



EUJEM

European Journal of Educational Management

Volume 4, Issue 2, 109 -125.

ISSN: 2642-2344

<https://www.eujem.com/>

Translating Teamwork into School Effectiveness: A Systematic Review of Two Decades of Research

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Received: August 5, 2021 • Revised: October 10, 2021 • Accepted: November 8, 2021

Abstract: Over the last two decades, research has reached the conclusion that educator teamwork is necessary to ensure the achievement of school goals. No attempts, however, have been made to provide integrative evidence regarding its contribution to school effectiveness. To fill this void, the authors review two decades of professional team research in the context of schools. Specifically, the article has two objectives: (1) To review the existing conceptualizations of the terms 'team' and 'teamwork' in the school context; (2) To provide a systematic review of the impact of teamwork on school effectiveness. The systematic search resulted in 23 papers reporting three non-empirical and 20 empirical studies. The results of the review revealed a lack of agreement concerning the conceptualization of the terms 'team' and 'teamwork', which may affect comparability among studies. Furthermore, no comprehensive picture emerges regarding the consequences of teamwork for the individual teacher, the team, or the school as a whole. Indeed, studies refer to a wide range of variables within different contexts and configurations. This review contributes several important insights that may set the agenda for the next wave of research on teamwork in schools.

Keywords: *Teamwork, school effectiveness, teachers, systematic review.*

To cite this article: Freedman, I., & Somech, A. (2021). Translating teamwork into school effectiveness: A systematic review of two decades of research. *European Journal of Educational Management*, 4(2), 109-127. <https://doi.org/10.12973/eujem.4.2.109>

Introduction

During the last few decades, schools have incorporated various forms of professional teamwork and collaborative work into their practices, with the hope of improving outcomes, such as student achievements, school climate, and teacher satisfaction (Park et al., 2005; Pounder, 1999; Ronfeldt et al., 2015). Traditionally, educators' work was of an almost completely individual nature, with potential costs on their professional life as well as on their students' achievements and wellbeing (Lortie, 1975; Shah, 2012). The highly individualistic role of educators in schools was also found to be related to high attrition and high turnover in the teaching profession (Long et al., 2012; Rasberry & Mahajan, 2008; Schaefer, 2013). The implementation of various forms of educator teamwork in schools aims to contribute to the effectiveness of the school's work and to organizational success, while negating the aforementioned unfavorable effects of the individualistic aspects of educators' work. Even though educators' teamwork has the potential to contribute to teaching quality and to school effectiveness (Park et al., 2005; Somech & Drach-Zahavy, 2007), not all schools implement it, and when implemented, it does not always lead to success (Mintrop & Charles, 2017; Mizel, 2009). Indeed, gathering individuals together in the same room is not enough in order to translate the multiple resources they offer into effective teamwork (Mizel, 2009; Somech & Drach-Zahavy, 2007).

The existing body of literature on school educator teams offers various frameworks for better understanding how to promote teamwork, as well as its implications for the school. This literature offers various conceptualizations with different meanings in diverse settings (Crow & Pounder, 2000; Scribner et al., 2007). Scholars have proposed varied models aimed at identifying the factors that are likely to increase the effectiveness of teams (Pounder, 1998; Somech & Drach-Zahavy, 2007); and different studies refer to different components of outcomes, as predictors of team effectiveness (Conley et al., 2004). Several studies examined the consequences of teamwork for the individual (Park et al., 2005), while others focused on its outcomes at the team or school level (Benoliel & Somech, 2016; Bush & Glover, 2012). This inconsistency in existing research makes it difficult to paint a comprehensive picture regarding the unique challenges

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and promises of educator teamwork in schools, and consequently impedes the production of a valid model that specifies how to implement teamwork effectively.

The present paper aims to fill this void by presenting a critical review and evaluation of the educational literature on the topic of educator teamwork in schools. Specifically, the current article has two objectives: First, we will review the existing conceptualizations of the terms 'team' and 'teamwork', and highlight the commonalities and differences between the different conceptualizations, in order to suggest a more cohesive definition of these concepts. Second, we will summarize the variables related to team effectiveness, and suggest potential directions for future research and practice. To provide a systematic review of the subject, we adopt the well-known Input-Process-Outcome approach (Hackman, 1987). According to this model, input represents the context and structure of teamwork; process describes how team inputs are translated into the work process and refers to all of the behavioral, cognitive, and affective experiences existing in teams; and output refers to the results of the team activity. This approach enables us to present a model that is broad enough to apply to different types of teams yet specific enough to be easily understood for applied and research purposes.

Methodology

A systematic search was conducted to find studies on educator teamwork in schools. Three criteria were used in the selection of frameworks for analysis in this review. The first criterion had to do with the organizational context in which the studied teams operated and the locations in which teamwork took place. We focused our search on teams operating within school settings. Schools are whole, separate organizations with specific organizational characteristics, which serve as platforms for the execution of educators' teamwork and for the team's outcomes. Outcomes of teamwork, in terms of organizational effectiveness, are likely to be captured for individuals, teams, or organizations (Cohen & Bailey, 1997), and therefore inclusion of studies about teams operating within the organizational structure of a school, allows for such analysis of teamwork effectiveness. Thus, even though educational teams may work in varied contexts and settings, such as teams of teachers from different schools in the same municipality or district or online work groups that are not constrained by organizational contexts, we chose to limit this review to teams that are an integral part of a specific school setting. We included in the review studies on all types of schools (elementary, junior high, and high schools). We also included schools from various geographical locations, aiming to reach generalizability that would contribute to a comprehensive exploration of the issue at hand.

The second criterion for inclusion in the review was that team members in the studies reviewed were all school educational staff. Our search concentrated on teams of teaching staff, including principals and teachers in various pedagogic positions. From an organizational point of view, these participants are the main employees of the school, and teams comprised of the educational staff of schools are therefore the equivalents of employee teams in other organizations. Similar to the first criterion, this framework allows for the review to take part in the broader discourse on organizational teamwork. The search, therefore, excluded studies of teams that comprised school educators together with other team members, such as school students or university researchers.

The third criterion for the search focused on the organizational units studied for teamwork. We only included studies that investigated units defined by the authors as teams. One generally accepted definition for the term 'team' is "a collection of individuals who are interdependent in their tasks, who share responsibility for outcomes, who see themselves and who are seen by others as an intact social entity embedded in one or more larger social systems, and who manage their relationships across organizational boundaries" (Cohen & Bailey, 1997). School educators work with each other in many configurations, some of the more popular of which are referred to as collaborative work or professional communities. These work styles have very broad definitions with regard to the relationships among the group members, their work procedures, and anticipated outcomes. Not all of these groups fit into the more rigorous category of educator teams and, thus, are not suitable for the purpose of this review and cannot contribute to the understanding of educator teamwork from an organizational effectiveness perspective. In some cases, such groups did fall under the stricter definition of a team, regardless of their labels, for example groups addressed in specific studies about communities of practice (Brouwer et al., 2012a). These studies were, therefore, included in this review, while others that discussed educator groups with looser definitions, were not.

The selection of articles for this review was made by searching for peer-reviewed publications for the years 1997 through 2021 using four electronic bibliographic databases that proved relevant for our specifications (SAGE-Journals, JSTOR, Springer-Link, and Emerald Insight). We used various combinations of the following search words: 'team'; 'teamwork'; 'group'; 'school'; 'school-based'; 'teacher'; 'professional'; 'educator'. For example, one such search phrase was: "teacher AND team OR teamwork AND school". This initial search resulted in a total body of 2053 results from all four databases, of which the majority were excluded according to the inclusion criteria. A large number of the excluded articles dealt with student teams, a result that was unavoidable since the term "student" could not have been excluded from the search as students and their accomplishments are discussed in many of the included studies. Other frequent reason for excluding studies were organizational contexts that were not limited to a specific school or groups that did not meet the definition of a team. After this initial filtering, a second round of exclusion removed studies that mentioned educator teams in schools but only in a minor way and did not discuss this issue in their study aims, measured variables, or findings, and therefore had no potential contribution to this review. Ultimately, the search resulted in 23 studies that met our specified

criteria of focusing on educator teams in school settings. Of these studies, three were non-empirical and twenty were empirical (see Table 1).

Table 1. Reviewed articles

Authors, Year	Article type	Tool	Participants/Setting
Benoliel and Berkovich, 2017	Theoretical		
Benoliel and Somech, 2016	Empirical quantitative	Survey	283 SMT (senior management teams) members and 92 principals, in 92 schools
Brouwer et al., 2012a	Empirical Mixed methods	Questionnaires, Video, Observations	Teachers from 7 teams in secondary one school
Brouwer et al., 2012b	Empirical Mixed methods	Questionnaires, Video, Observations Semi-structured interviews	7 teacher teams (72 teachers) in secondary one school
Bush and Glover, 2012	Empirical qualitative	Case studies Observation Interviews Documents analysis	SLT (Senior Leadership Teams) in nine high performing schools (four secondary, three primary and two special)
Conley et al., 2004	Empirical quantitative	Survey	174 teachers from middle school teams.
Crow and Pounder, 2000	Empirical qualitative	Observations Semi-structured interviews	4 interdisciplinary grade-level teacher teams in middle schools
Datnow, 2018	Empirical qualitative	Interviews Observations	Three teacher teams in two elementary schools
Dee et al., 2006	Empirical quantitative	Questionnaire	210 elementary school teachers
Lipscombe et al., 2020	Empirical qualitative	Interviews, observations, artefact collection	Three primary school teacher teams
Mintrop and Charles, 2017	Empirical qualitative	Design development research Narrative interpretation	Grade level team, 9 teachers in a distressed urban middle school
Mizel, 2009	Empirical Mixed methods	Questionnaire Semi-structured interview	361 elementary school teachers / school principals Interview with 30 of the respondents
Park et al., 2005	Empirical quantitative	Survey	159 elementary and middle school teachers
Pounder, 1998	Theoretical		
Pounder, 1999	Empirical quantitative	Survey	66 teachers and 138 students from two middle-grades schools
Ronfeldt et al., 2015	Empirical quantitative	Survey Administrative data	336 schools 667 teachers in reading, 544 in math
Scribner et al., 2007	Empirical qualitative	Constant comparative analysis Discourse analysis	Two high school teacher teams
Somech, 2005	Empirical quantitative	Questionnaire	983 teachers from 25 middle schools and 27 high schools
Somech, 2008	Empirical quantitative	Questionnaire	170 elementary school disciplinary teams
Somech and Drach-Zahavy, 2007	Empirical quantitative	Survey	224 junior high school teams
Stott and Walker, 1999	Theoretical		
Weddle et al., 2019	Empirical qualitative		A five-teacher team in a low-performing urban middle school
Weiner, 2014	Empirical qualitative	Survey	instructional leadership team (ILT) members and their principals from four schools

The Reviewed Studies

Empirical research included in this review was conducted using either qualitative methodology (n=8), quantitative methodology (n=9), or mixed methods (n=3). Studies examined professional teamwork in schools ranging from pre-elementary through high school and were conducted in North America (n=11), Europe (n=3), Australia (n=1), and the Middle East (n=5). Three non-empirical studies included in this review describe different aspects of educator teamwork in schools based on literature reviews. Research reported in these articles deals with different types of professional teamwork in schools, such as leadership teams, disciplinary teams (e.g., a mathematics or a science team), or multidisciplinary teams (mostly grade-level).

The qualitative studies reviewed applied a variety of methodological tools: interviews, observations, document analysis, design development research, and discourse analysis. They examined the implementation of teamwork in various types of schools, from high performing schools to schools facing severe difficulties and challenges. The studies focused mainly on conditions for teamwork in schools, in-team processes, and teamwork outcomes. Issues relevant to conditions for teamwork were team composition, management's attitude toward the team, school structure and climate, allocated resources, and the team's declared mission and degree of autonomy. In-team processes included distribution of work between team members, intra-team communication, emotional support, conflict management, team members' sense of purpose, and team development activities. Outcomes examined in these qualitative studies were innovative problem-solving abilities of teams, implementation of team decisions, influence of the team on school change and student learning, and to a lesser extent, the team's impact on individual team members' professional skills, perception, and experience.

The quantitative studies used measurable data to examine the relationships between different aspects of teams' structures, processes, and outcomes. All studies were cross-sectional and used self-report questionnaires, and with the exception of two studies, all of the data were collected from one-source team members. Input variables had to do with organizational structure and managerial behaviors, such as allocation of resources, and management styles. The process aspects of teamwork were related to intra-team activities and relations, such as support and trust. Desired outcomes were related either to organizational goals (effectiveness, innovation, achievements), or teachers' attitudes toward school, as satisfaction. Finally, three mixed-methods studies, combining data collected from questionnaires, interviews, and observations, dealt with characteristics of team members, team-building processes, the feeling of community in teams, and the relation between the cultural context and team development and function.

Findings / Results

The present review focused on two sets of analyses. The first analysis refers to the existing conceptualizations of 'team' and 'teamwork'. The second analysis focuses on team effectiveness, according to the three components of input, process, and output.

Conceptualizations of 'Teamwork' and 'Team'

An important part in reviewing the studies' contributions regarding educator teamwork in schools is outlining the way teamwork is conceptualized in each of the studies. Even though such conceptualization is a basic step towards understanding the issue, we were unable to find explicit definitions for the term 'teamwork' in all of them. As a next best strategy, we looked for definitions for the term 'team'. Although, these two terms are not equivalent and relate to the same issue from slightly different perspectives, it is important to note that scholars tend to use them interchangeably (Xyrichis & Ream, 2008). In some studies, we found definitions of 'team' as a general term, and in others, we found definitions of specific types of educator teams, such as instructional leadership teams or disciplinary teams. Studies that did not provide an explicit definition for either term, did mention various characteristics of the concepts, which allowed us to infer as to their conceptualization of teamwork. From this wide variety, it is clear that the meanings of these terms differ depending on the specific research and practice contexts. Following, we outline the various ways in which these terms were described and discuss recurrent components of 'team' and 'teamwork' that represent the main existing or desired elements of teacher teamwork in schools.

Of the 23 studies, eight studies offered explicit definitions for the general concept of 'teamwork' or 'team'. An example for such explicit definition is: "*Work teams are often understood as a work redesign strategy aimed toward enhancing worker interdependence and increased self-management, thereby increasing members' responsibility for the group's performance and outcomes*" (Conley et al., 2004).

Seven of the remaining fifteen studies that did not offer definitions for the general terms of 'team' or 'teamwork' in schools, included explicit definitions of specific types of teams: instructional teams, disciplinary teams, communities of practice, and leadership teams. One example of a specific definition is Weiner's definition of an instructional leadership team: "*members lead by collaboratively determining the school's reform strategy, making decisions regarding resource allocation to ensure the strategy's success, and engaging others in implementing this strategy*" (Weiner, 2014). These specific definitions represent different types of educator teams with different organizational roles as well as different

member characteristics. However, since they are all educator teams in schools, they can all shed light on the perception of teams as integral units in the school organization.

The remaining eight studies that did not offer explicit definitions for 'teamwork' or 'team', mentioned specific characteristics of the two concepts. One such example is: "*The essence of a team is shared commitment. Without it, groups perform as individuals; with it, they become a powerful unit of collective performance*" (Bush & Glover, 2012, p. 23). Another example refers to certain aspects of teamwork: "*Teamwork is designed to create work interdependence and increased self-management, increasing members' responsibility for the team's performance and outcomes*" (Somech, 2005).

Common Components of Educator Teamwork

The various conceptualizations described above included a variety of different characteristics and elements of teacher teams and teamwork. Out of them we identified three recurrent elements that represent the main characteristics of teacher teamwork according to the reviewed studies, as follows: team purpose, sharing and interdependence among team members, and team autonomy.

Team purpose: Having a specific function or goal for which the team was assembled or toward which it works, was mentioned in the conceptualizations of 18 studies as a characteristic of teams or teamwork. Mentions of team purpose ranged from the general treatment of purpose as a requirement or a characteristic of teams, to descriptions of specific purposes of teacher teams, some of which were relatively general and others quite specific. An example of a definition that includes the component of purpose as a general requirement for teams is found in Scribner et al., (2007, p.73), who stated that a team is "*charged with solving a specific problem facing the school*". Conceptualizations that describe general purposes of teams referred mostly to the team's role in shaping teachers' work characteristics, for example: "*Teacher work groups or teams are designed to create work interdependence and increased self-management, increasing members' responsibility for the group's performance and outcomes*" (Crow & Pounder, 2000, p. 217). The more specific purposes mentioned in some of the studies described the actual role or responsibility of a distinct type of teacher team, such as: "*Instructional team: teachers work collectively on instruction*" (Ronfeldt et al., 2015, p. 475).

Sharing and interdependence: Seventeen of the reviewed studies stressed various shared elements and interdependence between team members. Members of teams were described as sharing goals, experiences, knowledge, and responsibility with each other. For example, according to Datnow (2018, p. 160), "*teacher collaboration involves spontaneous, joint interdependent work by teachers*". According to Park et al., (2005, p. 464), team members "*must coordinate their decisions and activities by sharing information and resources to attain shared goals*".

Autonomy: The degree of autonomy or self-management of teams was discussed in seven studies, and the importance and contribution of the team's mandate for autonomous decision making to its ability to succeed was stressed. For example, Pounder (1998, p. 67), mentioned the importance of team self-management, saying that "*group members must have the authority to manage their own task and interpersonal processes as they carry out their work*"; Somech (2005, p. 241), mentioned team autonomy as a dimension of team empowerment, claiming that it gave members "*substantial freedom, independence, and discretion in their work*".

Table 2. Conceptualizations of 'Team' or 'Teamwork'

Authors, Year	Team/ Teamwork*	Conceptualization	Purpose	Sharing Interdependence	Autonomy
Benoliel & Berkovich, 2017	T-G D	Functional sub-units designed to promote organizational work that is complex in terms of quantity or quality (p. 923)	P		
Benoliel & Somech, 2016	T-S D	Senior management teams (SMTs) [which] consist of senior school staff. In addition to their teaching responsibilities, SMT members hold supervisory responsibility (p. 492)	P		
Brouwer et al., 2012a	T-S D	A community of practice defines itself along three dimensions, mutual engagement, shared repertoire, and joint enterprise (p. 349)		S	
Brouwer et al., 2012b	T-S D	Communities of practice are groups of people who share a concern or a passion for something they do and learn how to do things better as they interact regularly (p. 405)	P	S	

Table 2. Continued

Authors, Year	Team/ Teamwork*	Conceptualization	Purpose	Sharing Interdependence	Autonomy
Bush & Glover, 2012	T-G N	The essence of a team is shared commitment. Without it, groups perform as individuals; with it, they become a powerful unit of collective performance (p. 23)		S	
Conley et al., 2004	T-G D	Work teams are often understood as a work redesign strategy aimed toward enhancing worker interdependence and increased self-management, thereby increasing members' responsibility for the group's performance and outcomes (p. 664)	P	S	A
Crow & Pounder, 2000	T-G N	Teacher work groups or teams are designed to create work interdependence and increased self-management, increasing members' responsibility for the group's performance and outcomes (p. 217)	P	S	A
Datnow, 2018	T-G D	In its most generative form, teacher collaboration involves spontaneous, joint interdependent work by teachers who engage in a genuine process of inquiry around teaching and learning (p.160)	P	S	
Dee et al., 2006	T-G N	Teams ... may be viewed as new core building blocks of organizational structure and venues where teachers can develop a sense of shared commitment (p. 604-605).		S	
Lipscombe et al., 2020	T-G N	the team, as an open system, works internally and considers the outside school environment as a way of understanding the consequences of their actions (p.2)		S	A
Mizel, 2009	T-G D	A group of people that can effectively tackle any task which it has been set up to do (p. 308)	P		
Mintrop & Charles, 2017	T-G N	Learning community purposed to create "appropriate learning environments for students" (p. 50)	P		
Park et al., 2005	T-G D	A team may be viewed as a group of individuals who work interdependently to solve problems or accomplish tasks (p. 464)	P	S	
Pounder, 1998	T-G D	Team members have: - Interdependent relationships with one another - Defined piece of work to do that results in a product, service, or decision Self-management.	P	S	A
Pounder, 1999	T-G N	Work groups or teams are designed to increase members' responsibility for the group's performance and outcomes and to create opportunities for self-management (p. 318)	P		A
Ronfeldt et al., 2015	T-S D	Instructional team: teachers work collectively on instruction (p. 475)	P	S	
Scribner et al., 2007	T-G N	Team is created (typically through the action of formal leadership structures) and charged with solving a specific problem facing the school (p. 73)	P		
Somech, 2005	TW-G D	Teamwork is designed to create work interdependence and increased self-management, increasing members' responsibility for the team's performance and outcomes (p. 241)	P	S	A

Table 2. Continued

Authors, Year	Team/ Teamwork*	Conceptualization	Purpose	Sharing Interdependence	Autonomy
Somech, 2008	TW-S D	Disciplinary teams group together teachers who teach the same subject, such as a math team or a language team, collaborating in the development and implementation of the subject matter (p. 369)	P	S	
Somech & Drach-Zahavy, 2007	TW-G N	Teamwork ... enables a professional growth process in which teachers learn together and share knowledge and expertise (p. 306)	P	S	
Stott & Walker, 1999	T-G D	People working collaboratively and using their talents cooperatively (p. 52)		S	
Weddle et al., 2019	T-S D	Formal collaboration groups working collectively for the purpose of instructional improvement	P	S	
Weiner, 2014	T-S D	ILT (instructional leadership team) members lead by collaboratively determining the school's reform strategy, making decisions regarding resource allocation to ensure the strategy's success, and engaging others in implementing this strategy (p. 256)	P	S	A

*T= team; TW=teamwork; G=general; S=specific D=definition N=no definition

Team Effectiveness

The second set of the analysis examined the 23 reviewed studies through the lens of effectiveness, with the aim of representing both the challenges and promises of teacher teamwork in the school. It is important to note that these studies refer to a wide range of variables within different contexts and configurations. To conduct a systematic review, we adopted the three-stage model of input-process-outcome (Hackman, 1987; V. Rousseau et al., 2006) and so the variables discussed in the studies were identified and classified according to their relevant stage (input, process, and outcome). This model enables us to present a model that is broad enough to apply to different types of teams yet specific enough to be easily understood for applied and research purposes. Our threshold for including the different variables was that they were mentioned in at least three of the reviewed studies, with the single exception of external context, an input variable, which appeared in only two studies but was central to their outcomes and relevant to the model, and so we decided to include it.

Table 3. Team Effectiveness

Authors, Year	Input	Process	Output
Benoiel & Berkovich, 2017	Network managerial approach (as opposed to hierarchical approach) Team development Time allocation	Intra- and Inter-teams links	Organizational level: School improvement
Benoiel & Somech, 2016	Team composition (functional heterogeneity) Principal's boundary management (internal and external activities)		Team level: Performance Innovation
Brouwer et al., 2012a	Team composition: diversity in educational level, gender, tenure, occupational experience.	Mutual engagement (identification; multi-perspective contribution; mutual trust and responsibility; social ties.) Shared repertoire (intellectual building; regulation of interaction; role taking; dynamic effort) Joint enterprise (commitment to domain; common ground in concept; collective goal; shared knowledge)	

Table 3. Continued

Authors, Year	Input	Process	Output
Brouwer et al., 2012b	Goal setting Norm setting Role division Task related interdependence between team members	Evaluation of practices Trust Ownership (commitment to team responsibilities and tasks) Collective memory	
Bush & Glover, 2012	Setting high standards	Internal coherence and unity Internal and external communication	Organizational level: School performance
Conley et al., 2004	Design features: Motivating job characteristics Team composition Group norms Organizational context: Rewarding excellence Training and consultation Clear work requirements and constrains	Balancing inputs Coordination efforts Sharing knowledge Task appropriate strategies	Organizational level: Teaching and learning effectiveness
Crow & Pounder, 2000	Organizational Context: Rewards and objectives for the team vs. individuals Time allocation Training and consultation Clarity of task requirements Design Features: Work characteristics (e.g., skill variety, autonomy) Group composition (heterogeneity, size) Performance norms	Interpersonal processes: Coordination and commitment Sharing knowledge Task appropriate strategies	Team level: Team's effectiveness
Datnow, 2018	Time allocation Autonomy	Collective management of challenges presented by school reform Emotional support	Individual level: Coping with educational reform
Dee et al., 2006	Structure (type of team)	Teacher organizational commitment	
Lipscombe et al., 2020	Transformative shared purpose Dedicated time and space Empowered engagement with policy Principals support for teamwork	Team facilitators (leaders) Team cohesion Deep interactions between team members	Organizational level: Teaching and learning products student achievement Team level: collaborative practices Individual level: teacher knowledge
Mintrop & Charles, 2017	A stressful environment (e.g., high level of students' problematic behavior)	Problem solving capacity	Organizational level: School improvement Team level: Collective resilience
Mizel, 2009	Society and culture		
Park et al., 2005		team commitment	
Pounder, 1998	Organizational Context Rewards and objectives for the team vs. individuals Training and consultation Allocating adequate time for team meetings Design Features: Interaction with others Autonomy Skill variety Feedback Knowledge of students Interdependence	Communication Coordination Sharing of knowledge Balance of work input Performance strategies Communication with parents Motivation Team commitment	Individual level: Members' satisfaction Team level: Output Quality Capability to work together Innovation

Table 3. Continued

Authors, Year	Input	Process	Output
Pounder, 1999	Skill variety at work Knowledge of students (their educational characteristics, history, and personal life circumstances)	Professional commitment	Organizational level:
		Internal work motivation	Student satisfaction Team level: helpfulness effectiveness Individual level: Skill variety Growth satisfaction General satisfaction Teacher efficacy
Ronfeldt et al., 2015		Collaboration about instruction, students, and assessment	Organizational level: Student achievement
Scribner et al., 2007	Purpose Autonomy	Patterns of discourse	Team level: Creativity Leadership capacity
Somech, 2005		Individual empowerment Team empowerment Organizational commitment Professional commitment	Individual level: Performance
Somech, 2008	Task interdependence Goal interdependence	team conflict management style (integrating vs. dominating)	Team level: Performance
Somech & Drach-Zahavy, 2007	Frequency of meetings Composition (functional heterogeneity)	Interaction processes:	Team level:
		Exchanging information Learning Motivating Negotiating	Performance Innovation
Stott & Walker, 1999	School structure that is compatible for teamwork Linkage between teams Allocation of resources for teams Support for team development School climate: openness, trust, and participation Team focused appraisal and rewards		Team level: Effective teamwork
Weddle et al., 2019	Members' beliefs and expectations for collaboration Members professional and moral perceptions Principal's attitude toward teacher teamwork	Meaningful discussions about teaching practices and beliefs	Individual level:
		Emotional support	Discontentment
Weiner, 2014	Team members' selection criteria Clear purposes and functions Decision making authority Competitive or collaborative environment	Translating team's purpose to action.	Organizational level: Instructional reform

Input

Inputs describe antecedent factors that enable and constrain team's processes. These factors combine to drive team processes, which are directed toward task accomplishment (Mathieu et al., 2008). The literature differentiates between two groups of factors (Cohen & Bailey, 1997): Environmental factors, that refers to the characteristics of the external environment, in which the organization is embedded; and design factors, which include those characteristics of the task, team, and organization that create the conditions for effective functioning and performance of the team.

Environmental factors

Environmental factors refer to all those features of the larger environment outside of the school that nevertheless influence team functioning (Cohen & Bailey, 1997). Overall, it is important to note that only two studies identified the external environment as an antecedent that may play a crucial role in shaping teams' prospects of effectiveness; and those studies focused mainly on constraints. Mizel (2009), demonstrated how the context of an Arab/Bedouin traditional culture clashed with the concept of teamwork and prevented its successful implementation in an Israeli school. Similarly, Mintrop and Charles (2017), described the disabling effect of a highly stressful and adverse school environment on the team-building attempts in their school.

Design factors

The design dimension refers to "specification of team membership: definition and structure of a team's tasks, goals, and members' roles; and the creation of organizational support for the team and link to the broader organizational context." (Morgeson & Humphrey, 2008, p. 46). Accordingly, Mathieu et al. (2008) identified three groups of design factors: Organizational context design, team composition design, and task design.

Organizational context design: This component includes the characteristics of the school that are external to the team, but influence its functioning. It includes factors such as resource allocation, degree of formalization, and leadership practices (Ilgen et al., 2005). In the present review, eight studies refer to resources that the school dedicates for its teams as a significant factor that have a crucial impact on the team's functioning and longevity. The main resources mentioned in many of the studies were time and team-development. With regard to time, studies stressed the importance of allocating dedicated and sufficient time to teamwork, as a part of the teachers' schedule (Pounder, 1998). In particular, meeting frequency was mentioned as a time-related condition that is relevant to team effectiveness (Somech & Drach-Zahavy, 2007). The second resource indicated as significant in the school's support for team effectiveness was the team's professional development, especially training and consultation. Workshops and readings were mentioned as examples of training that has a positive influence on teachers' performance (Conley et al., 2004). The third factor was the appraisal system, which refers to the standards and rewarding systems a school sets for team members. Four studies mentioned that directing the expectations and the rewards at the team as opposed to the individual teacher, stresses the importance of teamwork and, reportedly, is not very common in school settings (Conley et al., 2004). A control and reward system that incentivizes members to put their efforts into achieving team objectives is described as beneficial for team functioning and performance (Pounder, 1998).

Team composition design: Team composition is the configuration of member attributes in a team. It includes surface-level composition variables of overt demographic characteristics, such as age or race, and deep-level composition variables of psychological characteristics such as personality or values (Bell, 2007). In general, team composition may affect the motivation, knowledge and skill that team members may contribute to the team task (Drach-Zahavy & Somech, 2001). One of the elements that was stressed repeatedly is team heterogeneity, which was mentioned by six studies as positively influencing effectiveness. Diversity of team members was mentioned with regard to surface-level composition, as gender and organizational roles; or deep-level composition of skills, occupational experience, or personal values (Brouwer et al., 2012a; Pounder, 1999; Somech & Drach-Zahavy, 2007). However, when team members differed in their attitudes and expectations from the teamwork itself, some of the members felt the team was not serving its purpose (Weddle et al., 2019). Another aspect, mentioned in the context of team composition, was team size, which may affect members' willingness to participate in the teamwork (Crow & Pounder, 2000).

Task design: Task design refers to the way in which the work is structured (Mathieu et al., 2008). First, structures that require interaction and collaboration among team members were stressed in seven studies as key to team success. Specifically, the variables of task interdependence (the extent to which team members believe that they depend on each other to carry out the team tasks effectively), and goal interdependence (the extent to which team members believe that they are assigned group goals or given group feedback) (Hülshager, 2009), that call for collaboration were found to be related to effective conflict management styles, and to higher level of team members' motivation (Conley et al., 2004; Pounder, 1998). Studies indicated the importance of establishing shared goals (goal interdependence) and shared rules of conduct (task interdependence) for promoting team functioning (Brouwer et al., 2012b; Lipscombe et al., 2020). The second element was team autonomy, which is defined as the degree to which team members perceive that they control various aspects of their missions and tasks, such as, scheduling, and planning (Somech, 2008). Autonomy was described in six studies as crucial to the team's chances of achieving a favorable outcome. For example, Scribner et al. (2007) reported the case of a team that was not granted suitable authority; its members' creativity was inhibited, and members expressed a sense of futility. Datnow noted that teams' success was positively affected by a high level of autonomy (Datnow, 2018). Finally, four studies noted the importance of clarifying the group's requirements and constraints to the team members. For example, when a principal translates the general purpose of a team into actionable goals related to instructional improvement, team performance is enhanced (Weiner, 2014). Task

constraints and the team's mandate for decision making were also mentioned as relevant preconditions for effectiveness (Crow & Pounder, 2000).

Process

Processes serve as a link that converts team inputs into outcomes. This stage refers to the interactions, acts and shared perceptions that occur within the team, as well as with external others (Ilgen et al., 2005). The team literature refers mainly to two components of processes, internal and external processes (Cohen & Bailey, 1997). Later, Marks et al. (2001) added the component of emergent states that "tap qualities of a team that represent member attitudes, values, cognitions, and motivations" (p. 357).

Internal processes: Internal processes refer to the quantity and quality of the interactions, communication, and cooperation among team members. Those processes enable teams to share information, knowledge and experience, but at the same time, to provide also assistance and support (Mathieu et al., 2008). Eleven papers that discussed internal processes, described various methods applied by teams that contribute to their effectiveness, by supporting flow and cooperation between team members, or that obstruct positive team conduct and negatively impact its outcomes. The internal processes include: Planning, communicating, coordinating, and sharing of knowledge.

The process of planning, mentioned in six studies, referred mainly to the manner, in which a team plans its strategies to achieve its goals. Developing a strategy that is clear, relevant to the task, and adjusted according to experience was found to be related to team effectiveness (Conley et al., 2004). Nine studies examined the role of communication as being related to team effectiveness in general, and to conflict management in particular. The interactions between team members, and their ability to have challenging yet supportive conversations, was mentioned as contributing to team's innovation (Lipscombe et al., 2020). In relation to conflict, a team's style of conflict management was reported to be relevant to its effectiveness. An integrating style, which takes into account the self and the other and strives toward win-win solutions, was found to be positively related to team performance, whereas a dominating style, which focuses on the self and is characterized by a win-lose approach, was negatively related to team performance (Somech, 2008). The element of coordinating, discussed in five studies, refers to role division among team members and the balancing of members' inputs, and was identified as a major factor in teachers' reports on their teamwork experience (Crow & Pounder, 2000). Coordination among team members was also found to be positively associated with students' achievements (Ronfeldt et al., 2015). Finally, the element of knowledge sharing was mentioned in six studies, referring to the extent to which team members share professional knowledge and experience with each other. Knowledge sharing has been found in the past to be related to team performance (Somech & Drach-Zahavy, 2007). In certain situations, such as social adversity and difficult school environment, teams' capacity to share knowledge and face problems together was found to be negatively affected (Mintrop & Charles, 2017).

External Processes: External processes refer to the quantity and quality of the interactions and communication with entities that are external to the team. In general, external processes enable teams to scan the environment inside or outside school for information, expertise and new ideas for improving the quality of team decisions (Cohen & Bailey, 1997). In the present review only three papers discussed external processes, as part of team's interactions and actions. For example, (Bush & Glover, 2012) found that frequent and regular communication between team members and other school staff is a prominent characteristic of high-performing teams. Benoliel and Berkovich (2017) described the links between the team and other agents in the school as promoting school change.

Emergent states: Emergent states "are shared understandings, beliefs, or emotional tone" (Marks et al., 2001, p. 357). These collective structures are dynamic in nature, and tend to change according to the context and to the team's characteristics. Ten papers refer to various emergent states: trust, unity, and commitment. Trust is defined as a psychological state comprising one's intention to accept vulnerability based upon positive expectations of the intentions or behavior of another (D. M. Rousseau et al., 1998). Three of the studies mentioned trust as a possible intermediate factor in the building of a functioning team (Park et al., 2005). Unity was the second emergent state, and was mentioned in three papers. Unity, which is the perception of the team as one collective, was noted as an important aspect of the relationships among team members (Brouwer et al., 2012b). High-performing teams were reported as acting as one united body. These teams were described as having open discussions and room for the expression of different opinions, and once a decision is made, the team presents a united front (Bush & Glover, 2012). Commitment is defined as the relative strength of the identification of the individual and his or her involvement in the team (Mowday et al., 1979), and was mentioned in eight studies. Teachers' commitment to their profession, organizations, and teams, as well as their personal sense of ownership and responsibility for the team tasks, were mentioned as important elements of team practice.

Outcomes

The outcomes of teams in schools are the result of the context and design of the team surroundings, structure, and tasks, and of the processes practiced by the team in order to achieve their goals. The outcomes reported in the reviewed studies are described below according to organizational level: the organization, the team, and the individual.

Organizational level

Nine studies that discussed organizational-level outcomes of teacher teamwork addressed the following outcomes: instructional and school improvement, and student achievements and satisfaction. Instructional and school improvement were mentioned in six studies. Teams were described as having a potentially crucial role in promoting school improvement (Benoliel & Berkovich, 2017). In one reported case of a severely stressful school environment, the development of teacher teams was relatively unsuccessful and, therefore, they were unable to contribute to a much-needed school improvement (Mintrop & Charles, 2017). Another major aspect of teacher team outcomes is the potential effect they have on students. Three of the studies reviewed here discussed team collaboration as affecting student achievements and satisfaction. For example, school-based instructional teams were shown to be related to student achievements in math and reading (Ronfeldt et al., 2015), and the implementation of teacher teams was associated with students' satisfaction with various aspects of their school (Pounder, 1999).

Team level

Team-level outcomes mentioned in nine of the reviewed studies dealt with team effectiveness, which was conceptualized in terms of performance and innovation. Team performance, which was mentioned in eight of the studies, refers to the extent to which a team accomplishes its goals and generates the intended, expected, or desired results (Chatman & Flynn, 2001). For example, in relation to instructional team members' quality of teaching and learning (Conley et al., 2004), or to the capacity of a school leadership team to lead (Scribner et al., 2007). Performance was discussed as being affected by both the principal's team-related activities and by team composition and team processes. For instance, principals' actions regarding internal team matters were found to mediate between team heterogeneity and team performance (Benoliel & Somech, 2016). Another study noted that high-performing teams are characterized by intermediate processes such as unity and communication, as well as by the input of organizational distributed leadership (Bush & Glover, 2012). Team innovation refers to the introduction or application, within a team, of ideas, processes, or procedures that are new to the team and designed to be useful (West, 2002). Innovation was discussed in five studies as a positive or sought-after outcomes of teamwork (Somech & Drach-Zahavy, 2007). For example, organizational support for teamwork and team development were mentioned as enabling innovation and creativity (Stott & Walker, 1999). The mediation that principals conduct between teams and their surroundings was also found to impact team innovation (Benoliel & Somech, 2016).

Individual level

The outcomes of teamwork on the individual teacher level that were mentioned in six studies were teachers' performance and satisfaction. Individual teachers' performance was mentioned in four studies. A high-performing teacher's behavior exceeds organizational role expectations with regards to the students, colleagues, and the school as a whole (Somech, 2005). Teacher satisfaction, which is defined as positive teacher attitudes and beliefs regarding several aspects of the job or the profession (Organ, 1990), was related to teamwork in three of the studies. In the reviewed studies satisfaction was mentioned both with respect to their job in general, and to their growth and development in their job, in particular (Pounder, 1999). Another study noted that when the core beliefs and professional perceptions of team members clash, the satisfaction of individual teachers, specifically with teamwork, may be negatively influenced (Weddle et al., 2019).

Discussion

In the past two decades, educational scholars have noted that the bureaucratic, loosely coupled structure of schools might be a crucial barrier in promoting school effectiveness (Benoliel & Berkovich, 2017), while teamwork was considered to be a vital tool for improving the quality of teaching and promoting efficiency (Chen & Kanfer, 2006). Nevertheless, despite the wide consensus regarding the benefits of integrating teamwork into schools, the present literature review reveals that what we really know about teamwork in schools is fragmented, incoherent, and inconsistent. To begin with, there is no agreement concerning the conceptualization of the terms 'team' and 'teamwork', which may affect comparability among studies. Further, there is no comprehensive picture regarding the consequences of teamwork for the individual teacher, the team, or the school as a whole. Studies refer to wide range of variables within different contexts and configurations. In order to conduct a systematic review, we have adopted the three-stage model of input-process-outcomes (Hackman, 1987), which enables us to classify the different investigated variables according to their relevant stage (input, process, and outcomes). The results of the present review contribute several important insights that may set the agenda for the next wave of research.

First, our results indicated that most studies did not offer an explicit definition of the terms team and teamwork, with respect to their meaning and nature in the school context. Each scholar referred to these concepts, according to the specific context of his or her research. For example, Ronfeldt et al. (2015) referred to instructional teams and defined them as teams in which "teachers work collectively on instruction" (p. 475). This, of course, limits the generalizability of the findings across diverse team-based organizational settings. Nevertheless, we identified three recurrent components that, according to the reviewed studies, are the 'should' elements necessary for developing teamwork: purpose, sharing and interdependence, and autonomy. The team's purpose refers to a specific or general goal to be accomplished by assembling teachers together so that they work as a unit (Crow & Pounder, 2000). Setting commonly shared goals for the team creates a unified sense of purpose and direction (Guzzo & Dickson, 1996). Defining the team's goals not only allows its members to define their tasks and the best ways to accomplish them, but may also reinforce their team identity and commitment (Crow & Pounder, 2000). The second component, team sharing and interdependence, refers to the extent to which team members tend to share experiences, knowledge, and responsibility with each other. High levels of sharing and interdependency among team members requires them to interact; they must rely on each other for information, resources, and support. Thus, when task interdependence is high, team members typically communicate often, are physically close, and support and influence each other regularly (Gundlach et al., 2006). Finally, the third component, team autonomy, refers to the degree to which the team has substantial freedom, control, and discretion both in scheduling the work and in determining the procedures used to complete it (Somech, 2008). Autonomy may increase ownership and a sense of responsibility, and enable group members to deal effectively with tasks and environmental demands by making decisions in the process of executing the job (Stewart, 2006).

The second motivation behind this integrative literature review was to better understand the link between teamwork and school functioning and success. Explicitly or implicitly, teamwork carries an expectation of enhanced effectiveness (Benoliel & Berkovich, 2017). The present review supports the notion that translating teamwork into beneficial outcomes requires more than just assembling individuals together; it requires an appropriate work environment (Input) that enhances effective work processes, which in turn promote effectiveness (Somech & Drach-Zahavy, 2007). This three-stage model posits that inputs serve to specify the requisite behaviors and processes that lead to effective outcomes (Cannon-Bowers et al., 1995). In the present review, we identified two groups of inputs: environmental factors and design factors. Only a handful of studies referred to the environmental context as a potential key factor in advancing teamwork in school. These studies, however, emphasized that teamwork is a context-related phenomenon, and so its success depends on whether the external environment's values are group-oriented, encouraging norms of collaboration and participation. Assimilating collective values is essential, especially, in the context of schools. The profession of teaching is mainly individual-oriented, and teachers are typically isolated in their classrooms with limited opportunity to interact with colleagues (Aspland, 2018).

Furthermore, the design factors, which refer to organizational context design, team composition, and task design, describe institutionalized structural arrangements that set the appropriate structure so as to encourage team members to develop constructive processes of collaboration (Drach-Zahavy & Somech, 2002). Among the different factors that were investigated, the review identified three components that consistently showed significant and positive impact: frequency of team meetings, goal interdependence, and team composition. Frequency of team meetings was identified as a basic prerequisite for collaboration: the more team members meet face to face, the more committed and motivated they are to work together toward achieving team objectives (Somech & Drach-Zahavy, 2007). Similarly, goal interdependence (i.e., setting collective and high-interdependent goals for the team) encourages teammates to communicate more often, to share, and to support each other for the benefit of the team as a whole (Pounder, 1998). Finally, team composition was found to be another crucial component that shapes the mode of interaction among team members. Team composition refers mainly to the extent to which the team is heterogenous or homogeneous. The reviewed studies emphasized the importance of team heterogeneity as a mean for enhancing the breadth of perspective and increasing cognitive resources that are crucial for improving team decision-making processes (Benoliel & Somech, 2016). Among the multiple dimensions of heterogeneity, functional heterogeneity, which refers to the diversity of organizational roles embodied in the team (Jackson, 1992), was reported to be a key structure that enables the team to translate its rich cognitive and motivational resources into productive process and outcomes (Drach-Zahavy & Somech, 2002; Somech & Drach-Zahavy, 2007). Again, this insight is important in the context of the school: although teaching has become a more complex and sophisticated profession, therefore, requiring a multiple range of disciplines, the common teamwork structure in schools is still that of homogeneous teams assembled around the subject matter (Language teams, Mathematics teams, etc.).

As for the team process, the review revealed that although scholars refer to a wide range of factors, three main categories can be identified: internal processes, external processes, and emergent states. Internal processes reflect the quantity and quality of the interactions among to accomplish the task in hand, such as coordinating, planning or dividing roles among team members. These practices facilitate the exchange of ideas and resources, and encourage open dialogue and discussion, processes that are vital for improving the quality of team decision making and functioning (Edmondson, 2002).

As to the second category of team processes - teams' interaction with their environments, only a small number of studies referred to the activities and relationships that a team might develop with its external environment (Benoliel & Somech,

2016). This aspect is crucial, because teams do not operate in a vacuum, but rather function in the context of interdependent relations with other entities inside and outside the school (Joshi, 2006). These activities are directed towards external agents, and include actions, such as upward persuasion and lobbying for resources, task coordination activities, lateral feedback seeking, and testing of solutions. Such actions aim to gain material, social, and psychological resources and to promote the team's interests for improving team effectiveness in order to gain resources (Ancona & Caldwell, 1992).

Emergent states, the third category, tap team qualities that include shared attitudes, values, and cognitions of team members (Marks et al., 2001), and include variables such as trust, commitment, and empowerment. Developing positive attitudes and significant relationships among team members shapes a positive social and psychological environment that supports core activities within the team, therefore serving as a powerful tool for enhancing team effectiveness (George, 1990).

Finally, the third part of the input-process-outcomes model refers to the outcomes of teamwork. Researchers focused on a large variety of outcomes from a multi-level perspective. Several studies examined the impact of teamwork on the individual teacher, while others focused on the team or the school level. Nevertheless, it is interesting to note that the vast majority of reviewed research addressed the advantages of teamwork, while ignoring its potential costs. Overall, the results of the present review have consistently demonstrated the positive effect of teamwork on effectiveness at all organizational levels. Specifically, at the individual level, studies indicated that teamwork has the potential to contribute both to the teacher's willingness to exhibit citizenship behaviors (Somech, 2005), as well as to positive attitudes and perceptions, such as commitment and satisfaction (Weddle et al., 2019). At the team level, teamwork may lead to higher levels of performance and innovation; while at the organizational level, it can contribute to students' achievements and satisfaction (Benoliel & Berkovich, 2017).

Conclusions

In the past two decades, a growing number of papers have focused on the issue of teamwork in school, across multiple contexts, methodologies, and samples. The objective of this review was to inventory what has been accomplished thus far and set the agenda for the next wave of research. Thus, the present review first clarifies the inconsistency of scholars in terms of the terminology used to label the terms 'team' or 'teamwork' in school, especially with regard to its nature and components. It is clear that the phenomenon of teamwork exists in a context, hence differs from setting to setting depending on the nature of the work and the organization's characteristics and expectations (Schmutz et al., 2019). Still, it is essential to promote conceptual clarity that enables us to agree on what teamwork is, and what the essential features necessary for defining a group of individuals as a team are (West, 2002).

Second, despite the theoretical and empirical evidence supporting the advantages of teamwork for promoting school effectiveness, there is an urgent need to encourage synthesis of evidence. The present literature review reveals that what we really know about teamwork in schools is fragmented, incoherent, and inconsistent. The studied models failed to distinguish between multiple types of inputs, processes, and outcomes (IPO). Same variables serve in certain studies as antecedents, while other researchers refer to them as mediators or consequences. Furthermore, prioritization of the selected variables is inconsistent, and the criteria of team effectiveness are not well specified. Scholars employed different methodological perspectives, used mainly self-report evaluations, and referred to a variety of variables at multiple organizational levels, with no systematic framework. Third, most studies used a cross-sectional design, a methodology that often raises the question of causality. Specifically, directions of relationships between IPO can be opposing, or nonlinear in nature, as in a case of reciprocal relationships. Moreover, most quantitative studies took a static perspective in their investigation of team effectiveness, and examined these relationships within a single task accomplishment period. This methodology fails to draw on the dynamic transactions among teams, which may reveal more dynamic relationships between the stages of IPO (Marks et al., 2001). Finally, although it is clear that the main agenda of research on teams is to understand their contribution to school effectiveness, it is also necessary to identify their drawbacks for the individual teacher, the team, and the school as a whole. For example, Weiss et al., (1992), showed that the transition to teamwork led to conflicts and tensions among teachers, which affected their sense of solidarity and work satisfaction at school. Emphasizing the advantages of teamwork may be, in part, a result of a publication bias that encourages researchers to examine and publish the bright side of the issues only. Expanding the outcomes criteria to potential benefits and costs may enable us to understand the comprehensive picture of the impact of teamwork in schools.

Recommendations

The present review reveals abundant opportunities to advance the study of teams in the school context so as to make highly significant contributions to both theory and practice. As a first step, future research should clarify what teamwork is in the context of the educational setting, its nature and structure; what are the essential elements that make a group of individuals a team. Second, a comprehensive model is needed so as to better understand the antecedents, mechanisms, and consequences of teamwork in schools. Greater attention should be devoted to developing a systematic cluster of variables, from a multi-level perspective, to identify the IPO of teamwork. The model should also identify the potential

boundary conditions to teamwork, highlighting the critical circumstances that may increase or decrease the impact of teamwork on effectiveness. Factors such as leadership styles or school culture and atmosphere can serve as enhancers or inhibitors of teamwork. Finally, we encourage researchers to adopt a longitudinal study design, since teamwork is a dynamic phenomenon that changes over time (Mathieu et al., 2008).

Limitations

The present review provides sufficient evidence to affirm that, in accordance with the input-process-outcomes theory, the constructive outcomes of teamwork can occur only when the organization provides an appropriate work environment (input) that enhances effective work processes, which in turn promote effectiveness (Pounder, 1998). Although this model has proven to be useful, it is important to consider its limitations (Marks et al., 2001). First, the model describes linear relationships between its three components, whereby inputs influence processes, which, in turn, impact outcomes. Obviously, this approach cannot capture all of the complex interactions that influence how a team performs. Moreover, the model fails to take into account the ongoing reciprocal relationships that may exist among these three components. For example, the outcomes of a team's processes can provide the input for its next action. Finally, we must keep in mind that most teamwork theories and models, as well as the studies reviewed here, emerged from Western culture, which naturally shapes the concept's philosophy, content, and structure. Future review may explore how different cultural contexts create unique models of teamwork in schools.

Authorship Contribution Statement

Freedman: Conceptualization, analysis, interpretation, and writing. Somech: Conceptualization and design, theoretical background, interpretation, and writing.

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