Bilim, Eğitim, Sanat ve Teknoloji Dergisi

www.bestdergi.net

EFL Teachers' Views on Flipped Learning in Turkish Middle Schools: A SWOT and Force Field Analysis

Selma Deneme Gençoğlu [1], Tolga Sarıca [2] *

[1] Trakya University, 0000-0001-7408-1163
[2] Trakya University, 0000-0003-4503-2156
* İrtibat yazar: Tolga Sarıca (t.sarica22@gmail.com)

Bu makaleye atıf için (To cite this article):
Deneme Gençoğlu, S. & Sarıca, T. (2026).EFL Teachers' Views on Flipped Learning in Turkish Middle Schools: A SWOT and Force Field Analysis. *Bilim, Eğitim, Sanat ve Teknoloji Dergisi (BEST Dergi) [Science, Education, Art and Technology Journal (SEAT Journal)], 10*(1), 37-65.

Makale Türü (Paper Type):
Araştırma (Research)

Etik Kurul Adı, Onay Tarihi ve Sayısı (Ethics Committee Name, Approval Date and Number):
Trakya Üniversitesi Sosyal ve Beşeri Bilimler Araştırmaları Etik Kurulu, 09.01.2025, Sayı :E-29563864-050.04-774410.

Türk Ortaokullarındaki İngilizce Öğretmenlerinin Ters Yüz Öğrenmeye Bakış Açıları: Bir SWOT ve Güç Alanı Analizi

Makale Bilgisi

Makale Tarihi

Gönderim Tarihi:
17 Ekim 2025

Kabul Tarihi:
25 Aralık 2025

Anahtar Kelimeler

Ters yüz öğrenme
Karma yöntemli çalışma
Ortaokul
İngilizce öğretmenleri
Yapay zeka destekli araçlar

Öz

Ters Yüz Öğrenme modeli, öğretim içeriklerinin sınıf dışında sunulup sınıf içi zamanın aktif ve öğrenci merkezli öğrenmeye ayrılmasını sağlayan bir yaklaşım olup İngilizce dil öğretiminde giderek önem kazanmaktadır. Bu karma yöntemli çalışma, Edirne ve ilçelerinde görev yapan 45 ortaokul İngilizce öğretmeni ile açıklayıcı sıralı desen kullanılarak yürütülmüştür. Beşli Likert ölçekli anketle 40 öğretmenden toplanan nicel veriler Jamovi (Sürüm 2.6.17) ile analiz edilmiş, ardından 5 öğretmenle yarı yapılandırılmış görüşmeler yapılmıştır. SWOT, Boşluk (Gap) ve Güç Alanı (Force Field) analizlerinin birlikte kullanıldığı bir çerçeve ile bulgular yorumlanmıştır. Bulgular; modelin tüm dil becerilerine uygulanabilir olması, mevcut teknolojik altyapı (ör. EBA, akıllı tahtalar) ve öğrencilerin kendi hızlarında öğrenebilmelerine dayalı artan katılım gibi güçlü yönleri ortaya koymuştur. Öğretmen motivasyonu ve dijital araçlara erişim de önemli itici güçler olarak belirlenmiştir. Bununla birlikte, yetersiz öğretmen eğitimi, öğrenci disiplin sorunları ve özellikle kırsal bölgelerde cihaz ile kararlı internet erişimindeki eşitsizlikler önemli eksiklikler arasında yer almıştır. Değişime direnç, fırsat eşitsizliği ve konuşma becerilerinin değerlendirilmesindeki güçlükler de rapor edilmiştir. Altyapı sorunları, tutarsız ders hazırlığı ve dijital dikkat dağınıklığı uygulamayı daha da zorlaştırmıştır. Öneriler arasında; mentorluk ve akran desteği yoluyla sürekli mesleki gelişimin teşvik edilmesi, ödünç cihazlar ve çevrimdışı materyallerin sağlanması, küçük öğrencileri desteklemek için ebeveyn katılımının artırılması ve Ters Yüz modele uygun hazır materyallerin sunulması yer almaktadır. Öğretmen iş yükünü azaltmak ve değerlendirmeyi iyileştirmek için yapay zekâ destekli araçların ve dijital portfolyoların entegrasyonu önerilmektedir.

EFL Teachers' Views on Flipped Learning in Turkish Middle Schools: A SWOT and Force Field Analysis

Article Info

Article History

Received:
17 October 2025

Accepted:
25 December 2025

Key Words

Flipped learning
Mixed methods study
Middle school
English teachers
AI-supported tools

Abstract

The Flipped Learning model, which delivers instructional content outside the classroom to enable active, student-centered learning during class, has gained prominence in English language education. This mixed-methods study used an explanatory sequential design with 45 middle school English teachers in Edirne and its districts. Quantitative data from 40 teachers, collected through a 5-point Likert questionnaire and analyzed with Jamovi (Version 2.6.17), were followed by semi-structured interviews with 5 teachers. A combined SWOT, Gap, and Force Field Analysis framework guided interpretation. Findings highlighted strengths such as applicability across language skills, technological infrastructure (e.g., EBA, smart boards), and improved student engagement through self-paced learning. Teacher motivation and digital tool availability served as key driving forces. However, gaps included insufficient teacher training, student discipline problems, and unequal access to devices and stable internet, especially in rural areas. Resistance to change, equity concerns, and difficulties in assessing speaking skills were also reported. Infrastructural barriers, inconsistent lesson preparation, and digital distractions further limited implementation. Recommendations include continuous professional development through mentoring and peer coaching, provision of loaner devices and offline materials, parental involvement for younger learners, and ready-made flipped-model materials. To reduce workload and enhance assessment, the integration of AI-supported tools and digital portfolios is suggested.

Introduction

The Flipped Learning model constitutes a profound pedagogical transformation, fundamentally inverting the conventional sequence of instruction and practice. In traditional classroom settings, new content is typically introduced during face-to-face lessons, with students expected to consolidate their understanding independently through homework assignments. In contrast, the flipped classroom paradigm relocates instructional delivery to out-of-class contexts (often via pre-recorded lectures, curated readings, or digital materials) thereby liberating classroom time for interactive, collaborative, and cognitively demanding activities such as problem-solving, structured discussions, peer instruction, and application-based exercises. This reconfiguration enables learners to engage with content autonomously prior to class, thereby arriving better prepared to participate actively and meaningfully during synchronous instructional periods.The inception of the flipped classroom is most frequently traced to 2007, when American high school chemistry instructors Jonathan Bergmann and Aaron Sams of Woodland Park High School, Colorado, began recording lectures for students who were absent or required supplementary review (Bergmann & Sams, 2012). While their initial intention was pragmatic rather than revolutionary, they observed that learners who engaged with pre-class video content arrived in the classroom better prepared, thereby allowing in-class time to be devoted to higher-order interactive learning. Over time, this practice crystallized into a coherent pedagogical strategy subsequently designated the “flipped classroom,” which has since become foundational to the global flipped learning movement and is extensively cited in both scholarly and practitioner-oriented literature (Tucker, 2012; Herreid & Schiller, 2013). Although the flipped approach shares conceptual underpinnings with prior distance and blended learning paradigms, the Bergmann and Sams model is distinguished by its systematic deployment of video-based instruction outside the classroom, coupled with student-centered, active learning during face-to-face sessions. This orientation is congruent with constructivist learning theories, which foreground learner autonomy, engagement, and social interaction as critical mechanisms in knowledge construction (Piaget, 1972; Vygotsky, 1978). Following its introduction, the flipped model gained considerable traction, particularly within STEM disciplines, where educators sought to allocate classroom time to experimentation, critical inquiry, and collaborative problem-solving (Lage, Platt, & Treglia, 2000; Bishop & Verleger, 2013). The proliferation of digital technologies, including video-sharing platforms, learning management systems, and screen-capture software, has further facilitated the widespread adoption and diversification of flipped learning. In response to burgeoning global interest, the Flipped Learning Network (FLN) was established to formalize the model and disseminate best practices for its implementation (FLN, 2014). Accordingly, the flipped classroom has evolved from a grassroots innovation into a globally recognized educational paradigm, underpinned by a robust corpus of empirical research and sustained professional development initiatives.

The Emergence of Various Forms of Flipped Learning

The evolution of flipped learning into a multiplicity of models underscores its remarkable adaptability to diverse pedagogical objectives, technological infrastructures, and learner requirements. Originally conceptualized to transfer direct instruction beyond the classroom while prioritizing active, student-centered engagement during class sessions, flipped learning has subsequently diversified into a spectrum of instructional modalities designed

to enhance accessibility, personalization, and learner involvement. The Traditional Flipped Classroom emerged as a strategy to optimize classroom time by delivering lectures through pre-class videos, thereby enabling more collaborative, application-oriented activities during synchronous sessions. Recognizing the need for heightened individualization and differentiation, the Flipped Mastery Model was developed to allow students to navigate content at their own pace, progressing only upon demonstrating mastery of a given topic, thus accommodating heterogeneous readiness levels and learning velocities within the same cohort (Bergmann & Sams, 2014). In response to the persistent challenge of unequal access to technological resources and internet connectivity, the In-Class Flip was introduced by González and Skultety (2018), relocating all flipped components into the classroom via station-based learning. This design ensures equitable engagement with flipped instruction irrespective of digital access disparities. Other innovations include the Peer Instruction Flip, which emphasizes deep conceptual understanding through student-led discourse and problem-solving activities, particularly in STEM disciplines and higher education, as originally championed by Mazur. Additionally, Flipped Project-Based Learning (PBL) integrates the flexibility of the flipped approach with inquiry-driven, real-world projects, thereby fostering the cultivation of 21st-century competencies such as critical thinking, creativity, and collaborative problem-solving. More recently, blended and hybrid configurations incorporating flipped strategies have gained traction due to their capacity to balance asynchronous pre-class content with synchronous, interactive classroom engagement, rendering them especially suited to flexible, learner-centered environments (Horn & Staker, 2015). Across these variations, technological innovations (including Learning Management Systems, video annotation tools, and gamified platforms) have been strategically leveraged to enhance engagement, formative assessment, and instructional efficacy. Collectively, these diverse models reflect a continuous, context-sensitive refinement of flipped learning, reaffirming its foundational commitment to learner autonomy, scaffolded instruction, and active, constructivist engagement. Table 1 below shows the Flipped styles suitable for specific settings and aims.

Table 1. Comparative Chart: Flipped Learning Styles

Flipped Style	**Key Features**	**Best For...**
Traditional Flipped Classroom	Instructional videos watched at home; active tasks in class.	General use, especially in STEM and secondary/higher education.
In-Class Flip	All instruction and activities occur within the classroom using stations or devices.	Schools with limited home internet or younger learners.
Flipped Mastery	Students progress at own pace; must demonstrate mastery to advance.	Differentiated learning, special education, mastery-based curricula.
Peer Instruction Flip	Pre-class content; in-class conceptual questions and peer discussion.	Higher education, conceptual subjects like physics, maths.
Flipped PBL	Flipped content supports inquiry-based, real-world projects.	Developing 21st-century skills, interdisciplinary learning.

Flipped Learning in English Language Teaching: Potentials and Challenges

Initially developed and widely applied in disciplines such as chemistry, mathematics, and other STEM fields, flipped learning was primarily used to address the need for more hands-on, interactive classroom experiences. Its success in fostering active learning and improving student engagement in these domains soon inspired interest in

adapting the model to other subject areas, including English Language Teaching (ELT). In recent years, flipped learning has gained increasing traction in ELT due to its compatibility with communicative, learner-centered, and task-based approaches. By shifting direct instruction such as grammar explanations, vocabulary input, or pronunciation modeling to pre-class activities, this model enables teachers to use in-class time for more interactive, authentic language use, thus enhancing communicative competence and learner autonomy. Empirical research across global contexts has demonstrated the model's potential in English classrooms. For instance, a study conducted in Taiwan found that flipped instruction significantly improved students' English speaking skills and motivation, as learners had more time to prepare content and engage in oral tasks during class (Hung, 2015). Similarly, research from Turkey revealed that EFL students exposed to flipped classrooms not only performed better academically but also reported more positive attitudes toward learning English than those in traditional instruction settings (Basal, 2015). These benefits are not confined to higher education; adaptations of the flipped model have also been successful in middle school and primary education. In South Korea, the integration of mobile-based flipped lessons for vocabulary and grammar enabled gamified, engaging pre-class tasks that led to more effective and meaningful in-class interaction (Lee & Wallace, 2018). However, while flipped learning holds considerable promise in ELT, several challenges hinder its broader adoption. A common issue is the lack of adequate teacher training in designing effective flipped content and managing classroom transitions (Akçayır & Akçayır, 2018). Additionally, technical barriers such as limited infrastructure, internet access, or availability of digital devices continue to pose significant obstacles in many educational contexts. Another critical factor is students' varying levels of self-regulation, as success in flipped environments often depends on learners' ability to manage their time, maintain motivation, and comprehend materials independently (Sun, Xie, & Anderman, 2018). As such, successful implementation requires more than just access to technology as it demands comprehensive teacher preparation, student training in autonomous learning strategies, and institutional support. In conclusion, while the flipped classroom offers a transformative approach to English language instruction (particularly through enhancing motivation, oral communication, and autonomy) it must be implemented thoughtfully and contextually. Moreover, there remains a noticeable gap in the research concerning the use of flipped learning in middle school EFL settings, where learners' developmental stages, curricular constraints, and technological limitations present unique challenges. Much of the existing literature focuses on university-level education, with limited studies exploring how middle school English teachers perceive, adapt, and implement flipped learning. This highlights a vital area for future research in ELT. This study, therefore, aims to contribute to this underexplored area by investigating the perceptions and experiences of English language teachers in Turkish middle schools regarding the feasibility and applicability of flipped learning. Specifically, the study seeks to answer the following research questions:

1. What are teachers' perceptions of the suitability and applicability of the flipped learning model for teaching language skills and sub-skills in middle school education?
2. How do teachers evaluate the technological infrastructure, access to materials, professional training, and student readiness in implementing flipped learning?
3. What are the perceived instructional benefits of flipped learning in promoting student engagement, autonomy, and communicative language use?
4. What challenges and disadvantages do teachers face in applying the flipped learning model in middle school settings?

5. How do teachers perceive the impact of flipped learning on assessment practices and individualized feedback in the classroom?

Methodology

Research Design

This study adopted a mixed methods explanatory sequential design to gain a comprehensive understanding of English language teachers' perceptions of the flipped learning model in which quantitative data collection and analysis were followed by qualitative data collection and analysis. This design is particularly suitable when the researcher seeks to explain or elaborate on quantitative findings using qualitative data (Creswell & Plano Clark, 2018). Accordingly, the semi-structured interviews were conducted after the administration of the questionnaire, with the aim of gaining deeper insights into the patterns and themes that emerged from the survey results. The use of a mixed methods approach facilitates triangulation, complementarity, and expansion of findings, thereby enhancing the validity and depth of the research (Creswell & Plano Clark, 2017). Specifically, an explanatory sequential design was implemented, in which quantitative data were collected and analyzed first, followed by qualitative data collection to further interpret and explain the initial results.

Sampling and Participants

A purposive sampling strategy was employed to recruit participants with specific knowledge and experience related to the flipped learning model in English Language Teaching (ELT). For the quantitative phase, a total of 40 English language teachers working in state middle schools across the Edirne Province and its nine districts participated in the study. Table 2 shows the demographic information of the participants.

Table 2. Demographic Characteristics of Participants of the Questionnaire (N = 40)

	Category	f	%
Age	20–29 years	5	12.5
	30–39 years	15	37.5
	40–49 years	13	32.5
	50–59 years	7	17.5
Gender	Male	15	37.5
	Female	25	62.5
In-service training taken	Yes	23	57.5
	No	17	42.5
Flipped Learning application	Yes	3	7.5
	No	37	92.5
Graduate program	ELT	33	82.5
	Other	7	17.5
Graduation degree	BA	36	90.0
	MA	3	7.5
	PhD	1	2.5

	Category	f	%
Teaching experience	1–5 years	2	5.0
	6–9 years	7	17.5
	10–15 years	12	30.0
	More than 15 years	19	47.5

Note. *f* = frequency; *%* = percentage.

For the qualitative phase, five teachers were selected from different population to take part in semi-structured interviews, providing in-depth insights into the quantitative findings.

Table 3. Demographic Characteristics of Participants of the Interview (N = 5)

Variable	T1	T2	T3	T4	T5
Age	37	39	37	40	37
Gender	Female	Male	Female	Female	Male
In-Service Training Taken?	No	No	No	No	No
Flipped Learning Application?	Yes	No	No	No	Yes
Graduate Program	ELT	ELT	ELT	ELT	English Language and Literature
Graduation Degree	Master	Bachelor	Bachelor	Bachelor	Bachelor
Teaching Experience	10–15 years	15+ years	10–15 years	15+ years	10–15 years

Note. T1, T2, etc. refer to Teacher 1, Teacher 2, and so forth.

Data Collection Procedures and Ethical Considerations

The finalized 5-point Likert scale questionnaire was administered online via Google Forms, a widely used digital platform recognized for its cost-effectiveness, accessibility, and ease of use in educational research settings (Wright, 2005). This method was particularly suitable for reaching a geographically diverse sample of English language teachers working in various middle schools. The online format allowed participants to complete the survey at their own convenience, reducing logistical challenges and promoting a higher response rate. Prior to data collection, all necessary ethical clearances and institutional permissions were obtained. Approval was granted by both the Edirne Provincial Directorate of National Education (İl Milli Eğitim Müdürlüğü) with the permission date and number MEB.TT.2025.016015.01 and the Institutional Review Board (IRB) of Trakya University with the number of 2025.01.41. These approvals ensured that the research adhered to ethical standards concerning participant rights, data protection, and institutional integrity.

Participation in the study was entirely voluntary, and all participants were informed of their right to withdraw at any stage without any consequences. An informed consent statement was included at the beginning of the questionnaire, outlining the purpose of the study, expected duration, use of data, and confidentiality assurances. No personally identifiable information was collected, and the anonymity of responses was strictly maintained. In addition to the quantitative data collection, five participants were invited to take part in semi-structured interviews aimed at further exploring their perceptions, experiences, and challenges related to the flipped learning model.

Interviewees were selected based on their willingness to volunteer, as indicated through the final question on the questionnaire form. All interviews were conducted outside of class hours, in mutually agreed-upon settings, to ensure that the normal instructional workflow of schools was not disrupted. This approach also respected the professional responsibilities and time constraints of the participants. The interviews were conducted in accordance with ethical research practices, with verbal informed consent obtained prior to each session. Participants were assured of the confidentiality of their responses, and data were securely stored for research purposes only. Overall, the data collection process was designed to be ethically responsible, minimally intrusive, and methodologically sound, ensuring the integrity of the study while safeguarding the rights and professional commitments of all participants.

Data Collection Instrument for Quantitative Analysis (Questionnaire Design, Structure, and Validation)

The "Flipped Learning Teacher Questionnaire'' used in this study was developed by the researchers to explore English language teachers' perceptions of the flipped learning model, particularly in the context of middle school education. The development process followed a deductive approach, in which the themes and constructs were identified based on an extensive review of relevant literature in the fields of flipped learning, English Language Teaching (ELT), and technology-enhanced instruction. These themes were carefully selected to align with the planned SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis that would be used during data interpretation. Therefore, the questionnaire was designed not only to collect descriptive data but also to facilitate a structured evaluation of flipped learning's perceived advantages, limitations, and implementation requirements in line with the SWOT framework. To ensure the validity and relevance of the instrument, the initial draft was submitted to an expert. The expert provided feedback on content appropriateness, clarity of item wording, and alignment with research objectives. Revisions were made accordingly, strengthening the face and content validity of the instrument.

Structure and Content of the Questionnaire

The final version of the questionnaire consisted of two main sections, with a total of 31 Likert-scale items across five thematic sub-sections.

Section I: Demographics and Experience: This section collected background data such as age, gender, educational qualification, teaching experience, prior training in flipped learning, and experience with implementing it in the classroom in order to contextualize participants' responses and explore whether background factors influenced perceptions.

Section II: Perceptions of Flipped Learning: This section contained 31 items distributed across five sub-sections. Each item used a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The sub-sections reflected key thematic areas that were both conceptually grounded in the literature and analytically useful for SWOT-based evaluation. The structure of the questionnaire is shown in Table 4.

Table 4. Flipped Learning Teacher Questionnaire Structure

Section	Content	Purpose
Section I: Demographics & Experience	Age, gender, educational background, years of experience, prior training and implementation of the flipped learning model.	To identify participants' backgrounds and familiarity with the model.
Section IIa: Applicability in Middle Schools	Applicability of the model in general and for teaching four skills (reading, writing, speaking, listening) and grammar.	To assess general suitability in the ELT context.
Section IIb: Infrastructure & Pedagogical Requirements	Access to technology, teacher training, student self-regulation, and infrastructure readiness.	To understand technological and pedagogical prerequisites.
Section IIc: Advantages of Flipped Learning	Impact on student engagement, development of language skills, learner autonomy.	To examine perceived benefits.
Section IId: Disadvantages & Challenges	Increased workload, lack of student motivation, technological limitations, pedagogical barriers.	To explore challenges encountered for teachers/students.
Section IIe: Assessment & Feedback	Role of pre-class participation in assessment, individualized feedback, evaluation flexibility.	To identify impacts on formative and summative assessment practices.

Analytical Approach for the Quantitative Phase

Prior to full-scale data collection, a pilot study was conducted to evaluate the clarity, structure, and reliability of the questionnaire. A group of 20 English language teachers, selected through purposive sampling, shared similar characteristics with the participants in the main study. The pilot questionnaire was administered via Google Forms, replicating the format and delivery method intended for the actual study. Participants were encouraged to provide feedback on any ambiguous or unclear items and were asked to note the time required to complete the questionnaire and offer suggestions for improvement. The majority of participants completed the survey within 10 to 15 minutes. Based on their feedback, minor revisions were made to enhance the clarity and consistency of the items. Additionally, the pilot data were analyzed for internal consistency using Cronbach's alpha, which showed satisfactory reliability across the five subsections ($\alpha > 0.79$). Following these adjustments, the finalized questionnaire was used for the main study.

Table 5. Cronbach's Alpha Values for Measuring Internal Consistency of the Pilot Study

	Item Number	Question Number	Cronbach Alpha
Application	(6)	1-6	.94
Requirements	(5)	7-11	.79
Advantages	(4)	12-15	.95
Disadvantages	(9)	16-24	.84
Assessment and Feedback	(7)	25-31	.92
Total	31		.96

After conducting the pilot study with 20 teachers to refine the research instruments and ensure their reliability and validity, necessary adjustments were made based on the preliminary findings. Following this, the actual study was implemented with a larger sample of 40 teachers. The final reliability scores of the instrument used in the main study are presented in the table below.

Table 6. Cronbach's Alpha Values for Measuring Internal Consistency of the Main Study

	Item Number	Question Number	Cronbach Alpha
Application	(6)	1-6	.93
Requirements	(5)	7-11	.74
Advantages	(4)	12-15	.92
Disadvantages	(9)	16-24	.81
Assessment and Feedback	(7)	25-31	.87
Total	31		.95

The quantitative data collected through the Likert-scale items were analyzed using JAMOVI statistical software (Version 2.6.17) which is an open-source, user-friendly statistical package based on the R programming language, widely used in educational and social sciences research for its flexibility and accessibility (The JAMOVI Project, 2021). Data analysis was carried out to identify trends and patterns in English language teachers' perceptions of the flipped learning model, particularly in the context of middle school English Language Teaching (ELT). To provide a comprehensive overview of the data, descriptive statistics were computed, including frequencies, means, and standard deviations for each item and thematic sub-section. Descriptive analysis plays a critical role in educational research by allowing researchers to summarize central tendencies and variability in responses, thereby offering insights into the overall direction and intensity of participants' attitudes (Fraenkel, Wallen, & Hyun, 2012; Cohen, Manion, & Morrison, 2018). In this study, mean scores were used to interpret the general agreement levels among participants regarding the applicability, benefits, challenges, and implementation requirements of flipped learning. Standard deviations, on the other hand, helped reveal the extent of variability or consensus among teachers' responses. Moreover, the reliability of the questionnaire was assessed using Cronbach's Alpha coefficients for each thematic sub-section, all of which yielded acceptable to excellent values (ranging from .74 to .93), while the overall instrument demonstrated a very high reliability score of .95**,** indicating excellent internal consistency (Taber, 2018). These reliability estimates further supported the use of descriptive statistical measures for meaningful interpretation. The descriptive results not only offered a snapshot of participants' overall perceptions but also served as a foundational layer for subsequent SWOT-based qualitative analysis. By integrating descriptive statistical findings with thematic insights, the study aimed to provide a holistic understanding of the opportunities and challenges surrounding flipped learning implementation in middle school ELT contexts.

Data Collection Instrument for Qualitative Analysis (Interview Design, Structure, and Trustworthiness)

To further elaborate on and validate the patterns identified in the quantitative phase, face-to-face semi-structured interviews were conducted with five English language teachers. This in-person approach facilitated deeper engagement, allowing the researcher to observe non-verbal cues, build rapport, and probe responses more

effectively. The interviews provided rich, contextualized insights into the participants' lived experiences and nuanced perceptions regarding the implementation and practicality of the flipped learning model in middle school English language teaching. The qualitative data gathered through semi-structured interviews were analyzed using content analysis, following a deductive coding approach. A set of pre-determined themes and sub-themes was developed prior to the analysis process, grounded in an extensive review of the literature on flipped learning in English Language Teaching (ELT). These themes corresponded to the interview structure and focused on five main areas: (a) applicability, (b) infrastructure and requirements, (c) advantages, (d) disadvantages and challenges, and (e) assessment and feedback. To enhance the conceptual robustness and external validity of the coding framework, the researcher conducted a cross-verification process by consulting ChatGPT (OpenAI, 2025). This step involved comparing the literature-based sub-themes with those generated via AI, ensuring that the final coding scheme was both theoretically grounded and consistent with contemporary terminology and conceptualizations in educational research. While ChatGPT was not used for direct data interpretation, it served as a tool for analytical triangulation, helping the researcher confirm and refine sub-theme categorization. Once the coding framework was finalized, the interview transcripts were systematically coded. Instances of data that did not align with existing sub-themes were examined for emerging patterns and either incorporated into existing themes or documented as unique findings. The final results were presented in a clear and organized format, aligning with the explanatory sequential design of the study, which aimed to interpret and elaborate on quantitative findings through qualitative insights. The interviews were recorded, transcribed, and later analyzed through thematic coding to uncover emerging patterns and categories.

Table 7. Flipped Learning Teacher Interview Structure

Section	Content
Section I: Demographics	Age range, gender, years of teaching experience, prior training and implementation of flipped learning.
Section II: Thematic Questions **1. Applicability:**	Teachers' perceptions of the pedagogical feasibility of using flipped learning in middle schools and its applicability to four language skills.
2. Infrastructure & Requirements:	Teachers' views on the sufficiency of technological infrastructure and students' access to materials.
3. Advantages:	Teachers' experiences with increased student participation, time for interaction, and learner autonomy.
4. Disadvantages & Challenges:	Observed challenges, such as students not completing pre-class tasks and pedagogical issues.
5. Assessment & Feedback:	Perceptions of how flipped learning contributes to assessment practices and personalized feedback.

Thematic Approach for the Qualitative Phase

The interview questions were prepared by the researchers based on both the study objectives and the initial quantitative results. To ensure content validity and reliability, they were reviewed and refined by an expert in the field. The interviews were audio-recorded, transcribed verbatim, and analyzed manually using deductive thematic coding, guided by the SWOT analysis framework (Strengths, Weaknesses, Opportunities, and Threats). This

deductive approach allowed the researchers to categorize the data systematically in line with pre-determined analytical dimensions. In addition to SWOT analysis, the data were examined through the elements of Gap Analysis and Force Field Analysis which were selectively integrated: the severity of the identified issues was considered from the Gap perspective, while the driving and restraining forces surrounding implementation were analyzed using Force Field principles. This integrated approach allowed for a more nuanced understanding of both the perceived realities and underlying dynamics within the research context and provide a more holistic view of participants' insights highlighting the current challenges, potential improvements, and the forces facilitating or hindering implementation. To ensure trustworthiness in qualitative research, the study adhered to criteria proposed by Lincoln and Guba (1985). Credibility was established through prolonged engagement with the data, expert validation of interview questions, and reflective interpretation aligned with quantitative findings (triangulation). Transferability was supported by providing rich, detailed descriptions of the research context, participant profiles, and setting, allowing others to determine applicability in different contexts. Dependability and confirmability were enhanced by documenting each step of the data collection and analysis process, using a structured coding framework and maintaining an audit trail. To protect participant anonymity**,** each interviewee was coded as T1 to T5**.** The entire analysis process was conducted in a rigorous and structured manner to ensure consistency and integrity of findings.

Analytical Procedures

To comprehensively interpret the findings, three qualitative analytical techniques were applied in a sequential and integrative manner. By combining SWOT, Gap, and Force Field analyses, this study provides a triangulated view of teachers' perceptions and experiences with flipped learning. The integration of these frameworks offers both diagnostic depth (via SWOT and Gap) and strategic direction (via Force Field). The thematic alignment ensured consistency and comparability across the data, while the layered analysis allowed for a more nuanced interpretation of complex challenges in technology-enhanced language education.

SWOT Analysis

The SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) was used to evaluate the internal and external dimensions of implementing the flipped classroom model from the teachers' perspectives. SWOT is a well-established strategic planning tool that has been increasingly adapted for qualitative research in educational contexts (Ghazinoory, Abdi, & Azadegan-Mehr, 2011). It enables researchers to categorize insights into what works, what does not, and what potential exists within or beyond the classroom environment.

Gap Analysis

Gap analysis was applied to assess the difference between the current state of flipped learning implementation and the desired or optimal state. This method is useful in identifying areas of deficiency or misalignment between policy intentions and practical realities (McKinney, 2015). Gaps were evaluated in terms of severity (low, moderate, or high) and mapped onto the five themes. This enabled a structured understanding of not just the

presence of problems but also their magnitude, providing direction for targeted intervention and policymaking. For positive items, reversed mean = original mean. For negative items, reversed mean is calculated (5+1–Mean) as shown in table 8.

Table 8 Gap Severity Thresholds (Original vs. Reversed Items)

Gap Severity	Original Mean Range (5-point Likert)	Reversed Mean Range (5-point Likert)	Interpretation
High	≤ 2.49	≥ 3.51	Strong weakness (original) → Strong strength (after reversal)
Moderate	2.50 – 3.49	2.50 – 3.49	Moderate weakness (same after reversal)
Low	≥ 3.50	≤ 2.49	Minimal weakness (original) → Strong weakness (after reversal)

Force Field Analysis

To complement the previous two frameworks, Force Field Analysis (Lewin, 1947) was used to examine the driving and restraining forces that influence the adoption of flipped classrooms. This model allows researchers to explore how multiple factors (both positive and negative) operate simultaneously, affecting the likelihood of successful implementation. It is particularly valuable in educational change studies (Fullan, 2007). Force Field Analysis also enabled the formulation of recommendations directly tied to each theme and gap level, ensuring actionable insights.

Findings

This section presents the findings of the study in accordance with the explanatory sequential mixed methods design employed. First, the results of the quantitative data collected through a Likert-scale questionnaire are reported to provide a general overview of participants' perceptions. These results offer statistical insights into the perceived strengths, weaknesses, opportunities, and threats related to the topic under investigation. Following the quantitative analysis, the qualitative findings derived from semi-structured interviews are presented. These interviews were conducted to further explore and explain the patterns identified in the survey data. The qualitative data were analyzed deductively using the SWOT framework and were further supported by Gap Analysis and Force Field Analysis. Together, the quantitative and qualitative findings offer a comprehensive understanding of the research problem, illustrating both broad trends and in-depth participant perspectives.

Descriptive Analysis of the Questionnaire Results

The study follows a well-structured design in both the development of the data collection instrument and the organization of the research questions. To ensure coherence and analytical clarity, the research questions were formulated to align closely with the thematic structure of the questionnaire. Accordingly, the findings are presented in the same order as the questionnaire items and research questions. This approach not only enhances

the internal consistency of the study but also allows for a more systematic and transparent examination of the participants' responses. Each section below corresponds to a specific research question and thematically grouped set of questionnaire items, enabling a clear connection between the data and the study's objectives. Table 9 presents the alignment between the research questions, the thematic sections of the findings, and the specific questionnaire items analyzed under each theme.

Table 9. Mapping Research Questions to Thematic Findings Sections and Corresponding Questionnaire Items

Findings Section	**Research Question**	**Related Items**
3.2 Teachers' general perceptions of the flipped learning model and its applicability to language skills	RQ1. What are teachers' perceptions of the suitability and applicability of the flipped learning model for teaching language skills and sub-skills in middle school education?	Q1 – Q6
3.3 Technological and pedagogical infrastructure for implementing flipped learning	RQ2. How do teachers evaluate the technological infrastructure, access to materials, professional training, and student readiness in implementing flipped learning?	Q7 – Q11
3.4 Perceived pedagogical advantages of flipped learning in enhancing engagement and autonomy	RQ3. What are the perceived instructional benefits of flipped learning in promoting student engagement, autonomy, and communicative language use?	Q12 – Q15
3.5 Challenges and drawbacks in the implementation of flipped learning	RQ4. What challenges and disadvantages do teachers face in applying the flipped learning model in middle school settings?	Q16 – Q24
3.6 Assessment and feedback practices in flipped learning environments	RQ5. How do teachers perceive the impact of flipped learning on assessment practices and individualized feedback in the classroom?	Q25 – Q31

Note. RQ = Research Question; Q = Questionnaire item.

Teachers' General Perceptions of the Flipped Learning Model and Its Applicability to Language Skills

Table 10 presents the descriptive statistics regarding teachers' perceptions of the flipped learning model and its applicability across various language skills in middle school contexts.

Tablo 10 Descriptive Statistics on the Applicability of Flipped Learning to Language Skills in Middle School Education

Item	Statement	1-SD*(f/%)*	2-D*(f/%)*	3-N*(f/%)*	4-A*(f/%)*	5-SA*(f/%)*	Mean	Gap Severity	Standard deviation
Q1	Flipped learning is suitable for middle school education.	1 (2.5%)	-	5 (12.5%)	9 (22.5)	25 (62.5%)	4.42	L	0.903
Q2	I find flipped learning applicable for teaching reading skills.	-	-	3 (7.5%)	11 (27.5%)	26 (65%)	4.58	L	0.636

Item	Statement	1-SD(*f*%)	2-D(*f*%)	3-N(*f*%)	4-A(*f*%)	5-SA(*f*%)	Mean	Gap Severity	Standard deviation
Q3	I find flipped learning applicable for teaching writing skills.	-	-	5 (12.5%)	8 (20%)	27 (67.5%)	4.55	L	0.714
Q4	I find flipped learning applicable for teaching speaking skills.	-	1 (2.5%)	2 (5%)	12 (30%)	25 (62.5%)	4.53	L	0.716
Q5	I find flipped learning applicable for teaching listening skills.	-	1 (2.5%)	3 (7.5%)	9 (22.5%)	27 (67.5%)	4.55	L	0.749
Q6	I find flipped learning applicable for teaching grammar.	-	-	3 (7.5%)	10 (25%)	27 (67.5%)	4.60	L	0.632

Note. H = High; M = Moderate; L = Low. Question=Q

Regarding the general appropriateness of flipped learning for middle school education, the majority of participants agreed (22.5%) or strongly agreed (62.5%), with a mean score of 4.42 (SD = 0.90), indicating a generally positive perception. Only one participant (2.5%) strongly disagreed, and none disagreed, suggesting minimal resistance. Teachers expressed particularly high agreement concerning the use of the flipped model in reading instruction, with 65% strongly agreeing and 27.5% agreeing. The item had a high mean score of 4.58 (SD = 0.63), reflecting strong consensus on its applicability. Similarly, writing skills were perceived as suitable for flipped implementation, with 67.5% strongly agreeing and 20% agreeing, resulting in a mean of 4.55 (SD = 0.71). In terms of speaking skills, 62.5% of teachers strongly agreed and 30% agreed, yielding a mean of 4.53 (SD = 0.71), though a small proportion (7.5%) expressed disagreement or neutrality, possibly reflecting concerns related to assessment or classroom interaction dynamics. For listening skills, 67.5% strongly agreed and 22.5% agreed with the flipped model's applicability, producing a mean score of 4.55 (SD = 0.74). Only 2.5% disagreed, indicating generally strong support. Finally, perceptions regarding the use of flipped learning for grammar instruction were highly favorable, with a mean of 4.60 (SD = 0.63). Notably, 67.5% of teachers strongly agreed and 25% agreed, with no respondents expressing disagreement. Teachers perceive flipped learning as highly applicable across all language skills, with a low severity gap indicating minimal weaknesses and overall strength.

Technological and Pedagogical Infrastructure for Implementing Flipped Learning

Table 11 presents the descriptive statistics related to teachers' perceptions of the technological and pedagogical infrastructure necessary for the effective implementation of flipped learning in middle school English language teaching.

Table 11. Descriptive Statistics on Technological and Pedagogical Infrastructure for Flipped Learning Implementation

Item	Statement	1-SD(*f*/%)	2-D(*f*/%)	3-N(*f*/%)	4-A(*f*/%)	5-SA(*f*/%)	Mean	Gap Severity	Standard deviation
Q7	The technological infrastructure at my school is sufficient to implement flipped learning.	1 (2.5%)	2 (5%)	3 (7.5%)	8 (20%)	26 (65%)	4.40	L	1.01
Q8	Students can easily access pre-class materials (e.g., videos, readings) from home.	1 (2.5%)	-	2 (5%)	11 (27.5%)	26 (65%)	4.53	L	0.816
Q9	I have received adequate training to implement flipped learning effectively.	23 (57.5%)	14 (35%)	3 (7.5%)	-	-	1.50	H	0.641
Q10	I feel confident designing and delivering flipped learning activities.	1 (2.5%)	2 (5%)	4 (10%)	14 (35%)	19 (47.5)	4.20	L	0.992
Q11	My students demonstrate the self-discipline needed to complete pre-class tasks independently.	17 (42.5%)	15 (37.5%)	4 (10%)	1 (2.5%)	3 (7.5%)	1.95	H	1.15

Note. H = High; M = Moderate; L = Low. Question=Q

A majority of respondents (85%, combining “Agree” and “Strongly Agree”) perceive the technological infrastructure at their schools as adequate for flipped learning implementation (Mean = 4.40, SD = 1.01). This suggests that most schools provide sufficient hardware, software, and connectivity to support pre-class and in-class activities. Similarly, a strong consensus exists that students can easily access pre-class learning materials from home, with 92.5% agreeing or strongly agreeing (Mean = 4.53, SD = 0.81). This indicates that teachers believe students have the necessary digital access to engage with flipped content outside the classroom. In stark contrast, the majority of teachers (92.5%) report insufficient training for implementing flipped learning, with 57.5% strongly disagreeing and 35% disagreeing with having received adequate preparation (Mean = 1.50, SD = 0.64). This highlights a critical gap in professional development, potentially undermining effective flipped learning practices despite infrastructural readiness. Despite limited formal training, 82.5% of teachers expressed confidence in designing and delivering flipped learning activities (Mean = 4.20, SD = 0.99). This may reflect informal learning, personal initiative, or prior experience but also suggests possible overestimation of preparedness. Regarding student engagement, 80% of teachers disagreed or strongly disagreed that students demonstrate sufficient self-discipline to complete pre-class tasks independently (Mean = 1.95, SD = 1.15). This indicates a significant challenge in flipped learning environments, where student autonomy is crucial for success. While schools generally have adequate technology and teachers feel confident in delivering flipped learning, high gaps in teacher training and student self-discipline indicate critical areas needing improvement.

Perceived Pedagogical Advantages of Flipped Learning in Enhancing Engagement and Autonomy

Table 12 presents the descriptive statistics concerning teachers' perceptions of the pedagogical benefits of flipped learning in promoting student engagement, interaction, language development, and learner autonomy.

Table 12 Descriptive Statistics on the Pedagogical Advantages of Flipped Learning for Engagement and Autonomy

Item	Statement	1-SD*(f/%)*	2-D*(f/%)*	3-N*(f/%)*	4-A*(f/%)*	5-SA*(f/%)*	Mean	Gap Severity	Standard Deviation
Q12	Flipped learning promotes student engagement in class.	-	-	2 (5%)	12 (30%)	26 (65%)	4.60	L	0.591
Q13	Flipped learning allows more time for interactive and communicative activities.	-	-	4 (10%)	10 (25%)	26 (65%)	4.59	L	0.637
Q14	Flipped learning improves students' language skills more effectively than traditional methods.	-	-	3 (7.5%)	11 (27.5%)	26 (65%)	4.58	L	0.636
Q15	Flipped learning fosters student autonomy and independent learning.	-	-	2 (5%)	5 (12.5%)	33 (82.5%)	4.78	L	0.530

Note. H = High; M = Moderate; L = Low. Question=Q

An overwhelming 95% of respondents agreed or strongly agreed that flipped learning promotes student engagement in class (Mean = 4.60, SD = 0.59). This suggests teachers perceive flipped learning as an effective approach to increase active participation and involvement during classroom sessions. Similarly, 90% of teachers concurred that flipped learning allows for more time to be dedicated to interactive and communicative activities (Mean = 4.59, SD = 0.63). This reflects the belief that flipping instruction enables classroom time to shift from passive content delivery to dynamic, learner-centered practices that support language development. A comparable proportion of teachers (92.5%) agreed or strongly agreed that flipped learning improves students' language skills more effectively than traditional methods (Mean = 4.58, SD = 0.64). This indicates a strong conviction that flipped learning positively impacts students' language acquisition outcomes. The highest level of agreement (95%) was observed for the statement that flipped learning fosters student autonomy and independent learning (Mean = 4.78, SD = 0.53). Teachers strongly believe that flipped learning cultivates essential self-directed learning skills, a key objective in modern language education. Q12–Q15 all show low severity gaps, indicating that flipped learning is perceived as highly effective for engagement, interactive activities, language skills, and fostering student autonomy.

Challenges and Drawbacks in the Implementation of Flipped Learning

Table 13 presents the descriptive statistics related to teachers' perceptions of the main challenges and drawbacks encountered during the implementation of flipped learning in middle school English language teaching.

Table 13. Descriptive Statistics on the Challenges and Drawbacks of Flipped Learning Implementation

Item	Statement	1-SD(*f/%*)	2-D(*f/%*)	3-N(*f/%*)	4-A(*f/%*)	5-SA(*f/%*)	Mean/reversed mean	Gap Severity	Standard deviation
Q16	Preparing flipped learning materials (e.g., videos) increases my workload.	8 (20%)	18 (45%)	2 (5%)	7 (17.5%)	5 (12.5%)	2.58 **3.42**	M	1.34
Q17	It is difficult to ensure that all students complete pre-class tasks.	-	1 (2.5%)	-	6 (15.0%)	33 (82.5%)	4.78 **2.32**	H	0.577
Q18	Flipped learning is challenging due to technological limitations.	21 (52.5%)	10 (25%)	3 (7.5%)	4 (10%)	2 (5%)	1.90 **4.10**	L	1.22
Q19	Students are reluctant to participate in flipped learning activities.	24 (60%)	10 (25%)	4 (10%)	2 (5%)	-	1.60 **4.40**	L	0.871
Q20	The disadvantages of flipped learning constitute a barrier to its implementation	26 (65%)	9 (22.5 %)	2 (5%)	3 (7.5%)	-	1.55 **4.45**	L	0.904
Q21	Students do not yet have habits suitable for this model and need to be trained.	-	-	-	7 (17.5%)	33 (82.5%)	4.83 **1.17**	H	0.385
Q22	Despite some disadvantages, flipped learning is worth trying.	1 (2.5%)	-	3 (7.5%)	5 (12.5%)	31 (77.5%)	4.63	L	0.838
Q23	Excessive dependence on technology can become a problem in flipped learning.	5 (12.5%)	18 (45%)	7 (17.5%)	10 (25%)	-	2.55 **3.45**	M	1.01
Q24	Teachers are not adequately trained to implement this model in middle schools.	2 (5%)	1 (2.5%)	1 (2.5%)	5 (12.5%)	31 (77.5%)	4.55 **1.45**	H	1.04

Note. H = High; M = Moderate; L = Low. Question=Q *High (≤ 2.49 → ≥ 3.51); Moderate (2.50–3.49 → 2.50–3.49); Low (≥ 3.50 → ≤ 2.49).*

While 65% of participants disagree, 30% agree that preparing flipped learning materials increases their workload (Mean = 2.58, SD = 1.34). This reflects a moderate level of concern, with a notably wide standard deviation, suggesting diverse views as some teachers find it time-consuming to create or curate videos and online content, especially without institutional support or ready-made resources. A very high proportion with 82.5% strongly agree and 15% agree that it's difficult to ensure all students complete pre-class tasks (Mean = 4.78, SD = 0.57). This underscores a critical implementation challenge, as the flipped model relies heavily on students' preparedness outside of class. A majority of teachers disagree that technology is a major limitation (Mean = 1.90, SD = 1.22), indicating that infrastructure is not seen as a primary obstacle. This is consistent with earlier findings (Q7–Q8) on sufficient access to infrastructure and materials. Most respondents (85%) disagree or strongly disagree that

students are reluctant to participate (Mean = 1.60, SD = 0.87), implying that once in class, students are willing and motivated—suggesting the issue is pre-class compliance, not in-class engagement. Most of the teachers disagreed (87.5%) with the idea that the disadvantages of flipped learning is an obstacle to apply it (Mean = 1.55, SD = 0.90), stating this models' feasibility though its drawbacks. A near-unanimous 82.5% strongly agree that students need training to develop habits compatible with flipped learning (Mean = 4.83, SD = 0.38), emphasizing the need to scaffold students' self-regulation skills, especially at the middle school level where such autonomy is still developing. Confirming the statement in Q20, most of the participants (%90) think though its disadvantages this model is worth trying (Mean = 4.63, SD = 0.83). The score of Q23 (Mean = 2.55, SD = 1.01) reveals moderate concern about relying too heavily on technology. While not a dominant worry, the variation in responses suggests that some teachers see pedagogical risks in over-digitizing instruction. A significant majority (90%) agree, (Mean = 4.55, SD = 1.04) that teachers in middle schools are not adequately trained to implement the flipped model. This highlights a systemic gap in professional development that could undermine the effectiveness of flipped classrooms. As presented with the gap severity, items Q16 and Q23 show moderate gaps, indicating that teachers think they will experience increased workload and have some concerns about technology dependence. Items Q17, Q21, and Q24 reveal high gaps, highlighting urgent needs for teacher training and improving student habits. The remaining items (Q18–Q20, Q22) have low gaps, reflecting strengths in student participation, technology use, and the overall perceived value of flipped learning.

Assessment and Feedback Practices in Flipped Learning Environments

Table 14 presents descriptive statistics on teachers' perceptions of assessment and feedback practices in flipped learning environments.

Table 14. Descriptive Statistics on Assessment and Feedback Practices in Flipped Learning

Item	Statement	1-SD(*f*/%)	2-D(*f*/%)	3-N(*f*/%)	4-A(*f*/%)	5-SA(*f*/%)	Mean/reversed mean	Gap Severity	Standard deviation
Q25	Flipped learning allows me to provide more individualized feedback.	-	-	3 (7.5%)	3 (7.5%)	34 (85%)	4.78	L	0.557
Q26	I can better monitor student progress through continuous assessments in flipped learning.	-	-	2 (5%)	8 (20%)	30 (75%)	4.70	L	0.564
Q27	Flipped learning requires the use of more varied assessment methods (e.g., quizzes, projects).	-	1 (2.5%)	5 (12.5%)	16 (40%)	18 (45%)	4.31	L	0.766
Q28	Students are better prepared for assessments due to pre-class exposure to content.	-	-	1 (2.5%)	15 (27.5%)	24 (60%)	4.58	L	0.549

Item	Statement	1-SD(*f*/%)	2-D(*f*/%)	3-N(*f*/%)	4-A(*f*/%)	5-SA(*f*/%)	Mean/reversed mean	Gap Severity	Standard deviation
Q29	It is difficult to track participation in pre-class activities, which affects assessment.	5 (12.5%)	21 (52.5%)	4 (10%)	9 (22.5%)	1 (2.5%)	2.50 **3.50**	M	1.06
Q30	Designing fair and accurate assessments in flipped learning is challenging.	19 (47.5%)	15 (37.5%)	3 (7.5%)	3 (7.5%)	-	1.75 **4.25**	L	0.899
Q31	Overall, flipped learning improves the assessment and feedback process.	-	1 (2.5%)	2 (5%)	6 (15%)	31 (77.5%)	4.67	L	0.694

Note. H = High; M = Moderate; L = Low. Question=Q *High (≤ 2.49 → ≥ 3.51); Moderate (2.50–3.49 → 2.50–3.49); Low (≥ 3.50 → ≤ 2.49).*

A substantial majority (85% strongly agree, Mean = 4.78, SD = 0.55) believe flipped learning enables them to provide more individualized feedback. The very high mean and low standard deviation suggest strong consensus that the freed-up in-class time in the flipped model enhances personalization of instruction and formative feedback. Similarly, 95% of teachers agreed or strongly agreed that they can better monitor student progress through continuous assessments in flipped learning (Mean = 4.70, SD = 0.56). This highlights the model's capacity to support ongoing, formative evaluation, rather than relying solely on summative tests. Most participants (85%) agree that flipped learning requires diverse assessment methods, such as quizzes and projects (Mean = 4.31, SD = 0.76). This aligns with the constructivist underpinnings of flipped learning, which emphasize performance-based and authentic assessments. A large majority (87.5% agree or strongly agree) report that students are better prepared for assessments due to their prior exposure to content before class (Mean = 4.58, SD = 0.54). This underscores one of the core strengths of flipped learning: enabling students to process material at their own pace, which in turn improves assessment performance. Over half of the respondents (65%) disagree or strongly disagree that it is difficult to track participation in pre-class activities (Mean = 2.50, SD = 1.06). However, the high standard deviation suggests divergent experiences—possibly due to differences in digital tools used, school policies, or student populations. Tracking engagement remains a concern for a subset of teachers. Many respondents (85% disagree or strongly disagree) do not find designing fair and accurate assessments in flipped learning challenging (Mean = 1.75, SD = 0.89). This indicates that by using varied assessments, teachers generally perceive fairness in assessment as a significant component. The relatively low mean suggests a low level of concern, although the standard deviation implies some variation in experiences or contexts. A compelling 92.5% agree or strongly agree that flipped learning improves the assessment and feedback process overall (Mean = 4.67, SD = 0.69). This reflects broad approval of flipped learning as a framework that supports more responsive, meaningful, and individualized assessment practices. The gap analysis shows that Items Q25–Q28 and Q30–Q31 have low severity gaps, indicating that teachers perceive flipped learning as highly effective for providing feedback, monitoring progress, using varied assessments, and preparing students for assessments. Item Q29 shows a moderate gap, suggesting some challenges in tracking student participation in pre-class activities.

Synthesis of SWOT Themes, Gap Severity, and Force Field Recommendations in the Flipped Learning Context

The study aims to present a comprehensive synthesis of qualitative findings from the interviews through a SWOT analysis which is integrated with Force Field analysis supported with Gap analysis. This combined approach identifies the primary strengths, weaknesses, opportunities, and threats associated with implementing the flipped learning model in middle school English teaching, while also assessing the urgency and scale of each issue. Gap severity is used to indicate the magnitude and immediacy of attention required for each finding. A *low* rating suggests that the issue is minor or already well-managed and thus requires only routine monitoring. A *moderate* rating reflects areas that present noticeable challenges but can be addressed with targeted interventions in the medium term. A *high* rating denotes urgent and significant issues that, if left unresolved, could seriously hinder the effectiveness and sustainability of the flipped learning model. By pairing each SWOT theme with Force Field Analysis, the table highlights both the *driving forces* that support implementation and the *restraining forces* that limit it, followed by practical, context-specific recommendations. Overall, it functions as both a diagnostic tool and a strategic roadmap, guiding educators, administrators, and policymakers toward data-driven improvements in flipped learning adoption. In order to improve readability and facilitate interpretation the integrated SWOT–Force Field matrix and gap analysis tables were divided into five separate tables, each corresponding to a specific analytical category: Application, infrastructure, advantages, disadvantages, and assessment whereby readers may focus on one dimension at a time without being overwhelmed by excessive information. As shown below in Table 15a, 15b,15c and 15d.

Table 15a. Integrated SWOT–Force Field Matrix and Gap Analysis Summarizing Quantitative and Qualitative Findings (Category: Application)

Cat.	SWOT Theme	Gap Sev.	Items/(Rev.) Mean Scores	Force Field Analysis & Recommendations	Example Participant Quotes (T1–T5)
Application	**Strengths**: Model applicable across all skills; teachers show motivation	Low	Q1: 4.42 Q2: 4.58 Q3: 4.55 Q4: 4.53 Q5: 4.55 Q6: 4.60	**DF:** Motivation among teachers; model suits multiple language skills. **Rec:** Encourage teacher-led communities of practice to sustain momentum and collaboration.	T2: “This model can be quite sufficient for English teaching… applications can be done digitally.”T5: “Most of our teachers are willing to receive such training; this model is a supportive approach for instruction.”
	Weaknesses: Inadequate structured training; lack of student discipline	High	Q9: 1.50 Q11: 1.95	**RF:** Lack of sustained professional development; poor student habits. **Rec:** Implement mentoring & peer coaching; develop applied flipped model trainings for teachers and students.	T1: “Teachers need to be supported not just through training but also with materials.”T3: “Students are not always able to adapt to this system well.”

Cat.	SWOT Theme	Gap Sev.	Items/(Rev.) Mean Scores	Force Field Analysis & Recommendations	Example Participant Quotes (T1–T5)
	Opportunities: Teacher openness; positive student reception	Low	Q12: 4.60 Q13: 4.59 Q14: 4.58 Q15: 4.78 Q22: 4.63	**DF:** Teacher openness; digital readiness among students. **Rec:** Provide incentives for teacher innovation; share success stories to inspire wider adoption.	T2: "Teachers are keen to try digital applications for teaching."

Note. DF = Driving Forces; RF = Restricting Forces; Rec. = Recommendation. Cat= Category. Reversed=Rev.

This table summarizes the strengths, weaknesses, and opportunities of the application category. High mean scores indicate strong teacher motivation and model applicability, while low scores highlight the need for structured training and student discipline. Driving and restricting forces, along with recommendations, provide guidance for improving implementation.

Table 15b. Infrastructure: SWOT–Force Field and Gap Analysis Integration

Cat.	SWOT Theme	Gap Sev.	Items/ (Rev.) Mean Scores	Force Field Analysis & Recommendations	Example Participant Quotes (T1–T5)
Infrastructure	**Strengths**: Existing infrastructure like EBA, smart boards, internet	Low	Q7: 4.40 Q8: 4.53	**DF:** Technological readiness in urban schools. **Rec:** Continue upgrading systems and increase teacher usage through gamified tech training.	T2: "Our school's technological infrastructure is quite sufficient."T5: "Thanks to the FATİH [1] Project and EBA system, the infrastructure has been established."
	Weaknesses: Internet instability in rural areas; student device access varies	Low Moderate	**Q18: 4.10** **Q23: 3.45**	**RF:** Infrastructural and digital divide. **Rec:** Distribute loaner devices; develop offline-capable flipped materials.	T4: "Power cuts and internet issues can be serious problems."T1: "In village schools, there's a shortage of tech devices."
	Opportunities: Government support, project-based funding	Low	Q7: 4.40 Q8: 4.53	**DF** National initiatives like FATİH. **Rec:** Leverage government support for scaling flipped learning.	T5: "FATİH Project ensures infrastructure support for digital learning."

Note. DF = Driving Forces; RF = Restricting Forces; Rec. = Recommendation. Cat= Category. *Rerversed=Rev.* Mean Scores *High (≤ 2.49 → ≥ 3.51); Moderate (2.50–3.49 → 2.50–3.49); Low (≥ 3.50 → ≤ 2.49).*

1: FATİH Project (Movement to Increase Opportunities and Technology): Turkish government initiative to integrate smart boards, tablets, and digital content into classrooms nationwide.

This table presents the SWOT analysis of infrastructural factors. Strengths reflect adequate technological readiness, whereas weaknesses emphasize disparities in rural areas. Recommendations focus on bridging digital gaps and leveraging government initiatives for broader adoption.

Table 15c. Advantages & Disadvantages: SWOT–Force Field and Gap Analysis Integration

Cat.	SWOT Theme	Gap Severity	Items/ (Rev.)Mean Scores	Force Field Analysis & Recommendations	Example Participant Quotes (T1–T5)
Advantages	**Strengths**: Boosts engagement, self-paced learning, student responsibility	Low	Q12: 4.60 Q13: 4.59 Q14: 4.58 Q15: 4.78	**DF:** Increased autonomy, confidence, and participation. **Rec:** Expand self-paced digital content; include student success stories.	T1: "Participation increases because it boosts self-confidence."T5: "Students learn how to learn on their own…"
	Weaknesses: Younger students less ready for autonomy	High	**Q21: 1.17**	**RF:** Immature learning skills in lower grades. **Rec:** Scaffold autonomy with parent guidance and shorter tasks.	T3: "I don't think this model is very suitable for 5th and 6th graders… they carry learning gaps from primary school."
	Opportunities: Foster lifelong learning skills and digital literacy	Low	Q12: 4.60 Q13: 4.59 Q14: 4.58 Q15: 4.78	**DF:** Early exposure to autonomous learning. **Rec:** Integrate flipped learning gradually to build autonomy and self-regulation skills.	T5: "Students are learning how to learn on their own, which is valuable for the future."
Disadvantages	**Weaknesses**: Equity issues; resistance to change; speaking assessment challenges; lack of ready materials, teacher training	Moderate Low High	**Q16: 3.42** **Q19: 4.40** **Q20: 4.45** **Q24: 1.55**	**RF:** Socioeconomic and pedagogical limitations for students. Lack of training for teachers. **Rec:** Provide devices, stable internet, incentives; create speaking rubrics; provide ready-made materials. Provide teachers with applied in-service training.	T1: "In low socioeconomic areas, students need to have their own devices."T3: "Some teachers are resistant to change."T5: "Developing materials can increase my work."T3: "Teachers are not well trained for this model."
	Threats: Student distraction; inconsistent lesson preparation	High	**Q17: 2.32**	**RF:** Poor student habits; digital distractions. **Rec:** Provide training on digital hygiene; track and coach online engagement.	T4: "It's hard to tell if the child is studying or just spending time online."T2: "If students don't come prepared, it makes the teacher's job harder."T3: "Students may spend much more time online than expected."

Note. DF = Driving Forces; RF = Restricting Forces; Rec. = Recommendation. Cat= Category. *Reversed=Rev.* Mean Scores *High (≤ 2.49 → ≥ 3.51); Moderate (2.50–3.49 → 2.50–3.49); Low (≥ 3.50 → ≤ 2.49).*

This table highlights the pedagogical implications of the model. Advantages include enhanced engagement, autonomy, and lifelong learning skills, while disadvantages point to equity issues, resistance to change, and

challenges in speaking assessment. Recommendations aim to scaffold autonomy and provide resources to mitigate limitations.

Table 15d. Assessment: SWOT–Force Field and Gap Analysis Integration

Cat.	SWOT Theme	Gap Severity	Items/ (Rev.)Mean Scores	Force Field Analysis & Recommendations	Example Participant Quotes (T1–T5)
Assessment	**Strengths**: Digital tools enable feedback, portfolio assessments	Low	Q25: 4.78 Q26: 4.70 Q27: 4.31 Q28: 4.58 **Q30:4.25** Q31: 4.67	**DF:** Ongoing formative assessment becomes easier. **Rec:** Train teachers to use Seesaw [1]/Google Forms for dynamic assessment.	T2: "Records can be kept digitally, and process evaluation can be done."T1: "It reduces the teacher's workload, and digital systems provide great benefits."
	Threats: High workload; cheating risk, difficult to track at home	Low	**Q29: 3.50**	**RF:** Manual assessment overload; risk of external help. **Rec:** Incorporate AI tools and peer/self-assessment protocols.	T1: "Creating evaluation sheets might be challenging and seen as a workload."T5: "Getting help from others can distort assessment results."
	Opportunities: AI-assisted assessment; automated feedback	Low	Q27: 4.31	**DF:** AI tools and digital platforms reduce workload and increase accuracy. **Rec:** Adopt AI-assisted assessment systems for streamlined evaluation.	T5: "AI tools can save time while giving useful feedback to students."

Note. DF = Driving Forces; RF = Restricting Forces; Rec. = Recommendation. Cat= Category. *Reversed=Rev.* Mean Scores *High (≤ 2.49 → ≥ 3.51); Moderate (2.50–3.49 → 2.50–3.49); Low (≥ 3.50 → ≤ 2.49).*

1: **Seesaw:** Digital platform for student engagement, formative assessment, and portfolio creation.

Overall, the SWOT-based analysis reveals a balanced yet complex picture of flipped learning implementation in middle school English teaching. On the positive side, teachers' motivation, the model's applicability across language skills, and existing technological infrastructure emerged as strong driving forces that can sustain long-term adoption. The model was also recognized for promoting student engagement, autonomy, and self-paced learning, particularly in upper grades. However, the analysis highlights several high-severity gaps that could hinder effectiveness if left unaddressed. These include the lack of structured and sustained professional development, equity and access issues in rural areas, and student discipline and readiness challenges, especially among younger learners. In addition, resistance to pedagogical change and speaking assessment difficulties represent persistent restraining forces that require targeted interventions. The recommendations emphasize capacity building through teacher-led communities of practice, structured mentoring, and integration of flipped learning training into professional development programs. Addressing infrastructural inequities through device loan schemes and offline capable content is essential to bridge the digital divide. Moreover, enhancing digital

literacy and digital hygiene, assessment efficiency, and student scaffolding particularly in lower grades can mitigate the threats of distraction, inconsistent preparation, and autonomy gaps.

Interpretation of the Integrated SWOT, Force Field and Gap Analysis Findings

The implementation of the flipped learning model was examined across five interrelated categories (application, infrastructure, advantages, disadvantages, and assessment) through a combination of quantitative and qualitative data, revealing the model's strengths, weaknesses, opportunities, and threats, along with corresponding driving and restricting forces. Quantitative results indicate strong teacher endorsement of the flipped learning model across all language skills, with agreement rates for reading (92.5%), writing (87.5%), listening (90%), speaking (92.5%), and grammar (92.5%). Teachers reported high motivation to engage with the flipped model, reflected in low gap severity for questions related to model applicability (Q1–Q6: mean 4.42–4.60). **DF:** Motivation among teachers and applicability across multiple skills. **Rec.:** Encourage teacher-led communities of practice to sustain momentum and collaboration. However, significant weaknesses were identified regarding structured training and student discipline (Q9: 1.50; Q11: 1.95). **RF:** Lack of sustained professional development and student adaptation challenges. **Rec.:** Implement mentoring and peer coaching, and provide applied flipped model training for teachers and students. Supporting qualitative evidence includes T2: "*This model can be quite sufficient for English teaching… applications can be done digitally*," T5: "*Most of our teachers are willing to receive such training; this model is a supportive approach for instruction*," T1: "*Teachers need to be supported not just through training but also with materials*," and T3: "*Students are not always able to adapt to this system well*." Opportunities were identified in teacher openness and positive student reception (Q12–Q15, Q22: mean 4.58–4.78), highlighting the potential to leverage motivation and digital readiness. **DF:** Teacher openness and students' digital readiness. **Rec.:** Share teacher success stories, incentivize innovation, and gradually introduce flipped activities to build learner autonomy. Teachers reported strong technological readiness in urban schools (Q7–Q8: mean 4.40–4.53, low gap severity), citing smart boards, EBA platforms, and reliable internet as key enablers. **DF:** Technological readiness in urban schools. **Rec.:** Continue upgrading systems and increase teacher usage through gamified tech training. Supporting qualitative evidence includes T2: "*Our school's technological infrastructure is quite sufficient*," and T5: "*Thanks to the FATİH Project and EBA system, the infrastructure has been established*." Despite this, infrastructural challenges persist in rural areas, with moderate severity for Q23 (3.45) and low severity for Q18 (4.10). **RF:** Infrastructural and digital divide. **Rec.:** Distribute loaner devices and develop offline-capable flipped materials (e.g., USB drives, printed QR-linked video sheets). Opportunities exist to leverage government initiatives and project-based funding (e.g., FATİH Project) to expand infrastructure support (Q7–Q8: mean 4.40–4.53, low gap). Flipped learning was reported to enhance student engagement, self-paced learning, and learner responsibility (Q12–Q15: mean 4.58–4.78, low gap severity). **DF:** Increased autonomy, confidence, and participation. **Rec.:** Expand self-paced digital content and include student success stories. Teachers emphasized: T1, "*Participation increases because it boosts self-confidence*," and T5, "*Students learn how to learn on their own*." However, challenges emerged regarding younger students' readiness for autonomous learning (Q21: 1.17, high severity). **RF:** Immature learning skills in lower grades. **Rec.:** Scaffold autonomy through parental guidance, provide shorter tasks, and gradually integrate flipped learning to develop lifelong learning skills and digital literacy. Opportunities also exist to foster early self-regulation and independent learning habits (Q12–Q15: mean

4.58–4.78). Equity issues, teacher resistance, speaking assessment challenges, and lack of ready-to-use materials were reported with moderate to high severity (Q16, Q19, Q20, Q24: mean 3.42–4.55). **RF:** Socioeconomic and pedagogical limitations, additional teacher workload, and insufficient materials. **Rec.:** Provide devices, stable internet, incentivize teacher adoption, develop speaking rubrics, create audio portfolios, and deliver applied in-service training. Teachers' insights reflect these challenges: T1, "*In low socioeconomic areas, students need to have their own devices*," T3, "*Some teachers are resistant to change*," and T5, "*Developing materials can increase my work*." High threats were noted concerning student distraction and inconsistent lesson preparation (Q17: 2.32). **RF:** Poor student habits; digital distractions. **Rec.:** Train students in digital hygiene and monitor engagement. Qualitative evidence includes T4, "*It's hard to tell if the child is studying or just spending time online*," T2, "*If students don't come prepared, it makes the teacher's job harder*," and T3, "*Students may spend much more time online than expected*." Flipped learning also facilitated formative feedback and portfolio-style assessment (Q25–Q28, Q30–Q31: mean 4.25–4.78, low gap severity). **DF:** Easier ongoing formative assessment. **Rec.:** Train teachers to use platforms such as Seesaw and Google Forms for dynamic evaluation. Teachers noted: T2, "*Records can be kept digitally, and process evaluation can be done*," and T1, "*It reduces the teacher's workload, and digital systems provide great benefits*." Challenges regarding workload and cheating risk were highlighted (Q29: mean 3.50). **RF:** Manual assessment overload; risk of external help. **Rec.:** Incorporate AI-assisted assessment tools, peer/self-assessment protocols, and automated feedback systems. Teachers' perspectives include T1, "*Creating evaluation sheets might be challenging and seen as a workload*," and T5, "*Getting help from others can distort assessment results*." Opportunities also exist to adopt AI-based solutions to streamline evaluation and provide timely feedback to students (Q27: mean 4.31).

Discussion and Conclusion

Building on the comprehensive findings presented, this study explores the practical and theoretical implications of implementing the flipped learning model in middle school English education. The study identified several key strengths that establish a promising foundation for successful adoption. Teacher motivation emerged as a significant driving force, with educators expressing enthusiasm and readiness to apply the flipped model across all language skills (including reading, writing, speaking, listening, and grammar) which align with the model's core principle of relocating direct instruction outside class time to facilitate active, collaborative learning during lessons (Bergmann & Sams, 2012). Additionally, existing technological infrastructure such as the EBA platform, smart boards, and internet connectivity (especially in urban schools) provides critical support for teachers and students engaging in flipped learning activities. Participants affirmed this strength, noting the sufficiency of their schools' technological readiness, supported by national projects like FATİH. Despite these encouraging factors, the study revealed several high-severity gaps threatening effective implementation. A major concern is the inadequate, unstructured professional development currently available. Teachers emphasized the need for ongoing mentoring, peer coaching, and applied flipped learning trainings that combine formal instruction with practical support and collaborative teacher communities to sustain momentum and confidence. Without such sustained development, teachers' preparedness and ability to adapt remain limited. Equity issues represent another pressing challenge. While infrastructure exists, rural schools frequently suffer from unstable internet, power outages, and lack of sufficient student devices, hindering equal access to pre-class materials. To bridge this digital divide, the

study recommends distributing loaner devices and creating offline-capable flipped materials, such as USB drives and printed resources with QR-linked videos. Participants also highlighted resistance to change among some educators, necessitating incentives and tailored support to foster adoption. Student readiness, especially among younger learners, also surfaced as a critical barrier. Many students lack essential self-regulation and autonomous learning skills required for flipped classrooms. Scaffolding strategies (including parental involvement, incremental autonomy-building tasks, and guided support) are recommended to nurture learner independence progressively, consistent with constructivist theories emphasizing scaffolded and autonomous learning (Piaget, 1972; Vygotsky, 1978). Additional challenges include equity and pedagogical limitations affecting speaking assessments, which remain difficult to evaluate fairly within the flipped model. Recommendations include developing speaking rubrics and using audio portfolios for more valid assessment. Moreover, digital distractions and inconsistent student preparation threaten lesson effectiveness. Addressing these issues calls for training in digital literacy and employing digital engagement tracking tools to monitor and support students' online study habits. On the assessment front, digital tools that enable dynamic, portfolio-style formative assessment offer promising benefits. Participants noted how platforms like Seesaw and Google Forms can ease teacher workload and enhance ongoing feedback. However, concerns about evaluation overload and cheating risks persist. To mitigate these, the study advises integrating ready-made AI-supported evaluation tools (such as ChatGPT for rubric feedback) and incorporating peer and self-assessment protocols. To sum up, this study highlights the flipped learning model's potential to enhance engagement, autonomy, and language acquisition outcomes when supported by robust professional development, equitable infrastructure, and pedagogically appropriate scaffolding. By aligning innovations with practical realities and targeted recommendations such as mentoring, device lending, and the integration of offline materials (e.g., printed reading/writing packs, pre-loaded USB drives or tablets containing lesson videos and exercises, and MP3-based listening activities), alongside digital literacy training and AI-assisted assessment, educators, school leaders, and policymakers can meaningfully strengthen the scalability and impact of flipped learning across diverse middle school contexts.

References

Akçayır, G., & Akçayır, M. (2018). The flipped classroom: A review of its advantages and challenges. *Computers & Education, 126*, 334–345. https://doi.org/10.1016/j.compedu.2018.07.021

Basal, A. (2015). The implementation of the flipped classroom in EFL courses. *TOJET: The Turkish Online Journal of Educational Technology, 14*(2), 159–164.

Bergmann, J., & Sams, A. (2012). *Flip your classroom: Reach every student in every class every day*. International Society for Technology in Education.

Bergmann, J., & Sams, A. (2014). *Flipped mastery: A method to increase student achievement*. International Society for Technology in Education.

Bishop, J. L., & Verleger, M. A. (2013). The flipped classroom: A survey of the research. In *ASEE National Conference Proceedings*, Atlanta, GA (Vol. 30, No. 9, pp. 1–18).

Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education* (8th ed.). Routledge.

Creswell, J. W., & Plano Clark, V. L. (2017). *Designing and conducting mixed methods research* (3rd ed.). Sage Publications.

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (4th ed.). Sage Publications.

Flipped Learning Network. (2014). The four pillars of F-L-I-P™. https://flippedlearning.org/definition/

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to design and evaluate research in education* (8th ed.). McGraw-Hill.

Fullan, M. (2007). *The new meaning of educational change* (4th ed.). Teachers College Press.

Flipped Learning Network. (2014). The Four Pillars of F-L-I-P™. Retrieved from https://flippedlearning.org/wp-content/uploads/2016/07/FLIP_handout_FNL_Web.pdf.

Ghazinoory, S., Abdi, M., & Azadegan-Mehr, M. (2011). SWOT methodology: A state-of-the-art review for the past, a framework for the future. *Journal of Business Economics and Management, 12*(1), 24–48. https://doi.org/10.3846/16111699.2011.555358

González, C., & Skultety, L. (2018). The in-class flip: A solution for schools with limited technology access. *Journal of Educational Technology Development and Exchange, 11*(1), 1–13.

Herreid, C. F., & Schiller, N. A. (2013). Case studies and the flipped classroom. *Journal of College Science Teaching, 42*(5), 62–66. https://doi.org/10.2505/4/jcst13_042_05_62

Horn, M. B., & Staker, H. (2015). *Blended: Using disruptive innovation to improve schools*. Jossey-Bass.

Hung, H. T. (2015). Flipping the classroom for English language learners to foster active learning: A case study. *International Journal of Instruction, 8*(2), 133–150. https://doi.org/10.12973/iji.2015.8210a

Lage, M. J., Platt, G. J., & Treglia, M. (2000). Inverting the classroom: A gateway to creating an inclusive learning environment. *The Journal of Economic Education, 31*(1), 30–43. https://doi.org/10.1080/00220480009596759

Lee, Y., & Wallace, C. (2018). Mobile flipped learning in EFL contexts: Developing speaking skills through gamified and personalized tasks. *Computer Assisted Language Learning, 31*(7), 698–720. https://doi.org/10.1080/09588221.2017.1398483

Lewin, K. (1947). Frontiers in group dynamics: Concept, method and reality in social science; social equilibria and social change. *Human Relations, 1*(1), 5–41. https://doi.org/10.1177/001872674700100103

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage Publications.

McKinney, M. (2015). Applying gap analysis to organizational performance. *Performance Improvement, 54*(1), 28–37. https://doi.org/10.1002/pfi.21415

OpenAI. (2025). ChatGPT [Large language model]. https://openai.com/chatgpt

Piaget, J. (1972). *The psychology of the child*. Basic Books.

Sun, J., Xie, K., & Anderman, E. M. (2018). Self-regulated learning and flipped classrooms in higher education: A review. *The Journal of Educational Research, 111*(2), 111–120. https://doi.org/10.1080/00220671.2017.1347007

Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in Science Education, 48*(6), 1273–1296. https://doi.org/10.1007/s11165-016-9602-2

The JAMOVI Project. (2021). JAMOVI (Version 2.6.17) [Computer software]. https://www.jamovi.org/

Tucker, B. (2012). The flipped classroom. *Education Next, 12*(1), 82–83.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes* (M. Cole, V. John-Steiner, S. Scribner, & E. Souberman, Eds. & Trans.). Harvard University Press.

Wright, K. B. (2005). Researching Internet-based populations: Advantages and disadvantages of online survey research, online questionnaire authoring software packages, and web survey services. *Journal of Computer-Mediated Communication, 10*(3), JCMC1034. https://doi.org/10.1111/j.1083-6101.2005.tb00259.x

Ethical Approval of the Study

All rules specified under the “Directive on Scientific Research and Publication Ethics of Higher Education Institutions” have been fully adhered to in this study. None of the actions listed under the second section of the directive, titled “Acts Contrary to Scientific Research and Publication Ethics,” have been committed.

Name of the Ethics Committee, Approval Date, and Number

Edirne Provincial Directorate of National Education MEB. TT. 2025.016015.01
Trakya University Social and Human Sciences Research Ethics Committee Presidency. 08.01.2025 2025.01.41.

Authors’ Contribution Rate

Both sides contributed equally and therefore are considered equal.

Conflict of Interest Statement

The authors of this study explicitly declare that there is no conflict of interest among them.