Learners' Collaboration Experiences and Perceptions of Teamwork Strategies in an Online Graduate Class

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Abstract: Collaborative teamwork has gained popularity as a vital strategy within online learning environments for constructing and negotiating knowledge. This study explores the implementation of seven distinct teamwork strategies, drawn from existing literature, in an online graduate course at a Turkish private university. It represents a single case study aimed at understanding and explaining the course's design as a collaborative learning environment and examining learners' experiences and perceptions regarding teamwork strategies in the class. Data obtained from learner interviews, document analyses, and observations revealed diverse participant perspectives on the various teamwork approaches. Sustained collaboration with consistent team members over the semester notably fostered trust and a sense of belonging within teams. While participants exhibited positive attitudes toward strategies based on shared working hours and styles, experienced graduate learners expressed discontent with the teamwork approaches. The systematic implementation of distributed leadership proved challenging, leading to team dynamics shaped largely by individual personalities and prior graduate study experiences, creating an implicit leadership structure. Additionally, peer assessment emerged as an ineffective strategy for participants driven by internal motivation and a sense of responsibility.

Keywords: Distance Education, Online Collaborative Learning, Virtual Teams, Teamwork Strategies, Constructivism.

Distance Education and Online Teams

New digital technologies, particularly the Internet and social media, have sparked diverse approaches to accommodate to the needs of 21st-century learners (Cabero-Almenara et al., 2022). Durthetimes, distance education (DE) has become the preferred choice for learners and institutions, particularly in higher education. Its learner-centric approach allows individuals to learn at their own pace, irrespective of their location or circumstances, even fostering connections between learners and instructors across different geographical regions (Murtazina et al., 2021). For introverted learners uncomfortable in face-to-face settings, online education offers a less intimidating platform with ample opportunities for active participation (Kamal et al., 2020). Additionally, online learning courses and programs provide career development prospects for full-time workers. DE tends to rapidly introduce new learning trends and technology-based opportunities. For instance, massive open online courses (MOOCs) offer personal development opportunities for millions of learners worldwide (Shah, 2020, 2021).

Social constructivist theory emphasizes the collaborative and social nature of knowledge construction, positing that knowledge is not passively received but actively built through social interaction and collaboration (Palincsar, 1998). This theory asserts that learning occurs within a social context, where individuals construct knowledge through interactions with others and the environment (Breen, 2013). Online collaborative learning plays a crucial role in the advancement

of online education. It focuses on constructing knowledge through shared ideas and understanding diverse perspectives, aiming for consensus in a digital learning context (Harasim, 2012).

This approach fosters a dynamic and participatory online learning environment, in line with contemporary educational trends. Chatterjee and Correia (2020 note that online collaborative groups foster critical interaction and engagement, crucial for effective DE environments. Research on optimizing teamwork effectiveness and identifying beneficial strategies is imperative for practitioners and researchers alike. Despite the many distinct advantages of DE for learning, challenges persist within online education courses utilizing teams and small groups. Studies indicate that interaction between learners and instructors significantly shapes learners' perception of online learning (Bolliger & Martin, 2018). Learners often experience isolation due to limited interaction in online environments (Johnson & Johnson, 2006). Consequently, dropout rates in online courses tend to be higher compared to face-to-face settings (Després-Bedward et al., 2018).

To enhance online learning effectively, it is important for both researchers and educators to focus more on interaction and collaboration (Molinillo et al., 2018). Palloff and Pratt (2007) define interaction as all forms of contact, including those between learners, between learners and instructors, and between learners and the content. While the virtual space offers various interaction methods, online courses often use different digital tools to engage students. These tools include synchronous and asynchronous discussion boards, chat boxes, bulletin activities, video conferences, and group assignments. These methods help make up for the absence of in-person contact in online teams (Romero-Hall & Ripine, 2021). Group assignments are a popular way to encourage different types of interactions in online courses (Vuopala et al., 2016). However, if instructional strategies are not applied effectively or if innovative strategies are not developed, online group work can become monotonous and boring. Such monotony can lead to a less satisfying learning experience (de Souza Santos & Ralph, 2022).

High dropout rates and feelings of isolation influence online collaborative teams (Gregori et al., 2018). Learners encounter numerous problems in their teamwork experiences, impacting their overall teamwork satisfaction. Those problems may include uneven task distribution among team members, team members engaging in social loafing, difficulty in establishing synchronous meeting times, and an opposing team climate (Morrison-Smith & Ruiz, 2020). Understanding online collaborative settings and learners' experiences within them have gained importance for online educators and administrators. Although virtual teams pose multiple positive outcomes for learners, they should be implemented cautiously since they may, in nature, present obstacles to trust-building, cohesiveness, and communication (Jony & Serradell-López, 2020). Therefore, it is essential to consider effective teamwork strategies when forming and designing online teams, in order to minimize the challenges they face. The current literature suggests that well-planned instructional strategies can significantly boost commitment and engagement in group activities (Azizan et al., 2018; Conrad & Openo, 2018).

Teamwork Strategies

Positive interdependence, group cohesion, and group composition are critical factors to consider when evaluating team performance (Beal et al., 2003; Ergulec, 2019). In this section those terms will be described and teamwork strategies related to these constructs will be explained.

Positive interdependence

Positive interdependence (PI) occurs when one person's success depends on other team members (Laal, 2013). The common goals among group members can foster motivation to achieve as a team while creating a sense of togetherness within the group (Johnson & Johnson 2018). Many teamwork strategies that promote positive interdependence have been described in the literature.

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In the present study, *distributed leadership* and *peer assessment* strategies were selected as strategies contributing to PI (Ergulec, 2019).

Distributed leadership

Distributed leadership refers to the practice in which team members share the responsibility of the team administration (Mollenkopf et al., 2020). The literature reveals that distributed leadership has been employed in educational settings as well as in corporate settings where project teams can increase the task success through distributed leadership (Sweeney et al., 2019). In groups where distributed leadership is employed, each group member recognizes their obligation to the entire team's members, leading to trust among group members (Robert Jr & You, 2018). Additionally, such collaborative teams involve in distributed leadership that can successfully create a positive collaborative climate (Drescher et al., 2014). Along these same lines, the interaction between the team members contributes to group cohesion and promotes project quality (Imam & Zaheer, 2021).

Peer assessment

Virtual teams often face challenges such as a lack of active participation and social loafing, where individuals exert less effort in a group than when working alone (Davison et al., 2014; Gilovich et al., 2006). To address these issues, peer evaluation is a useful tool. It involves assessing team members through a rubric, reflection papers, and evaluation essays, and can influence overall teamwork scores (Fellenz, 2006; Tavoletti et al., 2019). Research by Román-Calderón et al. (2021) shows that peer assessment not only reduces the incidence of low effort in teamwork but also boosts collaborative motivation, enhances team performance, and improves self-assessment skills. Additionally, peer feedback has been found to have a positive effect on both the success of teamwork and the development of teamwork skills (Andrade et al., 2020; Donia et al., 2018; Sridharan & Boud, 2019). This approach fosters a more accountable and engaged team environment, promoting better results and skill development.

Group cohesion

Group cohesion, which refers to a team's shared commitment to goals and to each other, is a key factor in a team's success (Paulus et al., 2011). This cohesion is a driving force for achieving team objectives and plays a vital role in ensuring satisfaction for both the individual members and the team as a whole (Bravo et al., 2019; Uz Bilgin & Gul, 2020). According to Matt Graham and Jones (2019), every team needs a certain level of cohesiveness to function effectively. Cohesive groups are characterized by mutual respect, a sense of belonging, and a valuation of the team (Forsyth, 2018). However, it is important to note that while high group cohesion can enhance group achievements, low cohesion can lead to conflicts, negatively impacting the team's overall success (Uz Bilgin & Gul, 2020). Therefore, fostering a cohesive team environment is crucial for both individual and group efficacy.

Moreover, Gupta and Baker (2020) found that group cohesion leads to improved group task performance and student engagement. Numerous strategies have been noted that support group cohesion within the learning environments. For instance, determining a team name, writing the team's goals, and finding a group's motto through brainstorming in the early stages of team formation have been commonly used methods (e.g. Uz Bilgin & Gul, 2020; Cheng et al.,2021).

Team building activities and ice breakers

Team building activities are essential for developing teamwork, especially in virtual teams where participants might not know each other due to distance (Klein et al., 2009). Building relationships with peers, teachers, and the online community is crucial for effective learning in such settings (Dressel, 2020). These activities are known to foster team cohesion effectively, with icebreakers being one of the most popular methods used during the team-building process (Kaushik & Zinjarde 2020; Zhang et al., 2020). They help create a more connected and cooperative team environment.

Working style questionnaires, personality tests, and learning style inventory

Virtual teams may consist of participants who work in different time zones; therefore, setting a convenient time for teamwork can be challenging for the team members. Along these same lines, submission dates of the assignments may pose another difficulty for the participants when their working styles fail to align with each other, which causes negative experiences for the group members and may hamper working effectively in the teams. Additionally, the personal traits of the participants may have an impact on the team's formation and later performance.

Several team-forming strategies, models, and algorithms have been developed to facilitate the process (e.g., Miranda et al., 2020; Sadeghi & Kardan, 2016; Tacadao et al., 2016; Zheng et al., 2018). Furthermore, implementing various tests and inventories such as working styles questionnaires, learning styles inventories, and personality tests have been experimented with in forming groups when participants do not know each other. Such questionnaires can include questions that reveal learners' available times for teamwork and their working styles (i.e., deadline-oriented or procrastinators) (Ergulec, 2017). Previous research emphasized that participants, upon encountering a team formation strategy that solicited their preferences via a questionnaire, later expressed satisfaction with the teamwork once they actively participated in it (Kyprianidou et al., 2012).

Team charters

When groups are formed, it is of paramount importance that team members have an opportunity to understand each other's perspectives on the assorted tasks of the group (DiazGranados et al., 2017). Team charters can be defined as the tools that have been employed immediately after the formation of the groups, which enables team members to brainstorm ideas and reach a consensus regarding the goals, expectations, and norms of the teams (Barron, 2000). A team charter can include information regarding team name, mission, common goals, and arranged team meeting schedule. When the participants decide on the team's mission with a straightforward task and set the group's goals, they work more effectively (Zasa & Buganza, 2023). With the implementation of the team charters at the start of the teamworking process, learners feel a commitment to their teams and become aware of the expectations of the other group members; additionally, working together to form a team charter builds a positive learning experience for the participants of the team (Aaron et al., 2014).

Group Composition

Group composition refers to the characteristics of the members of a team (Hackman & Wageman, 2004). Elements that relate to group composition include group size, the duration of the group's work, personality characteristics of the individuals, and gender of the participants.

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Team size

The number of team members is an essential component of group composition; however, the ideal number of members can vary depending on the type of task, the participants' age, and the context or setting (Karriker et al., 2017). The number of team members is an essential component of group composition. Keeping the group size small is recommended (Yukselturk & Cagiltay, 2008; Wheelan 2009). Large group size can lead to social loafing and negative group conflict between the participants.

Group diversity

The homogeneity and heterogeneity of online teams may influence the participants' interaction styles and the team's ultimate performance. The participants' cognitive skills, culture, and working habits are among the determinant elements of the homogeneity of the teams (Younis, 2019). Gender can also have a significant impact on the quality of teamwork in online courses. Research has shown that there are gender differences in online behaviors and course performance (Lowes et al., 2016).

Duration

Team development processes for face-to-face and virtual teams can be quite distinctive. Unlike with face-to-face teams, long-term virtual teams tend to form through a sequential team development procedure (Haines, 2014). Team members' sense of belonging tends to increase over time which is also quite crucial as they can solely interact through computer mediated tools (Haines, 2014). The duration that members work together is reported as a positive influence on teamwork satisfaction (Zwikael & Unger-Aviram, 2010). When team members meet frequently, their sense of trust in team members and emotional support increase, which also contributes to teamwork satisfaction (Handke et al., 2020).

Personality of the team members

Ford et al. (2017) suggest choosing team members depending on their personality types. Even though there is a lack of consensus on which personality types fit each other to work effectively, it has been found that personality traits and teamwork have been widely discussed themes in the literature (Rhee et al., 2013). Extraversion, conscientiousness, and agreeableness are among personality traits that influence team dynamics (Kelsen & Liang 2019; Kramer et al., 2014).

A review of existing literature reveals a significant focus on effective teamwork strategies, particularly in the business and medical sectors (Reeves et al., 2017; Rosen et al., 2018). However, studies examining online collaborative learning and group work, such as those by Benning (2022), Chang & Kang (2016), Tseng and Yeh (2013), Ergulec (2019), and Wilson et al. (2017), have mainly centered on specific aspects like team achievement and group formation strategies. They often prioritize face-to-face group interactions. This highlights a research gap in understanding teamwork strategies in fully online graduate courses, where the needs and experiences of learners might be distinct. This study aims to bridge this gap by addressing the following research questions:

1. When teamwork strategies are implemented in online education, how do learners describe their teamwork experience?
2. How do they perceive the benefits of online teamwork?
3. What challenges do they encounter when engaging in online teamwork?

Method

This single case study aims to comprehend the design of an online graduate course and explore students' collaborative experiences and insights within the collaborative teams. A single case study is a research design focused on deeply investigating a specific case, which could be an individual, a group, an event, or, in this instance, a single online course (Lazar et al., 2017). The purpose is to extensively examine and understand the details and dynamics of a particular case. In this study, the aim is to gain a comprehensive understanding of the design of the online course and to delve into the experiences, perceptions, and interactions of students involved in collaborative teams within this specific educational setting.

Participants

The study was conducted in a Turkish, non-thesis distance education program; therefore, some participants of the study were from different regions of Turkey. Thirteen individuals participated in the study. The participants were all teachers working in a private charter school in Turkey. The demographic info of the participants is illustrated in Table 1.

Table 1. Demographic Information of the Participants.

Participant	Gender	Teaching Areas
P1	Female	School Principal
P2	Female	Science
P3	Male	Music
P4	Female	School Principal
P5	Female	Music
P6	Female	English
P7	Female	Primary School
P8	Female	Pre-School
P9	Female	Pre-school
P10	Female	Primary School
P11	Male	PE group leader
P12	Female	School Principal
P13	Female	Primary School

Setting

The current study was conducted at a private university in İstanbul, Turkey, and employs a single-case approach to examine participants' experiences within an online graduate course. An online graduate course in the field of educational technology was selected to collect the data for the study. The course was a three-credit, fully online, 14-week course delivered in the Turkish language. The content of the course includes the fundamental elements of the educational technology field. In this course, there were three graded assignments; in addition, there were two other tasks required for course completion that were not graded. For the assignments, teamwork was obligatory. Apart from teamwork, each student had individual presentation assignments related to the educational technology field. They participated in weekly discussions asynchronously. A description of the teamwork assignments is provided in Table 2.

Assignment 1: Definition of the Field: Teams were supposed to define the educational technology field within the scope of their area of teaching. They brainstormed and created a visual as a product.

Assignment 2: Learning Theory Matrix: Teams described learning theories within their workplaces and created a matrix to illustrate how these strategies could be implemented in the field.

Final Assignment: Systematic Literature Review: For the final assignment, teams wrote a systematic literature review about a topic in the educational technology field. The assignment had sub-tasks which were supposed to be completed throughout the semester. Subtasks included a research proposal and an annotated bibliography.

Table 2. Course Assignments and Their Weights.

Team Assignments	Individual Assignments
Definition of the Field 15%	Weekly Presentations 10%
Learning Theory Matrix 15%	Weekly discussion boards 13%
Systematic Literature Review 42%	
-Research Proposal	*+ participation 5 %*
-Annotated Bibliography	

Design

Utilizing the research on the importance of positive interdependence, group cohesion, and group composition for effective teamwork performance (Ergulec, 2019), seven teamwork strategies were selected that were aligned with the learning objectives, learner needs, and the overall context of the course. Next, the course syllabus was redesigned with the instructor of the course. Teamwork assignments were included in the course design, which impacted the final grades of the participants.

To meet these team collaboration goals, each week, the participants met via Microsoft Teams for two hours or more of lessons. Learners were assigned weekly readings about educational technology, and they discussed the reading materials asynchronously on a discussion board in the learning management system. During the class hours, breakout rooms were created consisting of 3-4 members to discuss the week's topic. Students were given presentation tasks as individual assignments. Additionally, they were assigned three assignments and two subtasks in which they were supposed to work in teams. The weekly procedures are detailed in Table 3.

Table 3. Weekly Procedure.

Week	Teamwork Strategies	Assignments
1	Ice-Breakers	
2	No Teamwork	
3	Working Style Questionnaire	
4	Forming groups- Creating a team charter	
5	Peer Assessment- Teamwork experience report	Assignment 1 (Definition of the Field)
6	In Class Breakout room sessions	
7	In Class Breakout room sessions	Research Proposal
8	Peer Assessment- Group Reflections	Assignment 2 (Learning Theory Matrix)
9	In Class Breakout room sessions	
10	In Class Breakout room sessions	

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11	In Class Breakout room sessions	Annotated Bibliography
12	In Class Breakout room sessions	
13	In Class Breakout room sessions	
14	In Class Breakout room sessions	
Final	Project Presentation-Peer Assessment and Group Reflections	Final Assignment (Systematic Literature Review)

Description of the Teamwork Studies in the Case

As detailed in Table 4, seven teamwork strategies were chosen from the literature, corresponding to components of team cohesion, team composition, and positive interdependence, all of which have been reported as elements of effective teams. The teamwork strategies selected were aligned with the learning objectives, learner needs, and the overall context of the course. Next, we needed to eliminate some of the strategies that were revealed in the literature and chose the most usable and suitable ones for the context of the course.

Table 4. Teamwork Strategies.

Components	Related Strategies
Positive Interdependence	• Distributed Leadership • Peer Assessment
Group Cohesion	• Team Forming Activities/ Ice Breakers • Team Charter • Working Styles Questionnaire
Group Composition	• Small Team Size • Duration

Icebreaker Activities

In the first week of the course, the researcher sent an introductory post. In addition, the other participants introduced themselves with the following elements: profession, years of experience in the profession, term in the master's program, areas of interest and hobbies, and expectations for the course.

At the conclusion of their posts, participants were prompted to share something distinctive about themselves, such as a quote, an illustration, or a piece of music. This request aimed to cultivate mutual knowledge and intersubjectivity, which denotes the shared understanding between individuals in communication. (Dennen, et al., 2023). Additionally, participants commented on two of their classmates' posts whom they perceived had similar interests and personalities. As an additional means to foster a sense of community in this online course, participants were requested to add profile photos.

Working Styles Questionnaire

To facilitate group formation, a working style questionnaire was used. Questions in this instrument aimed to determine participants' available times for teamwork, their working styles, and their tendency to procrastinate. The selection of these questions was based on Ergulec's (2017) dissertation study on students' collaboration experiences of a purposeful group assignment strategy and team building in an online graduate class. During Week 3 of the course, the students were provided with this questionnaire. In total, fourteen students completed it, though one student declined to participate in the study. Using the team forming criteria outlined in Ergulec's (2017)

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study (See Table 5), participants were then assigned to groups. The assignment to teams was based on their availability for teamwork, inclination to procrastinate, and inclination to assume others' responsibilities within the group. Pseudonyms were assigned to the teams by the researchers to emphasize the team-forming criteria and were referred to by these names throughout the rest of the study. Team members themselves chose different names. Items related to participants' field of teaching and participants' technology expertise were given lower priority.

Table 5. Team Forming Criteria Based on Questionnaire.

Participants	Team	Forming Criteria
P1	Acquainted Team	
P2	Acquainted Team	Teachers who shared their preference to be in the same group based on where they work.
P3	Acquainted Team	
P4	Ambitious Team	
P5	Ambitious Team	Similar working styles, available hours, and icebreaker interaction, where they responded each other's posts in the icebreaker activity.
P6	Ambitious Team	
P7	Ambitious Team	
P8	Similar Team	
P9	Similar Team	Similar working hours, teaching fields and deadline orientation
P10	Similar Team	
P11	Disparate Team	
P12	Disparate Team	No match (participants have diverse available times, from different teaching fields)
P13	Disparate Team	

Team charter

In Week 4, the participants were informed about their groups. During class time, participants and the researcher had a Zoom meeting. The researcher told the participants which components they could include in their team charter. A pre-designed team charter form was shared with each team, and they were assigned to breakout rooms with their team members to discuss and fill out the team charter form. Participants decided on a team name, and they wrote their mission and goals of the team, the expected meeting days, and sanctions for non-contributing team members. After 20 minutes of discussion, participants joined the main room again and shared their team charters with the researcher. Throughout the entire semester, the same team members worked together on four assignments in total and in class-breakout room sessions.

Peer assessment and teamwork reflections

After each teamwork assignment, team members evaluated their teammates with a rubric. The rubric was given as an obligatory assignment for the completion of the tasks. Each peer assessment had a 3% contribution to the student's final grade. Also, participants wrote teamwork reflections to share their teamwork experiences, answering questions about their concerns, expectations, and satisfaction level related to the teamwork. These reflections had a 5% contribution to the final

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grade of the learners. The teamwork reflections were also used as a data source for the document analysis.

Distributed Leadership

A distributed leadership strategy was utilized to reduce social loafing and hinder the creation of a team leader who dominates the other team members' decisions. For that strategy, an item was included in the team charter. Team members wrote their names for different teamwork tasks as initiators of the teamwork and group meetings. Each member was expected to take the role of initiator. However, in practice, participants were inclined to follow the order they planned in the charter.

Team Size

There was an uneven number of participants in the class; as a result, groups with 3 to 4 learners were formed.

Duration

The participants worked together for every team assignment and never changed groups. In addition, in Week 6, team members started to work together in breakout room activities. In Breakout room activities, they were engaged in the tasks about the weekly readings. Before attending class, the students were supposed to read the articles or book chapters assigned to the team as well as participate in the discussion board in the LMS. Having discussed the topics in the discussion boards, they participated in in-class breakout room sessions as well.
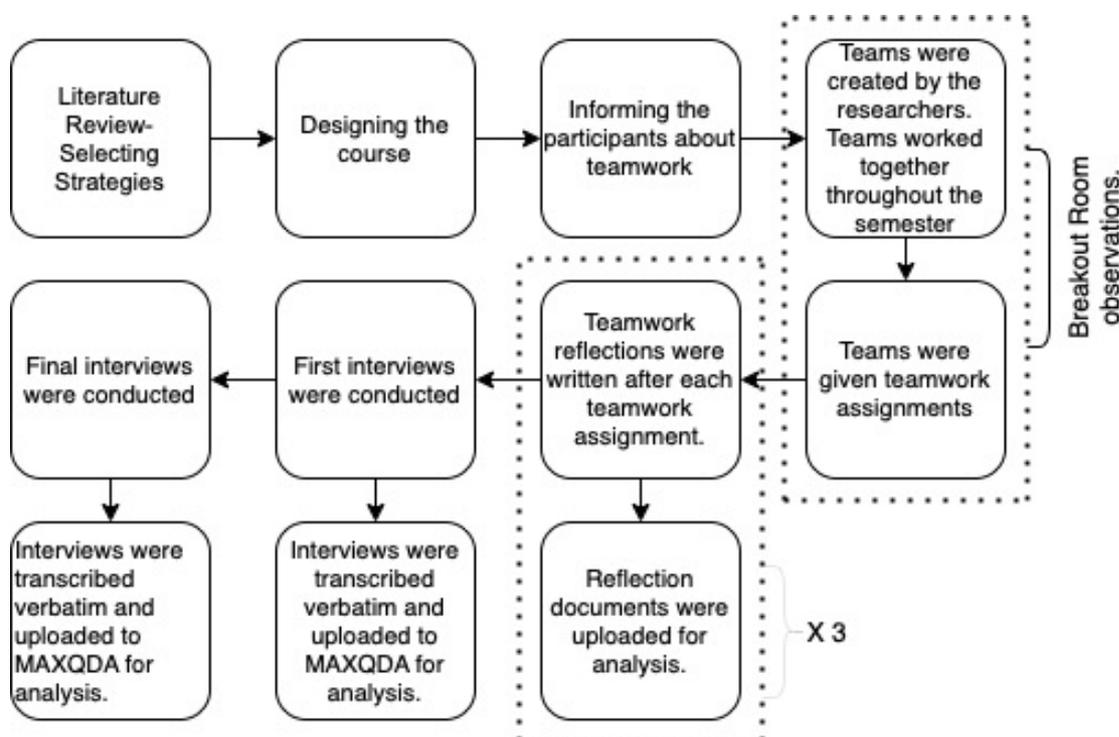
Research Procedure

Figure 1. Research Procedure.

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Data Resources

Qualitative Inquiry was used in the present study. After all the data was collected through interviews and documents, folders were uploaded to MAXQDA Analytics Pro software for analysis. The initial interviews took place right after the first group work assignment from a member of each team in order to have an initial glimpse of team experiences. They were asked about their ideal teamwork environment, their teamwork meetings, difficulties encountered, and their team products. Final interviews were conducted at the end of the semester wherein all the participants were interviewed about their overall teamwork experiences. The teamwork reflections that they wrote after each teamwork assignment was also used for document analysis. Groups were observed during the synchronous breakout room sessions. The Thematic Analysis method introduced by Braun and Clarke (2006) was used to analyze the findings.

All data were categorized and reread for better comprehension. Both inductive and deductive coding was utilized for the analysis. Inductive coding was employed for understanding the additional codes that emerged from the data, and deductive coding was used for the teamwork strategies used for the present study. Having completed the coding process, codes were categorized depending on the relations with the codes, and new categories were created. In reviewing these different categories, several themes were generated. Finally, the findings were reported by using excerpts from the documents.

To ensure trustworthiness, the verbatim transcription method was implemented. The researcher listened to participants' interviews and transcribed them word by word during the transcription process. Member checking was used after transcription of the interviews to validate participants responses and ensure research accuracy. Member checking, also known as participant or respondent validation, is a crucial instrument in ensuring the quality and credibility of qualitative research. It involves the process of seeking feedback from participants to validate the accuracy and credibility of the research findings (Birt et al., 2016).

Transcription folders and analyzed data were sent to the participants to ensure that the researcher did not include her personal bias and transcribed the interviews clearly and objectively. In addition, an independent researcher checked the codes that emerged from the data. Additionally, audit trails were used by the researchers throughout the analysis process. Validity and reliability were enhanced by using the triangulation method. Various data collection methods, including interviews, observations, and document analysis, were used in the research process.

Findings

The first research question asked: When teamwork strategies are implemented in online education, how do learners describe their teamwork experience? The findings for each teamwork strategy are summarized below in Table 6.

Table 6. Team Strategy Themes.

Strategy	Categories	Themes
Working Style Questionnaire	Concerns	Breaking Down the Prejudices
	Sense of Relief	
Team Charter	Time	Commitment to Team Procedure
	Unity	
	Internal Motivation	Non-Binding Team Charter
	Flexibility	
Peer Assessment	Task Motivation	Increased Motivation and Fair Assessment
	Evaluation	
Distributed Leadership	Single Leadership	Failure of Distributed Leadership
	Different Personality	
Team Size	Commonalities	Team Unity
	Similar Perspective	
Duration	Satisfaction	Team Familiarity & Product Progress
	Progress	

Working Styles Questionnaire

Breaking down prejudices refers to the participants' altered opinions regarding working in designated teams. All study participants were teachers from various subject areas. Consequently, their primary concerns involved collaborating with teachers from different grades and subject fields. At the initial stages of team formation, they harbored significant concerns and biases about their respective teams. For instance, during class interactions, one of the researchers observed that within the initial weeks, students expressed disinterest in collaborating within their assigned team due to their divergent interests and availability. For instance, participant #13 mentioned "lack of time due to family responsibilities outside of the class time." Participant #11 shared having "different subject area of teaching" as a reason for lack of her interest working in her assigned team.

As they collaborated, their apprehensions eased, even within the Disparate Team, which comprised diverse members. Participant #12 expressed, "I had concerns; we were different, from different fields." Working in teams to complete assignments sparked fears for participants in other teams too. Participant #8 shared, "After the pandemic, I got used to being isolated; I questioned why I had to work in teams." Yet, as they continued working together, their concerns diminished. Reflecting on their initial worries, Participant #4 observed a transformation from concerns to satisfaction, stating, "...initially, being part of a team caused a lot of anxiety, but cooperating and sharing responsibilities had a positive impact on us. We're pleased with both our interaction and collaborative work."

Team Charter

Two themes arose from the implementation of the team charter strategy: (1) "commitment to the team procedure" and (2) "non-binding team charter." "Commitment to the team procedure" indicated participants' heightened dedication to their teams guided by the agreed-upon team charter. Some teams strictly adhered to their predefined rules: "Our pre-determined rules were to meet at around 9-10 at night. And we have always followed this rule" (P11).

Moreover, the team charter's impact on team identity is evident in how participants embraced their chosen team names. For instance, once they named themselves "Ambitious Team" as part of the charter process, they began to refer to themselves with pride and a sense of belonging. Participant #4 from the Ambitious Team expressed, "As members of Ambitious Team,

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we always prioritized our team success." However, not all responses to the team charter were positive. Those with high self-motivation sometimes viewed the charter as superfluous, as evidenced by Participant #12's comment: "If we didn't have a team charter, my work approach wouldn't change."

Distributed Leadership

"Failure of distributed leadership" emphasize the difficulties the students encountered in rotating leadership roles for different assignments. It was observed that certain team members, not the designated leaders, naturally assumed leadership roles based on their personalities. These "invisible leaders," often perceived as perfectionists, dominant, or over-controlling, inadvertently took charge of their groups. Despite their somewhat strict approach, their leadership was viewed as effective in ensuring timely completion of tasks. Participant #9 shared: "Our team leader was [Participant 8] …Even with her dominance, she constantly put us under pressure, and luckily…we were able to submit our homework on time." Another element impacting leadership dynamics was the team members' prior academic experience. Specifically, those with master's degrees frequently emerged as unofficial leaders. This often resulted in dissatisfaction among the appointed leaders and led to an uneven distribution of tasks within the team. Participant #2 highlighted this issue: "It's about being familiar…in our assignment, simply reviewing the literature. They say you can handle this because I had a master's degree."

Peer Assessment

The key theme identified from the peer assessment strategy was "objective assessment and motivation." This theme highlighted how peer assessment influenced participants' motivation levels, leading to varied perceptions. Participants who were intrinsically motivated viewed the strategy as less effective. For example, Participant #2 expressed, "In other words, how my other friends would evaluate me was ineffective." She added, "I already have a responsibility; I acted with this awareness." Meanwhile, Participant #3 suggested the potential benefits of anonymous peer assessments, stating, "If there was an opportunity to evaluate at the beginning of the process, but if this evaluation was done anonymously, I think it would be a little more suitable for our culture." This observation is corroborated by the peer assessment documents of the Acquainted Team, which revealed a tendency among participants to award high grades to their peers regardless of their actual contribution to the teamwork.

Team Size

The "team unity" theme underscored participants' appreciation for smaller team sizes, finding them beneficial for fostering harmony and building consensus. The reduced size notably minimized conflicts, a crucial aspect in a setting where participants juggled busy work schedules. Smaller teams were particularly favored for their ease in scheduling synchronous meetings. Participant #6 explained, "I think a three-membered group is effective. Because it is tough to find a common time with four people."

However, transitioning to the challenges, a notable drawback of smaller teams was the increased workload per member. Participants felt that in larger groups, tasks would be more evenly distributed. Participant #8 highlighted this by saying, "If we were four people, I think our duties would have been even lighter." This observation suggests a trade-off between coordination ease in small teams and workload distribution in larger ones.

Additionally, the data revealed that small team sizes could limit exposure to diverse viewpoints, crucial for comprehensive understanding and innovation. Participant #11 advocated for larger groups: "I would like to increase the number of members and work with groups of five

people. The reason is that a different eye can see a different perspective." This comment highlights how team size can expand the spectrum of ideas and approaches, enriching the team's collaborative work.

Duration

The "team familiarity and product progress" theme highlighted participants' familiarity with their team members and its impact on enhancing performance in assignments. As participants grew acquainted, they expressed satisfaction with their collaborative work: "I felt that my self-confidence had improved a bit. When we came to the end of the term, especially in this final assignment, everyone was comfortable with what to do and what path we would follow" (P5). However, Participant #10 expressed a drawback, mentioning a preference for working with different individuals during online breakout room discussions. She noted missing the opportunity to learn from diverse participants: "There were people in the group that we called 'wow, outstanding students' who knew a lot in the course, and I would like to come to the same group with them."

Additional Themes

Apart from teamwork strategy themes, additional themes emerged from the data, providing a clear understanding of participants' experiences, and explaining research questions. These themes are summarized in Figure 2.
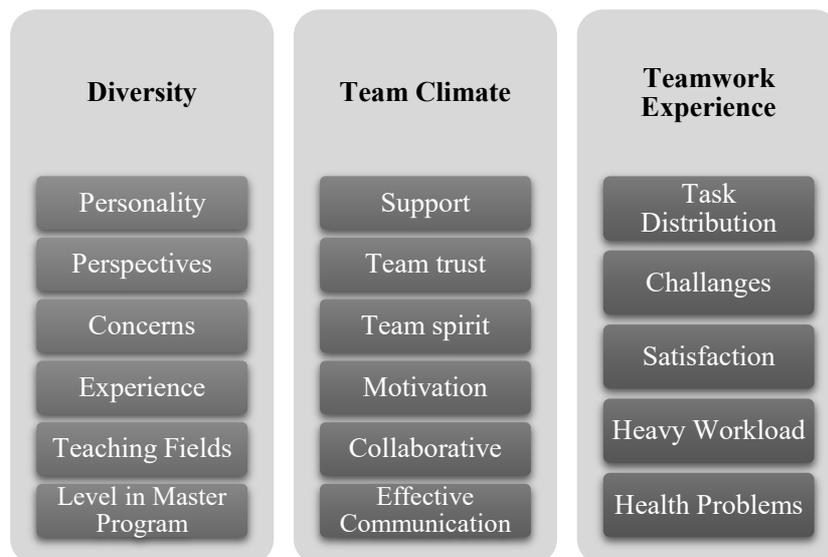

Diversity	**Team Climate**	**Teamwork Experience**
Personality	Support	Task Distribution
Perspectives	Team trust	Challanges
Concerns	Team spirit	Satisfaction
Experience	Motivation	Heavy Workload
Teaching Fields	Collaborative	Health Problems
Level in Master Program	Effective Communication	

Figure 2. Additional Themes.

Team Diversity

This theme refers to participants' perceptions of working with team members in a master's program from different cohorts as well as different teaching fields, perceptions, and personalities. These components influenced participants' teamwork experiences.

Although participants were assigned to teams based on commonalities such as their available times, working habits, and due date orientation, some diversities remained in the groups. Working with members from different cohorts created a sense of relief for the first-year students, whereas second-year or second-semester students shared their dissatisfaction with the situation, as they were more experienced and knowledgeable regarding how to conduct research. They were

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obliged to take on more responsibilities, stating they had to shoulder more responsibility as other team members did not know what to do in the last assignment. Participant #4 shared:

> The greatest difficulty I had in this team was that my friends were going to write a thesis proposal from other courses for the first time. They had just taken the Ethics Course and were still learning how to do it…this is my only negative experience because we couldn't work on the same project for a long time due to their responsibilities. I would recommend a team forming strategy based on levels.

The fact that the team members were also from different teaching fields seemed to help them develop different perspectives and contributed to teamwork products. According to Participant #4, once again, "Maybe it was better to be from different teaching fields to hear different perspectives." Additionally, participants' general abilities such as speaking English, degree of technology expertise, and being good at spelling rules and presentation skills compensated for participants' personal weaknesses and helped promote their product creations. According to Participant #8:

> In the group, for example, [Participant #10] was writing very well, I was putting it together well, but for example, [Participant #9] gave us positive energy. Just so you know, people shouldn't say that I had a significant role in this assignment; in fact, we all contributed.

As exemplified in the previous quote, the participants attributed certain positive personality traits to their team members, finding them a crucial element for a positive teamwork experience.

Team Climate

This theme refers to the team's characteristics rather than individuals in terms of collaboration, motivation, trust, and communication. Although similar strategies were implemented in the teams, their way of perceiving and implementing them differed. Interview data revealed that all the teams worked collaboratively. As noted in the following quote, only the Acquainted Team reported a social loafer team member and complained about uneven task distribution: "…In other words, we did it, but I feel like someone else also benefited from our effort." (P1)

Participants who were generally content with the fair task distribution stated that they had a productive team environment. As Participant #4 put it, "In general, we have become a moderate and cooperative group." It was also revealed that participants developed positive attitudes towards each other. "Every time we got together, apart from our teamwork assignment; we went into a conversation mode; I think we loved each other very much (P12)."

Teamwork Experience

This theme revolves around participants' perceptions of the benefits and challenges encountered during teamwork activities. Analysis of the interview data indicates a general satisfaction with the overall experience of working in teams. More specifically, participants noted that they learned from one another and gained an appreciation for different viewpoints, which they found beneficial. For instance, Participant #4 shared, "We had a working experience in which everyone acted together and took responsibility, ready for communication and sharing. We improved themselves in the process."

Supporting this positive outlook, synchronous class observation provided further evidence of these benefits. In the final online class meeting, Participant #3 expressed gratitude towards his group members for their support. He mentioned being a music teacher; he was initially unfamiliar

with completing paper-based assignments. Yet, he acknowledged, "thanks to my group members, I could learn and contribute in a better way." This highlights the collaborative learning and mutual support that characterized their teamwork experience.

Additionally, teamwork experiences reduced their isolation in distance education. Participant #10 stated, "Even though my group mates were far away, their motivating behaviors always made me feel like we were face-to-face in the same class." Some of the key perceived benefits of teamwork are summarized in in the quotes found in Table 7.

Table 7. Teamwork Benefit Elements that Emerged from Data.

Teamwork Benefits	Participant Quotations
1. Learning from others	"Maybe it was better to be from different fields to hear different perspectives... The perspectives of different field teachers are different. I put forward an idea; other team members think different; this enriches me, and I like it." (P12)
2. Socializing	"I became socialized and learned other points of view. I have seen different practices of friends from different disciplines." (P4)
3. Benefiting from others	"Ideas are respected within the team, and we contribute to the learning process by making explanations to each other on the issues we are stuck with." (P12)
4. Supporting each other	"The motivation we provided to each other, our support, our support for each other when we need… You know, all of these were very good things." (P3)
5. Positive team climate	"I think we are a cohesive and sharing group. It was nice to work with a focus on improving and contributing to our work." (P7)
6. Finding solutions together	"…You would see a very solution-oriented group…I would say that we can find solutions very easily." (P10)
7. Reduced feeling of isolation	"Even though my group mates were far away, their motivating behaviors always made me feel like we were face-to-face in the same class." (P10)
8. Reduced workload	"At first, we shared the three learning theories among ourselves and divided the work. This made our job easier in terms of time." (P2)
9. Networking	"The greatest satisfaction was meeting many new people and learning many new things from them." (P9)
10. Self Confidence	"I can't say that I was very active in group work at the beginning, but I can say that I realized my own strength thanks to the support of my group friends." (P5)

When it comes to challenges, participants frequently cited their heavy workload as a significant issue. All participants dedicated extensive hours to their workplaces, leading to delays in synchronous meetings due to their professional commitments. Participant 4 expressed, "As group members, each of us lives in different cities and under different conditions, sometimes we have difficulties in arranging our meeting times."

A team formation criterion based solely on participants' preferences resulted in a dissatisfactory teamwork experience for one group. The Acquainted Team, formed according to these preferences, shared their challenges regarding fair task distribution. Participant #4 shared:

> I think the preferences should not be considered; groups should be formed completely based on the personality. I think that relaxed people can be put in a group, and those responsible can be put into a group. So, preferences should be ignored.

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Overall, each group conveyed their unique experiences with teamwork. Their heavy workload and health issues posed challenges in finding suitable synchronous meeting times. They also mentioned that through teamwork experiences, their workload lessened, and they could learn from others. Key teamwork challenges are summarized in Table 8.

Table 8. Teamwork Challenges that Emerged from Data.

Teamwork Challenges	Participant Quotations
1. Absent teammate	"At first, we were four people, but one person never participated in the meetings. We've never even met her." (P10)
2. Uneven task distribution	"…So I don't think that collaboration was as it should have been. We couldn't obey task-sharing we did in the beginning. I don't think it's quite equal." (P2)
3. Scarce synchronous meetings	"In fact, in this last assignment, we met only once. I don't think it was satisfying." (P2)
4. Busy schedule	"In group work, my only concern was the busy schedule of the teammates." (P11)
5. Health problems	"We could not get together from time to time due to illness or workload." (P4)
6. Finding a common meeting time	"That not everyone is available simultaneously causes delays in tasks." (P2)
7. Inexperienced teammates	"… 'how to write a thesis, write a citation with APA. It can be a bit tiring to come across a team stuck with these concepts or that concepts are not understood yet." (P11)
8. Not following the syllabus	"If we had followed the syllabus and started the project much earlier, it was clear from the beginning of the course that the instructor would ask us for such an assignment. So that's the only thing we missed. I think I will pay the most attention to this in the next group work." (P11)
9. Social loafer teammate	"We were 3 people, but we took more responsibility with my other teammate." (P2)

Discussion

This study investigates how online learners in a Turkish private university's educational technology course navigate teamwork strategies and experiences. It delves into the perceived benefits and challenges encountered within these collaborative endeavors.

The participants of the study were assigned to their teams with a working style questionnaire. The findings suggest that learners needed flexibility regarding their team members choices. At first, they desired to be more flexible while selecting team members and worried about not being able to choose their team members. These concerns appeared to arise from social interdependence, which refers to social circumstances in which people share common goals and depend on each other for their successes and failures (Johnson & Johnson, 1989).

The socially interdependent nature of the collaborative teams raised many issues and concerns (e.g., social loafing, absent teammates, negotiating viable meeting times, inexperienced team members, etc.); nevertheless, as the learners spent time together, they built a sense of trust and friendship that ameliorated the worries and prejudices against working in a formed team. Correspondingly, Kyprianidou et al. (2012) found that although team members in a face-to-face setting had some hesitations at first, groups formed based on participants working styles and available times reached a positive teamwork experience. In accordance with Ergulec's (2017)

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findings, learners shared positive experiences regarding the questionnaire. Given that the participants of the study consist of teachers working full-time and also have family responsibilities, they greatly benefited from the team-forming strategy. Prioritizing childcare, housework, and time zone elements is especially important for adult team members (Feitosa & Salas, 2021).

Team charters are crucial in forming teams and guiding them to agree on work processes and shared objectives, essential for collaborative success, as noted by Cox and Bobrowski (2016). The research indicates that team charters effectively encourage learners to adhere more strictly to scheduled meetings and foster a stronger sense of team belonging. This aligns with findings from Johnson et al. (2021), who also observed similar outcomes. Additionally, Aaron et al. (2014) highlighted that team charters serve as a strategy for promoting mutual understanding of team functions, while simultaneously enhancing learner accountability. However, it is also important to note that team charters appeared less effective for teams where intrinsic motivation was the primary driver for task completion.

Items for the team charters should be written based on the target age groups, and the charters should be considered as strategies for increasing team belonging. The findings demonstrate the significance of internal motivation for binding the team rules. If learners feel responsible for their team members, they are inclined to behave conscientiously about the shared goals and teams' missions.

Even though participants planned leadership schedules, natural leadership occurred in the teams. The personality of the team members was a key reason. Dominant, perfectionist, and controller participants were the leaders of the groups. Such findings parallel a study from Yukselturk and Cagiltay (2008) which argued that systematic, more experienced, and supporter participants were invisible leaders of their teams. Similarly, Chang and Kang (2016) reported similar characteristics of invisible leaders of online teams. Even though single leadership reduces team chaos, it can cause a failure of collaboration. However, as Novoselich and Knight (2019) stated, artificial leadership determined by the team charters could distort the natural flow of the team process and lead to negative consequences rather than an effective teamwork experience.

Peer assessment contributes to team members' self-regulation of their learning processes, and, as Nicol and Macfarlane-Dick (2006) found, learners feel more responsibility for team member learning. Notably, our findings suggested that while learners completed the peer assessment rubric, at the same time, they became aware of their own contributions. Thus, the peer assessment rubric promoted self-assessment instinctively in parallel with Sridharan and Boud's (2019) findings which indicate that peer assessment mediates the self-assessment abilities of the team members and overall team efficacy. Learners who expressed high intrinsic motivation and responsibility expressed concerns about the effectiveness of peer assessment; however, they indicated their team effort and success would not change. Such responses contradict the study from Andrade et al. (2020), in which participants displayed high scores in teamwork with peer assessment. Given the findings revealed in the present study, team dynamics that lead to such consequences must be examined. As Vu and Dall'Alba (2007) suggested, learners may consider reporting a social loafer team member as betraying their team members, and, therefore, they tend not to express their genuine opinions.

Small team size increased the opportunity to find a common meeting time that suited everyone. Also, it reduced team conflict and social loafing. In effect, we found similar results to the previous studies of Yukselturk and Cagiltay (2008). One of the drawbacks was fewer perspectives and a limited number of ideas represented in their teams due to the small team size. On the other hand, smaller team sizes led to reduced intragroup conflict; stated another way, a limited number of perspectives represented in the groups hastened them to reach a consensus.

Masih (2021) suggests that teams expect team cohesion and trust as they spend time together. In effect, team members developed friendship and confidence when they worked together on teamwork assignments. In terms of benefits and challenges of working in teams, they create an opportunity for the learners to engage in knowledge building and learn from their

teammates by following the path of social constructivist theory emphasizing the interaction between small groups and teachers (Johnson & Bradbury, 2015). Different perspectives were clearly a team-fostering element rather than a source of conflict in the present study. Learners not only learned course-related knowledge but also learned how to work together and gain perspectives and insights from their teammates from different teaching fields. Correspondingly, Ferreira et al. (2022) emphasized the social skills that teamwork gained for the participants.

Learners develop collaboration skills by observing team members in action, and the varied backgrounds of teammates can expand idea diversity in group activities. Team formation strategies, especially those based on questionnaires, significantly influence teamwork. Notably, only the Acquainted Team was formed based on participant preferences, consisting of members who were familiar with each other from the same school campus. This team uniquely reported collaboration failures, uneven task distribution, and issues with a social loafer. This finding contrasts with Staats et al. (2010), where familiarity within teams led to increased learning and psychological safety. However, in this study, such familiarity seemed to hinder open communication about team disturbances. Moreover, similar to Chang and Kang's (2016) findings, the presence of a social loafer in the Acquainted Team led to collaboration challenges and disappointment, highlighting the complex dynamics of team familiarity and efficiency.

Learners' prior experience with the topic and their advancement in the master's program can sometimes interfere with team collaboration. More experienced learners often failed to benefit as much from the teamwork experience in terms of learning course content, compared to their less experienced teammates. This led to dissatisfaction among team members, impacting the overall effectiveness of their collaboration and teamwork.

Regarding team diversity, there has been some vital recent research in the business field (Xu et al., 2019). Regarding team diversity, business literature comes up with varying findings. Each diversity aspects have an impact on team effectiveness, and some studies found that gender and cognitively diverse teams have a negative influence on team performance (Garcia Martinez et al., 2017). However, for the present case, learners' experience was found to be paramount for an effective team forming strategy.

When teamwork strategies are compared, face-to-face and online teamwork environments share certain commonalities. For example, shared and effective leadership to overcome social loafers within the teams and adequate time for teams to determine common goals and create team familiarity are required for both settings. On the other hand, a lack of physical cues such as gestures and mimicry may pose communication challenges for online teams (Saghafian & O'Neill, 2018). Therefore, when designing team-based learning environments for team cohesion, these communication barriers and challenges should be given additional priority (Hambley & O'Neill, 2007).

Limitations

The present study contains several limitations. First, it should be mentioned that two of the researchers took the role of instructor and the instructional assistant of the course. Therefore, the researchers were in the field throughout the data collection period, and, as such, it may have influenced participants' candidness throughout the data collection process. Additionally, as the participants of the teams established connections and friendships throughout the study, participants may not have been objective while sharing their teamwork experiences and discussing their team members' attitudes towards teamwork tasks.

Another limitation was that the number of study participants was limited to the 13 participants in the course and one of them refused to take part in the final interviews. In addition, not all the participants wrote cohesive and comprehensive teamwork reflections for the group reflections which resulted in some inadequacies within the data. Adding to this issue, the participants worked in a private school and had hectic schedules that caused attendance problems

for the class breakout room discussions; therefore, for some weeks, the same team members were not able to be in the breakout room discussions, which influenced the duration that the team spent together and likely negatively impacted the overall team climate.

Lastly, as the course was delivered in Turkish, only two participants felt comfortable using English. As a result, the data collection method was implemented in the Turkish language, and analysis of the data was conducted in Turkish; however, the results were translated into English. As such, the translation process may have caused some complications in the data analysis process.

Recommendations

The findings of the present study offer some recommendations for educators. Most fundamentally, we recommend that adequate time should be spent on team formation and ice breaker activities to create a sense of trust and community between the learners before any teams are formed. Without sufficient trust and a positive learning environment, learning cannot take place in online settings. Consequently, time spent with the learners should be extended to increase team familiarity and trust-building.

Secondly, structured team forming criteria should be implemented considering participants' personalities and prior experiences in their program as well as the requirements of the assignments. When previous experiences are not taken into consideration, it may pose collaboration problems, as happened in the present case.

Thirdly, to increase the efficiency of the peer assessment strategy, peers' scores could be counted as grades for the final assignment, which could reduce or abate social loafing. Without implementing any sanctions for the social loafers, peer evaluation strategies may fail to work for adult learner teams leading to a lack of positive interdependence among team members, which, as noted earlier, is a building block for online collaborative learning settings. If the instructors are involved in the sanctions process, they can be more of a deterrent for social loafers.

Strategies implemented in the present study may include variations for different contexts and learner needs. Instead of merely implementing each strategy, instructors could more heavily monitor learners' experiences and organize teamwork structurally to increase the efficiency of team learning. Due to the dynamic nature of the teams, alternative plans and strategies should be developed when online teams appear to be dysfunctional or lacking in one or more key elements. Taking into consideration these and other findings and implementing the various recommendations of this study and of those that follow it should foster more effectively functioning online teams and overall learner satisfaction and success.

References

Aaron, J. R., McDowell, W. C., & Herdman, A. O. (2014). The effects of a team charter on student team behaviors. *Journal of Education for Business*, *89*(2), 90-97. https://doi.org/10.1080/08832323.2013.763753

Andrade, M., Miller, R. M., & Ogden, M. (2020). Teamwork for business majors--The impact of peer evaluation. *e-Journal of Business Education and Scholarship of Teaching*, *14*(2), 1-18. doi: 10.5220/0009446504420449

Azizan, M. T., Mellon, N., Ramli, R. M., & Yusup, S. (2018). Improving teamwork skills and enhancing deep learning via development of board game using cooperative learning method in reaction engineering course. *Education for Chemical Engineers*, *22*, 1-13. https://doi.org/10.1016/j.ece.2017.10.002

Barron, B. (2000). Achieving coordination in collaborative problem-solving groups. *Journal of the Learning Sciences*, *9*, 403–436. https://doi.org/10.1207/S15327809JLS0904_2

Beal, D. J., Cohen, R. R., Burke, M. J., & McLendon, C. L. (2003). Cohesion and performance in groups: A meta-analytic clarification of construct relations. *Journal of Applied Psychology*, *88*(6), 989. https://doi.org/10.1037/0021-9010.88.6.989

Benning, T. M. (2022, September 16). Reducing free-riding in group projects in line with students' preferences: Does it matter if there is more at stake? *Active Learning in Higher Education*, 146978742211188. https://doi.org/10.1177/1469787422111886

Birt, L., Scott, S., Cavers, D., Campbell, C., & Walter, F. (2016). Member checking. *Qualitative Health Research, 26(*13), 1802-1811. https://doi.org/10.1177/1049732316654870

Bolliger, D. U., & Martin, F. (2018). Instructor and student perceptions of online student engagement strategies. *Distance Education*, *39*(4), 568-583. https://doi.org/10.1080/01587919.2018.1520041

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77-101. DOI: 10.1191/1478088706qp063oa

Bravo, R., Catalán, S., & Pina, J. M. (2019). Analysing teamwork in higher education: An empirical study on the antecedents and consequences of team cohesiveness. *Studies in Higher Education*, *44*(7), 1153-1165. https://doi.org/10.1080/03075079.2017.1420049

Breen, H. (2013). Virtual collaboration in the online educational setting: a concept analysis. *Nursing Forum, 48*(4), 262-270. https://doi.org/10.1111/nuf.12034

Cabero-Almenara, J., Guillén-Gámez, F. D., Ruiz-Palmero, J., & Palacios-Rodríguez, A. (2022). Teachers' digital competence to assist students with functional diversity: Identification of factors through logistic regression methods. *British Journal of Educational Technology*, *53*(1), 41-57.

Chang, B., & Kang, H. (2016). Challenges facing group work online. *Distance Education, 37*(1), 73-88. https://doi.org/10.1080/01587919.2016.1154781

Chatterjee, R., & Correia, A. P. (2020). Online students' attitudes toward collaborative learning and sense of community. *American Journal of Distance Education*, *34*(1), 53-68. https://doi.org/10.1080/08923647.2020.1703479

Cheng, F. F., Wu, C. S., & Su, P. C. (2021). The impact of collaborative learning and personality on satisfaction in innovative teaching context. *Frontiers in Psychology*, *12*, 713497.

Conrad, D., & Openo, J. (2018). *Assessment strategies for online learning: Engagement and authenticity*. Athabasca University Press.

Cox, P. L., & Bobrowski, P. E. (2016). The team charter assignment: Improving the effectiveness of classroom teams. *Journal of Behavioral and Applied Management*, *1*(2), 789.

Davison, H. K., Mishra, V., Bing, M. N., & Frink, D. D. (2014). How individual performance affects the variability of peer evaluations in classroom teams: A distributive justice perspective. *Journal of Management Education*, *38*(1), 43- 85. https://doi.org/10.1080/02602938.2018.1545898

de Souza Santos, R. E., & Ralph, P. (2022). Practices to improve teamwork in software development during the COVID-19 pandemic: An ethnographic study. *arXiv e-prints*, arXiv-2203. https://doi.org/10.1145/3528579.3529174

Dennen, V. P., Hall, B. M., & Hedquist, A. (2023). A systematic review of research on intersubjectivity in online learning: Illuminating opportunities for cohesion and mutual understanding in the research conversation. *Online Learning*. 27(1). https://doi.org/10.24059/olj.v27i1.3430

Després-Bedward, A., Avery, T. L., & Phirangee, K. (2018). Student perspectives on the role of the instructor in face-to-face and online learning. *International Journal of Information and Education Technology*, *8*(10), 706-712. doi: 10.18178/ijiet.2018.8.10.1126

DiazGranados, D., Shuffler, M. L., Wingate, J. A., & Salas, E. (2017). Team development interventions. *The Wiley Blackwell handbook of the psychology of team working and collaborative processes*, 555-586. https://doi.org/10.1002/9781118909997.ch24

Donia, M. B., O'Neill, T. A., & Brutus, S. (2018). The longitudinal effects of peer feedback in the development and transfer of student teamwork skills. *Learning and Individual Differences*, *61*, 87-98. https://doi.org/10.1016/ j.lindif.2017.11.012

Drescher, M. A., Korsgaard, M. A., Welpe, I. M., Picot, A., & Wigand, R. T. (2014). The dynamics of shared leadership: Building trust and enhancing performance. *Journal of Applied Psychology, 99*(5), 771–783. https://doi.org/10.1037/a0036474

Dressel, D. P. (2020). Breaking the ice to build relationships: Using icebreakers to create new relationships, promote emotional safety, and incorporate social and emotional learning. *Journal of Physical Education, Recreation & Dance*, *91*(5), 51-5. https://doi.org/10.1080/ 07303084.2020.1739434

Ergulec, F. (2017). *Students' collaboration experiences of a purposeful group assignment strategy and team building in an online graduate class* (Publication No. 10604243) [Doctoral dissertation, Indiana University]. ProQuest Dissertations Publishing.

Ergulec, F. (2019). Instructional strategies for forming online collaborative teams. *International Journal on E-Learning, 18*(4), 349-372.

Feitosa, J., & Salas, E. (2021). Today's virtual teams: Adapting lessons learned to the pandemic context. *Organizational Dynamics*, *50*(1), 100777. https://doi.org/10.1016/j.orgdyn.2020.100777

Fellenz, M. R. (2006). Toward Fairness in assessing student groupwork: A protocol for peer evaluation of individual contributions. *Journal of Management Education, 30*(4), 570-591 https://doi.org/10.1177/1052562906286713

Ferreira, M., Manokore, V., & Gray, M. (2022). An exploratory study for the development of a survey on learning team process, impact, and tutor's role (PIT) in facilitating online learning. *European Journal of Education and Pedagogy*, *3*(2), 18-26. https://doi.org/10.24018/ejedu.2022.3.2.258

Ford, R. C., Piccolo, R. F., & Ford, L. R. (2017). Strategies for building effective virtual teams: Trust is essential. *Business Horizons*, *60*(1), 25-34. https://doi.org/10.1016/j.bushor.2016.08.009

Forsyth, D. R. (2018). *Group dynamics* (7th ed.). Cengage Learning.

Garcia Martinez, M., Zouaghi, F., & Garcia Marco, T. (2017). Diversity is strategy: The effect of R&D team diversity on innovative performance. *R&D Management*, *47*(2), 311-329. https://doi.org/10.1111/radm.12244

Gilovich, T., Keltner, D., & Nisbett, R. E. (2006). *Social psychology*. W W Norton & Company Incorporated.

Gregori, P., Martínez, V., & Moyano-Fernández, J. J. (2018). Basic actions to reduce dropout rates in distance learning. *Eval Program Plann*, 66:48-52. https://doi.org/10.1016/j.evalprogplan.2017.10.004

Gupta, M., & Bakker, A. B. (2020). Future time perspective and group performance among students: Role of student engagement and group cohesion. *Journal of Applied Research in Higher Education*. https://doi.org/10.1108/JARHE-05- 2019-0128

Hackman, J. R., & Wageman, R. (2004). When and how team leaders matter. *Research in organizational behavior*, *26*, 37-74. https://doi.org/10.1016/S0191-3085(04)26002-6

Haines, R. (2014). Group development in virtual teams: An experimental reexamination. *Computers in Human Behavior*, *39*, 213-222. https://doi.org/10.1016/j.chb.2014.07.019

Hambley, L. A., O'Neill, T. A., & Kline, T. J. (2007). Virtual team leadership: The effects of leadership style and communication medium on team interaction styles and outcomes. *Organizational Behaviour and Human Decision Processes*, *103*(1), 1-20.

Handke, L., Klonek, F. E., Parker, S. K., & Kauffeld, S. (2020). Interactive effects of team virtuality and work design on team functioning. *Small Group Research*, *51*(1), 3-47. https://doi.org/10.1177%2F1046496419863490

Harasim, L. M. (2012). *Learning theory and online technology*. Routledge.

Imam, H., & Zaheer, M. K. (2021). Shared leadership and project success: The roles of knowledge sharing, cohesion, and trust in the team. *International Journal of Project Management*, *39*(5), 463-473. https://doi.org/10.1016/j.ijproman.2021.02.006

Johnson, D. W., & Johnson, F. (2006). Joining together: Group theory and research (9th ed). Boston: Allyn & Bacon.

Johnson, D. W., & Johnson, R. T. (1989). *Cooperation and competition: Theory and research*. Interaction Book Company.

Johnson, D. W., & Johnson, R. T. (2018). Cooperative learning: The foundation for active learning. *Active learning—Beyond the future*. http://dx.doi.org/ 10.5772/intechopen.81086

Johnson, M. D., & Bradbury, T. N. (2015). Contributions of social learning theory to the promotion of healthy relationships: Asset or liability? *Journal of Family Theory & Review*, *7*(1), 1327. dx.doi.org/10.1111/jftr.12057

Johnson, W. H., Baker, D., Dong, L., Taras, V., & Wankel, C. (2021). Do team charters help team-based projects? The effects of team charters on performance and satisfaction in global virtual teams. *Academy of Management Learning & Education*, *21*(2), https://doi.org/10.5465/ AMBPP.2021.12545abstract

Jony, A. I., & Serradell-López, E. (2020, April). Key factors that boost the effectiveness of virtual teamwork in online higher education. *The International Research & Innovation Forum* (pp. 183-198). Springer, Cham. 10.1007/978-3-030-62066-0_15

Kamal, A. A., Shaipullah, N. M., Truna, L., Sabri, M., & Junaini, S. N. (2020). Transitioning to online learning during COVID-19 pandemic: Case study of a pre-university centre in Malaysia. https://dx.doi.org/10.14569/IJACSA.2020.0110628

Karriker, J. H., Madden, L. T., & Katell, L. A. (2017). Team composition, distributed leadership, and performance: It's good to share. *Journal of Leadership & Organizational Studies*, *24*(4), 507518. https://doi.org/10.1177/1548051817709006

Kaushik, K., & Zinjarde, S. (2020). An interactive, accessible, and affordable science- and art-based activity to foster team building among new students. *Journal of Microbiology & Biology Education*, *21*(2). https://doi.org/10.1128/jmbe.v21i2.2155

Kelsen, B. A., & Liang, H. Y. (2019). Role of the Big Five personality traits and motivation in predicting performance in collaborative presentations. *Psychological Reports*, *122*(5), 1907-1924. https://doi.org/1 0.1177%2F0033294118795139

Klein, C., DiazGranados, D., Salas, E., Le, H., Burke, C. S., Lyons, R., & Goodwin, G. F. (2009). Does team building work?. *Small Group Research*, *40*(2), 181- 222. https://doi.org/10.1177%2F1046496408328821

Kramer, A., Bhave, D. P., & Johnson, T. D. (2014). Personality and group performance: The importance of personality composition and work tasks. *Personality and Individual Differences*, *58*, 132-137. https://doi.org/ 10.1016/j.paid.2013.10.019

Kyprianidou, M., Demetriadis, S., Tsiatsos, T., & Pombortsis, A. (2012). Group formation based on learning styles: Can it improve students' teamwork? *Educational Technology Research and Development*, *60*(1), 83-110 DOI:10.1007/s11423-011-9215-4

Laal, M. (2013). Positive interdependence in collaborative learning. *Procedia-Social and Behavioral Sciences*, *93*, 1433-1437. https://doi.org/10.1016/j.sbspro.2013.10.058

Lazar, J., Feng, J. H., & Hochheiser, H. (2017). *Research Methods in Human- Computer Interaction* (2nd ed.). Morgan Kaufmann.

Lowes, S., Lin, P., & Kinghorn, B. (2016). Gender differences in online high school courses. *Online Learning, 20*(4), 100-117. https://doi.org/10.24059/olj.v20i4.1049

Masih, P. (2021). Hazy team composition processes: Shared team leadership, a strategy to team excellence in higher education. Digital Commons @ ACU, *Electronic Theses and Dissertations*. Paper 397. https://digitalcommons.acu.edu/etd/397

Matt Graham, C., & Jones, N. (2019). Impact of a social network messaging app on team cohesiveness and quality of completed team projects in an undergraduate team project. *Journal of Educational Technology Systems*, *47*(4), 539-553.

Miranda, P. B., Mello, R. F., & Nascimento, A. C. (2020). A multi-objective optimization approach for the group formation problem. *Expert Systems with Applications*, *162*, 113828 https://doi.org/10.1016/j.eswa.2020.113828

Molinillo, S., Aguilar-Illescas, R., Anaya-Sánchez, R., & Vallespín-Arán, M. (2018). Exploring the impacts of interactions, social presence, and emotional engagement on active collaborative learning in a social web-based environment. *Computers & Education*, *123*, 41-52. https://doi.org/10.1016/j.compedu.2018.04.012

Mollenkopf, D. L., Felton, M. K., Karabon, A., & Westerlin, S. A. (2020). Building higher education community: A lesson from Nebraska. In D. D. Cunningham (Ed.), *Professional and ethical consideration for early childhood leaders* (pp. 202-225). IGI Global.

Morrison-Smith, S., & Ruiz, J. (2020). Challenges and barriers in virtual teams: A literature review. *SN Applied Sciences*, *2*(6), 1-33. DOI:10.1007/s42452-020-2801-5

Murtazina, N., Shukshina, S., Akpayeva, A., & Khodakova, N. (2021). Distance learning of students in the modern world. *SHS Web of Conferences*, *98*, 05012. https://doi.org/10.1051/shsconf/20219805012

Nicol, D. J., & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in Higher Education*, *31*(2):199–218. https://doi.org/10.1080/03075070600572090

Novoselich, B. J., & Knight, D. B. (2019). Relating shared leadership to capstone team effectiveness. *International Journal of Engineering Education*, *35*(6), 1888-1906. DOI:10.1061/(ASCE)EI.1943-5541.0000376

Palincsar, A. (1998). Social constructivist perspectives on teaching and learning. *Annual Review of Psychology, 49*(1), 345-375. https://doi.org/10.1146/annurev.psych.49.1.345

Palloff, R. M., & Pratt, K. (2007). *Building online learning communities: Effective strategies for the virtual classroom* (2nd ed.). Jossey-Bass.

Paulus, P., Kohn, N., & Dzindolet, M. (2011). Teams. *Encyclopedia of Creativity*, 446–452. https://doi.org/10.1016/b978-0-12-375038-9.00217-x

Reeves, S., Xyrichis, A., & Zwarenstein, M. (2017). Teamwork, collaboration, coordination, and networking: Why we need to distinguish between different types of interprofessional practice. *Journal of Interprofessional Care*, *32*(1), 1–3.doi:10.1080/13561820.2017.1400150

Robert Jr, L. P., & You, S. (2018). Are you satisfied yet? Shared leadership, individual trust, autonomy, and satisfaction in virtual teams. *Journal of the Association for Information Science and Technology*, *69*(4), 503-513. https://doi.org/10.1002/asi.23983

Steffens, K. (2015). Competences, learning theories and MOOCs: Recent developments in lifelong learning. *European Journal of Education*, *50*(1), 41- 59. https://doi.org/10.1111/ejed.12102

Rhee, J., Parent, D., & Basu, A. (2013). The influence of personality and ability on undergraduate teamwork and team performance. *SpringerPlus*, *2*(1), 1-14. https://doi.org/10.1186/2193-1801-2-16

Román-Calderón, J. P., Robledo-Ardila, C., & Velez-Calle, A. (2021). Global virtual teams in education: Do peer assessments motivate student effort?. *Studies in Educational Evaluation*, *70*, 101021.

Romero-Hall, E., & Ripine, C. (2021). Hybrid flexible instruction: Exploring faculty preparedness. *Online Learning*, *25*(3). Retrieved from https://olj.onlinelearningconsortium.org/index.php/olj/article/view/2426/1101

Rosen, M. A., DiazGranados, D., Dietz, A. S., Benishek, L. E., Thompson, D., Pronovost, P. J., & Weaver, S. J. (2018). Teamwork in healthcare: Key discoveries enabling safer, high-quality care. *American Psychologist*, *73*(4), 433–450. https://doi.org/10.1037/amp0000298

Journal of the Scholarship of Teaching and Learning, Vol. 25, No. 1, March 2025.
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Sadeghi, H., & Kardan, A. A. (2016). Toward effective group formation in computer-supported collaborative learning. *Interactive Learning Environments*, *24*(3), 382-395. https://doi.org/10.1080/10494820.2013. 851090

Saghafian, M., & O'Neill, D. K. (2018). A phenomenological study of teamwork in online and face-to-face student teams. *Higher Education*, *75*(1), 57-73. https://doi.org/10.1007/s10734-017-0122-4

Shah, D. (2020). By the numbers: MOOCs during the pandemic. *Class Central*. Retrieved from https://www.classcentral.com/report/mooc-stats-pandemic/

Shah, D. (2021). By the numbers: MOOCs in 2021. *Class Central*. Retrieved from https://www.classcentral.com/report/mooc-stats-2021/

Sridharan, B., & Boud, D. (2019). The effects of peer judgements on teamwork and self-assessment ability in collaborative group work. *Assessment & Evaluation in Higher Education*, *44*(6), 894-909. https://doi.org/10.1080/02602938. 2018.1545898

Staats, B. R., Gino, F., & Pisano, G. P. (2010). *Varied experience, team familiarity, and learning: The mediating role of psychological safety*. Working paper 10-016. Harvard Business School.

Sweeney, A., Clarke, N., & Higgs, M. (2019). Shared leadership in commercial organizations: A systematic review of definitions, theoretical frameworks and organizational outcomes. *International Journal of Management Reviews*, *21*(1), 115-136. https://doi.org/10.1111/ijmr.12181

Tacadao, G., & Toledo, R. P. (2016, September). Forming student groups with student preferences using constraint logic programming. In C. Dichev & G. Agre (Eds.), *Artificial Intelligence: Methodology, Systems, and Applications*. AIMSA 2016. Lecture Notes in Computer Science (pp. 259-268), vol 9883. Springer, Cham. https://doi.org/10.1007/978-3-319-44748-3_25

Tavoletti, E., Stephens, R. D., & Dong, L. (2019). The impact of peer evaluation on team effort, productivity, motivation, and performance in global virtual teams. *Team Performance Management: An International Journal*. https://doi.org/10.1108/TPM-03-2019-0025

Tseng, H. W., & Yeh, H.-T. (2013). Team members' perceptions of online teamwork learning experiences and building teamwork trust: A qualitative study. *Computers & Education*, 63, 1–9. https://doi.org/10.1016/j.compedu.2012.11.013

Uz Bilgin, C., & Gul, A. (2020). Investigating the effectiveness of gamification on group cohesion, attitude, and academic achievement in collaborative learning environments. *TechTrends*, *64*(1), 124-136. https://doi.org/10.1007/s11528- 019-00442-x

Vu, T. T., & Dall'Alba, G. (2007). Students' experience of peer assessment in a professional course. *Assessment & Evaluation in Higher Education*, *32*(5), 541-556. https://doi.org/10.1080/02602930601116896

Vuopala, E., Hyvönen, P., & Järvelä, S. (2016). Interaction forms in successful collaborative learning in virtual learning environments. *Active Learning in Higher Education*, *17*(1), 25-38. https://doi.org/10.1177/1469787415616730

Wheelan, S. A. (2009). Group size, group development, and group productivity. *Small Group Research*, *40*(2), 247–262. https://doi.org/10.1177/1046496408328703

Wilson, L., Ho, S., & Brookes, R. H. (2017). Student perceptions of teamwork within assessment tasks in undergraduate science degrees. *Assessment & Evaluation in Higher Education*, *43*(5), 786–799.doi:10.1080 /02602938.2017.1409334

Xu, N., Chiu, C. Y., & Treadway, D. C. (2019). Tensions between diversity and shared leadership: The role of team political skill. *Small Group Research, 50*(4), 507-538. https://doi.org/10.1177/10464964198404

Younis, R. (2019). Cognitive diversity and creativity: the moderating effect of collaborative climate. *International Journal of Business and Management*, *14*(1), 159-168. https://doi.org/10.5539/ijbm.v14n1p159

Yukselturk, E., & Cagiltay, K. (2008). Collaborative work in online learning environments: Critical issues, dynamics, and challenges. In K. L. Orvis & A. L. R. Lassiter (Eds.), *Computer-supported collaborative learning: Best practices and principles for instructors* (pp. 114-140). Information Science Reference

Zasa, F. P., & Buganza, T. (2023). Developing a shared vision: Strong teams have the power. *Journal of Business Strategy*, *44*(6), 415-425

Zhang, X. C., Balakumar, A., Rodriguez, C., Sielicki, A., & Papanagnou, D. (2020). The Zoom picture book game: A creative way to promote teamwork in undergraduate medical education. Cureus, 12(2). https//doi.org/10.7759/ cureus.6964

Zheng, Y., Li, C., Liu, S., & Lu, W. (2018). An improved genetic approach for composing optimal collaborative learning groups. *Knowledge-Based Systems*, *139*, 214-225. https://doi.org/10.1016/j.knosys.2017.10.022

Zwikael, O., & Unger-Aviram, E. (2010). HRM in project groups: The effect of project duration on team development effectiveness. *International Journal of Project Management, 28*(5), 413-421. https://doi.org/10.1016/j.ijproman. 2009.09.00

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