 2021), and the five-factor structure of the scale was confirmed. The reliability Cronbach's alpha coefficients for the scale factors were calculated as 0.92 for determination and sharing of school purposes, 0.90 for management of the educational program and teaching process, 0.93 for teaching process and evaluation of students, 0.93 for support and development of teachers, 0.95 for creating a stable teaching-learning environment and climate and 0.98 in general.

Data Analysis

Data analysis was performed using the SPSS 23 (The Statistical Package for Social Sciences) statistical package program. Two consecutive stages were followed in the analysis of the data. In the first stage, the data were examined using assumption tests such as missing value, outlier, normality, and multicollinearity. It was tested whether the data met the assumptions that were the prerequisites of the analyses to be made. The data were transferred to the SPSS 23 program, and the lost and incorrect data were tested. The question "Number of teachers in the same branch as yours" received eight responses of 0 and 5 responses of 1, which did not serve the purpose and therefore were not included in the study. When the skewness and kurtosis coefficients for the scales and sub-dimensions were calculated, they were found to be between -1.0 and +1.0. According to Büyüköztürk (2020), the fact that

the skewness and kurtosis coefficients are between -1.0 and +1.0 can be interpreted as the participants not deviating from the normal distribution. In addition, to detect outliers for scale scores, when Z scores were calculated, it was determined that 6 participants had values outside the range of -3.0 to +3.0, and they were excluded from the study. In this context, statistics for the research were calculated with 403 participants. The fact that Z scores are between 3.0 and +3.0 indicates that there are no extreme values in the data (Çokluk et al., 2021). In addition, it was confirmed that the scores were normally distributed and no extreme values were detected with box line graphs such as histogram and stem-leaf diagram, where the normal distribution curve was drawn.

Within the scope of the sub-problems of the research, descriptive statistical analyses such as arithmetic mean and standard deviation were first performed. Then, the Pearson Product-Moment Correlation Coefficient was calculated to determine whether there is a relationship between principals' instructional leadership and collaboration among teachers in the department. Finally, determining whether the instructional leadership of school principals predicts collaboration among teachers in the department was conducted based on the Hierarchical Regression Analysis technique.

Findings

This section presents the findings on the relationship between principals' instructional leadership behaviors and teachers' collaboration behaviors. The means, standard deviations, and correlation values showing the relationship between instructional leadership and collaboration behaviors of the sage group of teachers calculated in sub-dimensions have been presented in Table 3 according to teacher perceptions.

Table 3. Means, Standard Deviations, and Correlation Values

Variables	*M*	*SD*	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Identifying and sharing school goals	3,89	0,66										
2. Management of the curriculum and teaching process	3,9	0,71	0,76*									
3. Evaluation of the teaching process and students	3,87	0,8	0,68*	0,80*								
4. Support and development of teachers	3,73	0,89	0,55*	0,68*	0,74*							
5. Establishing a regular teaching-learning environment and climate	3,95	0,8	0,68*	0,72*	0,75*	0,77*						
6. Instructional Leadership Behaviors (General)	3,87	0,68	0,81*	0,89*	0,91*	0,87*	0,90*					
7. Group Formation	3,45	0,93	0,08	-0,08	-0,08	-0,18*	0,02	-0,06				
8. Early Development and Rule Making (Transformation)	3,73	0,73	0,31*	0,24*	0,22*	0,06	0,25*	0,24*	0,22*			

9. Team Formation	3,84	0,78	0,31*	0,27*	0,27*	0,17*	0,34*	0,3*	0,25*	0,71*	
10. Collaboration Among the Same Branch Teachers (General)	3,66	0,62	0,29	0,16*	0,14*	-0,02	0,23*	0,17*	0,68*	0,83*	0,78*

*p<0,01

When Table 3 is examined, it is determined that teachers have a high level of perception (*M*=3.87) regarding principals' instructional leadership behaviors. When the perception levels of teachers towards the sub-dimensions of instructional leadership are examined, respectively, the sub-dimensions of creating a stable teaching-learning environment and climate have an average of *M*=3.95, managing the education program and instructional process have an average of *M*=3.90, determining and sharing school goals have an average of *M*=3.89, evaluating the instructional process and students have an average of *M*=3.87, and supporting and developing teachers, have an average of *M*=3.73.

It is seen that the perception levels of teachers towards the same group of teachers' collaboration are also high, with an average of *M*=3.66. When the perception levels of teachers towards the sub-dimensions are examined, respectively, the team building stage has an average of *M*=3.84, the early development and rule-making (transformation) stage has an average of *M*=3.73, and the group formation stage has an average of *M*=3.45.

Table 3 shows that group formation has no significant relationship with instructional leadership. This sub-dimension only has a significant but low-level negative relationship with developing and supporting teachers. A significant positive relationship exists between determining and sharing school objectives and transformation (r=0.31). A significant positive relationship exists between creating a stable teaching-learning environment and climate and team building (p<0.01 and r=0.34). A significant positive relationship exists between instructional leadership and teacher collaboration (r=0.17).

A hierarchical multiple regression analysis was conducted to determine how instructional leadership predicts teacher collaboration and its sub-dimensions. The results are presented in Table 4.

Table 4. Hierarchical Regression Analysis Results for the Prediction of the Collaboration of Teachers in the Same Group

	Model and Variable		*B*	*SH*	β	R^2	ΔR^2
Group Formation	Model 1					0,004	0,00
		Instructional Leadership	0,09	0,07	0,06		
	Model 2					0,12*	0,12*
		Gender	0,12	0,10	0,06		
		Age	0,07	0,02	0,60*		
		Teacher Seniority	-0,09	0,01	-0,81*		
		Length of Service at the School	0,02	0,01	0,08		
		Educational Status	-0,41	0,1	-0,18*		
	Model 3					0,15*	0,03*
		School Type	0,24	0,10	0,11		
		Number of teachers in the school	0,00	0,00	0,06		

		Number of teachers in the same branch as yours	-0,04	0,02	-0,17		
Transformation	Model 1					0,06*	0,06*
		Instructional Leadership	0,26	0,05	0,24*		
	Model 2					0,15*	0,09*
		Gender	-0,19	0,08	-0,12		
		Age	0,00	0,01	-0,02		
		Teacher Seniority	0,03	0,01	0,31		
		Length of Service at the School	-0,01	0,01	-0,03		
		Educational Status	0,14	0,08	0,08		
	Model 3					0,17*	0,02*
		School Type	-0,02	0,08	-0,01		
		Number of teachers in the school	0,00	0,00	0,10		
		Number of teachers in the same branch as yours	0,02	0,01	0,10		
Team formation	Model 1					0,09*	0,09*
		Instructional Leadership	0,35	0,06	0,30*		
	Model 2					0,136*	0,04*
		Gender	-0,15	0,08	-0,09		
		Age	0,01	0,01	0,12		
		Teacher Seniority	0,01	0,01	0,08		
		Length of Service at the School	-0,01	0,01	-0,02		
		Educational Status	0,13	0,09	0,07		
	Model 3					0,139	0,003
		School Type	-0,01	0,08	0,00		
		Number of teachers in the school	0,00	0,00	0,01		
		Number of teachers in the same branch as yours	0,01	0,01	0,05		
Collaboration of Teachers in the Same Brunch	Model 1					0,10*	0,10*
		Instructional Leadership	0,22	0,04	0,31*		
	Model 2					0,14*	0,04*
		Gender	-0,08	0,05	-0,08		
		Age	0,02	0,01	0,39*		
		Teacher Seniority	-0,01	0,01	-0,25		
		Length of Service at the School	0,00	0,01	0,02		
		Educational Status	-0,04	0,06	-0,03		
	Model 3					0,15	0,01
		School Type	0,07	0,05	0,06		
		Number of teachers in the school	0,00	0,00	0,10		
		Number of teachers in the same branch as yours	0,00	0,01	-0,02		

*p<0,01

When Table 4 is examined, according to the results of the hierarchical regression analysis conducted to determine the extent to which instructional leadership, individual, and school variables predicted the sub-dimension of group formation, Model 1 was not significant, and instructional leadership did not predict the sub-dimension of group formation. In Model 2, when individual variables such as gender, age, seniority, length of service at the school, and educational status were added, the explained variance was 12% [F(6,396)=9.37; p<0.01], and the age variable [t(396)=4.50; p<0.01] contributed significantly to the model. In Model 3, with the addition of school-based variables, a

significant model was formed [F(9,393)=7.93, p<0.01], and there was a 3% increase in variance. Overall, it was determined that the model explained 15% of the variance.

According to the results of the hierarchical regression analysis for the transformation sub-dimension, Model 1 was significant [F(1,401)=23.66; p<0.01] and explained 6% of the variance of teacher collaboration [t(401)=4.86; p<0.01]. Model 2 was also significant [F(6,396)=11.19; p<0.01] and explained 15% of the total variance with a 9% increase in variance. Although the model was significant, there was no significant predictive variable contributing to the model. Model 3, which was formed by adding the variables of school type, the number of teachers in the school, and the number of teachers in the group, was significant, with a 2% increase in variance [F(9,393)=9.19; p<0.01], and it was determined that a total of 17% of the variance was explained.

According to the hierarchical regression analysis conducted for the team formation sub-dimension, Model 1 was significant [F(1,401)=40.48; p<0.01], and [t(401)=6.36; p<0.01] explained 9% of the variance of teacher collaboration. The model obtained in Model 2 was significant [F(6,396)=10.38; p<0.01], and with a 4% increase in variance, the total variance explained was 14%. Although the model was significant, there was no significant predictive variable contributing to the model. Model 3, which was formed by adding school variables, was insignificant. Overall, it was determined that the model explained 14% of the variance.

According to the analysis results in Table 4, Model 1 for teacher collaboration is significant and explains 10% of the variance [F(1,401)=42.52; p<0.01], [t(401)=6.52; p<0.01]. When individual variables such as gender, age, seniority, years of service in the school, and education level were included in Model 2, the age variable was found to have a significant contribution to the model [F(6,396)=10.55; p<0.01] and [t(396)=2.97; p<0.01]. The total variance explained increased by 4% to 14%. The school-based predictor variables added in Model 3 did not contribute significantly to the model. It was determined that the model as a whole explained a 15% variance in total.

In other words, it is seen that principals' instructional leadership behaviors did not predict the group formation sub-dimension, predicted the transformation sub-dimension by 6%, the team formation sub-dimension by 9%, and the overall teacher collaboration by 10%. When looking at the models created according to hierarchical regression analysis results, it was determined that instructional leadership and school-based and individual predictor variables explained 15% of the variance for teacher collaboration, 15% for group formation dimension, 17% for transformational dimension, and 14% for team formation dimension.

Discussion and Conclusion

In this study, the collaboration behaviors among the teachers were examined according to the principals' instructional leadership behaviors. Principals' instructional leadership behaviors were considered a predictor variable of the collaboration of teachers.

The study examined the scores related to principals' instructional leadership and collaboration among teachers in the same branch. According to the research results, it was determined that the instructional leadership behaviors of school administrators were at a high level. This finding is supported by the results of the studies conducted by Bozkurt and Taşdemir (2022). The perception levels in the sub-dimensions of instructional leadership are the creation and climate management of a stable teaching-learning environment, management of the education program and teaching process, determination and sharing of school goals, and support and development of teachers in the assessment

process and students. This situation indicates that school administrators do not show enough behavior in supporting and developing teachers and are more focused on creating a regular teaching-learning environment and climate. The inadequacy of principals in developing and supporting teachers in this dimension and their inability to exhibit their instructional leadership roles are similar to the results of many studies (Bozkurt & Taşdemir, 2022; Serin & Buluç, 2012; Urick & Bowers, 2017). When the scores related to collaboration among department teachers were examined, it was determined that their collaboration behaviors were high. This result is supported by the results of the study conducted by Sağın, Güllü, and Uğraş (2020). The perception levels in the sub-dimensions of collaboration among department teachers are teamwork, early development and rule setting (transformation), and group formation.

There are formal and informal collaboration practices among teachers (Yılmaz & Çelik, 2020). Formal practices include professional learning communities (PLCs), which involve a team-building phase where grade-level teachers share common goals. Informal practices involve collaboration during the group formation phase. However, group formation was lower than in her dimensions due to the bureaucratic nature of PLCs and other official practices (Albez et al., 2014). It is believed that the team-building phase is where collaboration is at a high level. Overall, the high level of collaboration among PLCs and the low level of group formation suggest that teachers prefer individual work over collaboration. This may be because collaboration between PLCs and other school boards is legally mandatory. Research conducted by Alım and Doğanay (2016) emphasized the importance of collaboration and PLCs among Teachers. However, it revealed that necessary support was not provided, and effective collaboration activities were not carried out.

Professional competition based on systemic problems and legal regulations among teachers, differences in political views, conflicts of opinion, negative personality traits (ego, ambition, selfishness, arrogance), anxiety about perceived inadequacy, generational conflict, legal regulations emphasizing individualism, and difficult working conditions are among the obstacles to collegial cooperation (Forte & Flores, 2014; Özdoğru, 2021). In line with these factors, collaboration and group formation are low.

The research findings indicate a positively low relationship between the instructional leadership of school administrators and collaborative behavior among grade-level teachers. The study by Cansoy, Parlar, and Polatcan (2020) also concluded that the instructional leadership roles of school administrators are effective in promoting teacher collaboration and taking responsibility. No significant relationship was found between the instructional leadership behavior of school administrators and the subgroup of group formation; however, a significant positive relationship was found between inter-group collaboration and subgroups of transformation and teamwork.

Finally, regression analysis results between instructional leadership of school administrators and collaborative behavior among grade-level teachers were examined in the study. As the research findings suggest, school administrators perform their instructional leadership roles to a lesser extent in developing and supporting teachers. In the study by Göksoy and Yenipınar (2015), it was also observed that school administrators did not play an active role in creating and executing group activities. Administrators should create a learning organization-based climate to support teachers' professional development and encourage collaborative planning and observation among teachers. According to the study by Meyer, Richter, and Hartung-Beck (2020), school principals indirectly affect teachers' collaboration. Therefore, school administrators should lead instructional leadership roles and group activities to develop inter-teacher collaboration (Cansoy et al., 2020; Patrick, 2022) and indirectly

contribute to student achievement (Levine & Marcus, 2010; Ronfeldt, Farmer, McQueen & Grissom, 2015; Mora-Ruano et al., 2021).

When the research results are evaluated in general, it can be claimed that school administrators will develop collaboration when the appropriate environment and individual support are provided between instructional leadership and collaboration behaviors of grade-level teachers. School administrators should lead and actively participate in grade-level activities and work by meeting with grade levels at specific intervals. The competencies of school administrators and teachers in collaboration, teamwork, and coaching approaches in educational management can be improved through professional development programs. Professional development programs and activities can be organized for teachers to overcome the obstacles caused by the teacher in collaborative work; necessary work can be done for non-teacher-related factors. Group achievements should also be rewarded and encouraged in addition to the individual achievements of teachers. As the relationships between variables and explained variances are relatively low in the research results, investigating different variables related to teachers and schools that affect grade-level teachers' collaboration behaviors can help develop collaboration.

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Conflict of Interest

There is no conflict of interest

Ethical Statement

This study was carried out in accordance with the approval of Gazi University Institute of Educational Sciences Ethics Commission dated 22.06.2021 and numbered 11.