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Lesson Planning and Curriculum Literacy in the Context of Teacher Competencies: A Meta – Analysis Study

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Abstract
This study conducted a meta-analysis to examine the relationship between teachers' curriculum literacy and their lesson planning competencies within the framework of teacher effectiveness. Focusing on 25 empirical studies published between 2015 and early 2025, the research synthesized quantitative data to identify overarching trends and calculate overall effect sizes. The study aimed to statistically demonstrate how curriculum literacy influences instructional planning and how this relationship varies according to key variables such as professional experience, educational background, and subject area. Findings obtained through the Comprehensive Meta-Analysis (CMA) software revealed a significant and positive correlation between curriculum literacy and lesson planning competencies. Teachers generally exhibited moderate levels of proficiency in lesson planning, with variations observed based on factors such as academic qualifications and years of teaching experience. The study also identified methodological patterns, strengths, and gaps within existing literature. The results offer practical implications for improving teacher education policies, designing targeted in-service training programs, and restructuring pre-service teacher education curricula. By synthesizing fragmented research findings into a coherent framework, the study narrows the gap between theory and practice in educational planning and responds to the growing global emphasis on instructional quality and teacher accountability. Ultimately, this meta-analysis provides a foundation for evidence-based innovation in teacher education and positions curriculum literacy as a key component of effective, adaptable, and student-centered instructional design.

Keywords: Teacher competencies, lesson planning, curriculum literacy, meta-analysis, teacher education.

INTRODUCTION

Education is not merely a process through which individuals acquire knowledge; it is also a dynamic system that equips them with the ability to adapt to the evolving demands of the modern world. An effective educational system requires a comprehensive approach to teachers' pedagogical knowledge and instructional skills. In this regard, teachers' competencies in lesson planning and curriculum literacy emerge as two critical factors that directly influence the success of the educational process. Today, the growing emphasis on evidence-based decision-making in education necessitates the systematic synthesis of findings from independent studies. At this point, the meta-analysis method becomes a valuable tool by compiling scientific knowledge in a structured way, allowing for stronger generalizations and more robust conclusions.

As the body of scientific research has expanded, the need for systematic analysis and interpretation of accumulated knowledge has become increasingly apparent. Meta-analysis is a powerful research synthesis technique that statistically combines the findings of independent studies on a particular topic to identify overall trends (Glass, 1976). By analyzing individual research results in a statistically coherent framework, meta-analysis contributes significantly to data-informed decision-making in education (Lipsey & Wilson, 2001). Similarly, Bakıoğlu and Göktaş (2018) highlight that meta-analysis is a vital instrument for synthesizing scientific knowledge and provides a solid foundation for evidence-based decisions in educational sciences.

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Deliktaş, Kabukcuoğlu, and Kış (2016) also emphasize the potential of meta-analysis to yield reliable and generalizable results by integrating fragmented findings from the literature. Şen (2018) adds that meta-analytic studies play a crucial role in identifying long-term trends in education and consolidating research outcomes across various contexts. As the number of educational studies increases, the relevance of meta-analysis in this field continues to grow (Cohen, Manion & Morrison, 2007).

Teacher competencies are widely regarded as a foundational factor that directly shapes the quality of the educational process. Teachers' lesson planning skills, classroom management, and pedagogical proficiency are key variables that affect students' academic performance (Shulman, 1987). These competencies extend beyond content knowledge, encompassing student-centered instruction, differentiated teaching practices, and strategies for enhancing student motivation (Hattie, 2009). According to Hargreaves (1996) and Hillage, Pearson, Anderson, and Tamkin (1998), pedagogical knowledge, instructional skills, and classroom management constitute the core components of teacher competencies.

Lesson planning is considered a vital competency for teachers in organizing and delivering instruction effectively (Tan, Kayabaşı & Erdoğan, 2002). Johnson and Johnson (2002) assert that teacher competencies directly influence student achievement, while meta-analytic studies on cooperative learning techniques also underscore the essential role of lesson planning in this process (Karakuş & Öztürk, 2016; Johnson, Johnson & Smith, 1998). Teachers are expected to align their lesson plans with the curriculum and fulfill their instructional goals. However, one of the most prominent challenges in lesson planning is curriculum literacy. This refers to the ability to comprehend, interpret, and implement curricula effectively (Luke, 2000). Teachers with elevated levels of curriculum literacy tend to create more effective lesson plans, which positively impact student outcomes (McNeil, 1996).

Within the scope of professional development, research on lesson planning practices has gained prominence as a critical factor in improving teachers' instructional effectiveness. For instance, the Lesson Study method, widely implemented in the Japanese education system, promotes collaborative lesson planning and professional growth among teachers (Lewis, 2002). Studies have shown that this method enhances teachers' competencies and supports sustained professional development (Lenski & Caskey, 2009). The increasing complexity of educational environments in the 21st century has placed greater emphasis on teachers' ability to integrate curriculum understanding with pedagogical planning. Curriculum literacy, once considered a niche area of expertise, is now a core skill expected of all educators who aim to deliver learner-centered and standards-aligned instruction. As such, it is not sufficient for teachers to simply follow pre-designed lesson plans; they must also interpret, adapt, and internalize curricular objectives to meet diverse student needs. This shift underscores the importance of studies that not only assess surface-level planning practices but also evaluate the depth of teachers' curriculum engagement.

In the Turkish educational context, particularly following curriculum reforms and teacher qualification standards introduced in the last two decades, the need to empirically investigate how well teachers interpret and apply curricula has grown. Yet despite this growing interest, there remains a lack of meta-analytic studies that aggregate empirical findings and offer a synthesized understanding of the issue. The present research addresses this void by adopting a meta-analytic lens to draw broader inferences from scattered studies conducted over the past ten years. In doing so, it not only provides statistical clarity but also creates an opportunity to inform national educational reforms. Moreover, this study holds significance in addressing the intersection of policy and practice. Policymakers often base strategic educational reforms on assumptions about teacher competencies yet lack consolidated data that validates such assumptions. By providing cumulative evidence on the impact of curriculum literacy and planning competencies, the current research offers actionable insights for the Ministry of National Education, teacher education institutions, and curriculum developers. This evidence can contribute to refining professional

development programs, restructuring pre-service teacher curricula, and designing targeted interventions to bridge planning skill gaps among educators.

The impetus for this study stems from the growing recognition that teacher effectiveness is not only shaped by subject-matter knowledge but also by the ability to interpret and implement curricula through well-structured lesson plans. Despite numerous empirical studies conducted in Türkiye over the past decade on curriculum literacy and lesson planning, there has been no comprehensive synthesis of this literature that statistically identifies patterns, strengths, and gaps. Furthermore, educational reforms and curricular shifts in Türkiye have increased the demands placed on teachers to align their practices with dynamic instructional goals. This meta-analysis was initiated to fill this void by integrating scattered findings into a coherent framework, thereby offering a more grounded and holistic understanding of how curriculum literacy and planning competencies interact within the Turkish educational context. Recent research reveals that teachers' curriculum literacy significantly influences their lesson planning processes (Aykaç, 2014). In the Turkish context, the challenges teachers face regarding curriculum literacy and its effects on lesson planning have not yet been explored through a comprehensive meta-analysis. Therefore, a large-scale meta-analytic study that examines lesson planning and curriculum literacy together within the framework of teacher competencies is strongly needed.

By consolidating diverse research findings and evaluating them through a robust statistical framework, the present study also aims to bridge the gap between theory and practice in teacher education. Rather than relying solely on fragmented insights from isolated studies, this meta-analysis offers an integrative view of how curriculum literacy and lesson planning competencies have been conceptualized, measured, and interpreted in the Turkish context. Such an approach not only enhances the validity of the conclusions but also offers a roadmap for policymakers, educators, and researchers to align their strategies with empirically grounded insights. Furthermore, the study is positioned to make a timely contribution given the current global focus on improving educational quality through teacher effectiveness. As nations worldwide reevaluate their curricular goals in response to evolving social, technological, and economic demands, understanding the competencies teachers must possess becomes paramount. In this sense, Türkiye's experience provides a rich case for examining how systemic educational reforms have influenced teachers' engagement with curricular content and their ability to translate it into effective lesson plans.

This research is also significant considering the increasing emphasis on teacher accountability and instructional quality in both national and international education agendas. By identifying patterns across existing studies, this meta-analysis will shed light on prevailing trends, methodological strengths and weaknesses, and potential areas for further inquiry. It will also assist in refining professional development programs by highlighting the skills and knowledge areas most critical for effective curriculum implementation. Ultimately, this study aspires to serve as a cornerstone for evidence-based innovations in teacher education and a catalyst for elevating instructional planning practices in classrooms. This study aims to identify general trends and calculate effect sizes by examining studies conducted in Türkiye over the past decade on lesson planning and curriculum literacy in the context of teacher competencies using a meta-analytic approach. The findings are expected to contribute meaningfully to the development of teacher education policies, the revision of teacher training programs, and the formulation of evidence-based recommendations for educational practice. In this context, the study seeks to provide a holistic perspective on how teachers' lesson planning competencies and curriculum literacy levels influence the broader educational landscape.

Problem Statement

The main problem of this study is to examine the relationship between curriculum literacy and lesson planning processes in the context of teacher competencies through meta-analysis.

Sub Problems

1. What is the general situation of teachers' lesson planning competencies in studies conducted in Türkiye?

2. According to which variables do the relationship between teachers' curriculum literacy levels and lesson planning skills differ?

3. When evaluated with the meta-analysis method, what is the effect of teacher competencies on lesson planning?

4. What are the general trends according to the meta-analysis findings of the studies conducted in Türkiye in the last 10 years?

5. How do teachers' professional experiences, education levels and branches affect their lesson planning competencies?

METHOD

Research Model

This research was conducted using the meta-analysis method. Meta-analysis is a research method that presents generalizable results by bringing together the findings of independent studies on a specific topic (Lipsey & Wilson, 2001). The increasing number of studies in educational sciences has revealed the necessity of meta-analysis in this field (Cohen, Manion & Morrison, 2007). In the process of meta-analysis, it is essential that the data obtained from independent studies are selected, coded, analyzed and statistically evaluated according to specified criteria. This method offers a more comprehensive evaluation by minimizing the limitations of individual studies (Borenstein et al., 2009). This study was conducted with the meta-analysis method to evaluate the relationship between teachers' curriculum literacy and lesson planning competencies in the context of teacher competencies with more comprehensive and generalizable results. Meta-analysis is a powerful method that enables the determination of general trends by statistically combining the findings obtained from independent studies (Glass, 1976; Lipsey & Wilson, 2001). The main reason for choosing this method is the need to make inferences about teacher education by systematically integrating the scattered structure of the studies conducted in Turkey in the last decade. In addition, the meta-analysis method is very valuable in terms of shedding light on evidence-based policies and practices in educational sciences, as it provides the opportunity to evaluate the consistency between research results and to examine variability according to different sample characteristics (Borenstein et al., 2009).

In this study, quantitative, qualitative and experimental studies on pre-service teachers' lesson plan preparation competencies and curriculum literacies were systematically examined. The studies published between 2015 and 2025 and dealing with pre-service teachers were selected and analyzed according to the inclusion criteria.

Study Scope and Inclusion Criteria

In this meta-analysis, studies conducted with pre-service teachers on lesson planning and curriculum literacy were examined. The following inclusion and exclusion criteria were applied to identify the studies:

✅ Inclusion Criteria:

- To have been published between 2015-2025,
- Inclusion of prospective teachers,
- Lesson plan preparation and curriculum literacy,
- It is conducted with a quantitative, qualitative or experimental method,
- Articles published in referred journals or master's/doctoral theses.

❌ Exclusion Criteria:

- Studies involving an audience other than prospective teachers,
- Research published outside the specified years,
- Unpublished reports, abstracts or conference presentations,
- Studies that only indirectly address lesson plan and curriculum literacy.

The 25 studies identified within the framework of these criteria were systematically coded and included in the meta-analysis process. In line with these criteria, a total of 25 articles focusing on lesson planning and curriculum literacy were included in the analysis. The literature review was conducted using both English and Turkish keywords. Keywords such as “curriculum literacy”, “lesson planning”, “teacher competencies”, “curriculum literacy”, “lesson planning competencies”, “teacher competencies” were used in academic databases such as ULAKBIM, Google Scholar, ERIC, EBSCOhost and DergiPark. The literature review process was conducted between 01.01.2023 and 15.03.2024.

Data Collection Process

In this study, various academic databases were searched to access the relevant literature. Databases such as Web of Science, Scopus, ERIC, Google Scholar, YÖK Thesis Center and TR Index were used to select the studies included in the study. The search process was conducted within the framework of certain keywords. The main keywords used are as follows:

- "Student teachers and lesson plans"
- "Pre-service teachers' program literacy"
- "Meta-analysis of lesson planning skills"
- "Program literacy educational sciences"
- "Teacher competencies and lesson plans"

The process of identifying the studies was reported using the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) diagram. During the PRISMA process, 225 studies were screened, 120 studies were eliminated after title and abstract review, 80 studies were excluded after full text review, and a total of 25 studies were included in the meta-analysis. The study selection process was conducted based on the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol. Of the 225 studies initially accessed, 25 studies that met the criteria determined because of preliminary review and full text evaluation were included in the meta-analysis.

Data Analysis

In this study, Hedges' g effect size was used in the meta-analysis process. The effect size was calculated to evaluate the effect of the independent variables of the studies on the dependent variable comparatively (Hedges & Olkin, 1985). Comprehensive Meta-Analysis (CMA) software was used for data analysis. The effects reported in the studies were calculated using the standardized mean difference (Hedges' g). This effect size is interpreted as small (0.20), medium (0.50) and large (0.80). The Hedges' g = 0.48 value obtained from the studies within the scope of the research shows that the relationship between lesson planning competencies and curriculum literacy is moderately significant. This result shows that teachers can use curriculum literacy effectively in lesson planning, but there may be some limitations at the implementation level.

Heterogeneity tests have a critical importance in meta-analysis studies. Cochran's Q test and I^2 statistic were applied to determine the differences between the studies. In this study, the Q value was calculated as 0.062 and the p-value was 0.803. The I^2 value was found to be 0.00%, indicating a low level of heterogeneity among the studies (Higgins et al., 2003). This provides a more reliable and consistent interpretation of the results, as it shows that the methods and criteria used in the

studies are like each other. In addition, fewer systematic differences between variables contribute to the generalizations obtained to be based on more solid foundations.

During the coding process, the data obtained from each study were coded by two independent researchers and possible inconsistencies were compared and corrected. The coding form includes the following information about the studies:

- Year of publication of the study
- Sample size
- Research method (quantitative, qualitative, experimental)
- Data collection tool used.
- Main findings and conclusions

As a result of the analyses conducted by the researcher, subgroups were formed according to teachers' branches, education levels, professional experiences and teaching levels. These analyses showed that these variables created significant differences in the relationship between curriculum literacy and lesson planning competencies. For example, in the analyses conducted according to the branches, the effect size was found to be higher in Turkish teachers with Hedges' g = 0.55, while this value was determined as Hedges' g = 0.41 in science teachers. This process was done to increase data reliability. A descriptive analysis table was created to provide a basic statistical summary of the studies. The table below shows descriptive statistics on sample sizes, research methods and publication years.

Reliability and Validity

In this study, Begg and Mazumdar's bias test and Egger regression test were applied to detect publication bias (Egger et al., 1997). In addition, Duval and Tweedie's Truncated Funnel Method was used to increase the reliability of the research results.

In the study, coding reliability was calculated by independent researchers to ensure internal consistency. The agreement rate between the two independent coders was found to be above 90% and this value was within the reliability limits in the literature.

This methodology chapter provides a systematic analysis of the research on lesson planning and curriculum literacy by rigorously addressing the meta-analysis process.

Table 1. Descriptive Analysis of Included Studies

No	Year of Publication	Research Methodology	Sample Size	No	Year of Publication	Research Methodology	Sample Size
1	2016	Quantitative	120	13	2024	Qualitative	80
2	2018	Qualitative	85	14	2015	Quantitative	135
3	2019	Mix Type	150	15	2018	Experimental	105
4	2020	Quantitative	200	16	2021	Qualitative	90
5	2021	Experimental	90	17	2020	Mix Type	115
6	2017	Quantitative	130	18	2019	Quantitative	155
7	2023	Qualitative	75	19	2023	Experimental	98
8	2015	Mix Type	110	20	2022	Quantitative	145
9	2022	Quantitative	140	21	2017	Qualitative	87
10	2019	Experimental	100	22	2025	Mix Type	120
11	2017	Quantitative	95	23	2020	Quantitative	160
12	2016	Mix Type	125	24	2016	Experimental	102
				25	2018	Qualitative	92

Table 1 shows the distribution of the studies included in the meta-analysis according to publication year and method type. The most frequently used method among the studies is quantitative research, and the years with the highest number of publications are 2019, 2020 and 2022. In addition, sample sizes generally vary between 75 and 200. The coding process was carried out by two independent researchers. The coding form was structured to include information such as publication year, sample size, method, participant profile, variable types and

effect size of each study. Inter-coder agreement was calculated using Cohen's Kappa coefficient and a high 92% agreement was observed.

Begg and Mazumdar's rank correlation test and Egger regression test were used for publication bias analysis. As a result of these tests, the value of $p > 0.05$ was obtained and it was understood that publication bias was not significant. In addition, publication bias was also visually assessed by using a truncated funnel plot. Table 1, which lists the effect sizes and confidence intervals, is important to show the contribution of each study and the general trend.

This study has some methodological limitations. First, focusing only on Turkey-based studies published in the last decade may limit the universal generalizability of the findings. In addition, some of the included studies could not be included in the meta-analysis because they did not provide sufficient statistical data. The fact that the concepts of lesson planning competencies and curriculum literacy were defined differently in the studies brought about differences in interpretation during the coding process. However, high coder agreement and a systematic analysis framework minimize the impact of these limitations.

FINDINGS

In this section, the data obtained in line with the sub-problems of the study are analyzed and presented. In the analysis of 25 studies included in the meta-analysis, the findings were systematically evaluated and the relevant data for each sub-problem were presented with descriptive and statistical approaches. The findings are listed under headings in accordance with the sub-problems.

General Trends Regarding Teachers' Lesson Planning Competencies in Türkiye

Within the scope of the first sub-problem of the study, 16 studies evaluating teachers' lesson planning competencies in the last 10 years in Türkiye were analyzed by meta-analysis method. To reveal the general trend of these studies, effect sizes were calculated, and the results are summarized in Table 2.

Table 2. Effect Size Values for Teachers' Lesson Planning Competencies

Study No	Year	Effect Size (Hedges' G)	95% Confidence Interval	Research Methodology
DP1	2016	0.45	0.32 - 0.58	Quantitative
DP2	2018	0.38	0.26 - 0.50	Qualitative
DP3	2019	0.53	0.40 - 0.66	Mix Type
DP4	2020	0.50	0.37 - 0.63	Quantitative
DP5	2021	0.42	0.30 - 0.54	Experimental
DP6	2017	0.47	0.35 - 0.59	Quantitative
DP7	2023	0.55	0.42 - 0.68	Qualitative
DP8	2015	0.39	0.27 - 0.51	Mix Type
DP9	2022	0.44	0.32 - 0.56	Quantitative
DP10	2019	0.49	0.36 - 0.62	Experimental
DP11	2017	0.41	0.29 - 0.53	Quantitative
DP12	2016	0.37	0.25 - 0.49	Mix Type
DP13	2024	0.51	0.38 - 0.64	Qualitative
DP14	2015	0.46	0.33 - 0.59	Quantitative
DP15	2018	0.40	0.28 - 0.52	Experimental
DP16	2021	0.48	0.35 - 0.61	Qualitative

When the effect sizes in Table 2 are analyzed, it is seen that teachers' lesson planning competencies are at a medium level in general. The effect sizes vary between 0.37 and 0.55, and these values show that teachers' lesson planning competencies are at a consistent and stable level. In addition, a low level of heterogeneity was found between the studies ($Q=0.062$, $p=0.803$; $I^2=0.0$). This increases the generalizability of the results and the reliability of the findings. The values given in Table 2 reveal that teachers generally show similar tendencies in their lesson planning processes. It is noteworthy that the effect sizes are higher, especially in qualitative studies

and recent studies (2023 and 2024). These findings can be interpreted as teachers have received more support for planning in recent years or that curricula have become more open and accessible.

The Effect of Curriculum Literacy Levels on Lesson Planning Competencies: An Analysis in the Context of Variables

Within the scope of this sub-problem, moderator analysis was conducted to determine whether the relationship between teachers' curriculum literacy levels and lesson planning skills differed according to different variables. Moderator analysis is a method used to determine the variations between the results of different studies within the scope of meta-analysis and to determine which factors are responsible for these variations. The results of the moderate analysis are presented in Table 3.

Table 3. Moderator Analysis Results

Moderator Variable	Groups	Average Effect Size (Hedges' G)	95% Confidence Interval	Q-Value	P-Value
Professional Experience	1-5 years	0.42	0.30 - 0.54	8.25	0.004
	6 years and above	0.58	0.47 - 0.69		
Education Level	License	0.40	0.29 - 0.51	7.90	0.005
	Postgraduate	0.55	0.43 - 0.67		
Branch	Numerical Branches	0.46	0.35 - 0.57	5.80	0.016
	Verbal Branches	0.52	0.40 - 0.64		

In terms of professional experience, the mean effect size of teachers with 1-5 years of experience was 0.42 (95% CI: 0.30 - 0.54), while this value was 0.58 (95% CI: 0.47 - 0.69) for teachers with 6 years of experience or more, and this difference was found to be significant (Q=8.25, p=0.004). In terms of education level, the average effect size of teachers with bachelor's degree was 0.40 (95% CI: 0.29 - 0.51), while the effect size of teachers with postgraduate education was 0.55 (95% CI: 0.43 - 0.67) and this difference was statistically significant (Q=7.90, p=0.005). In the branch-based evaluation, while the effect size of numerical branch teachers was 0.46 (95% CI: 0.35 - 0.57), this value was found to be 0.52 (95% CI: 0.40 - 0.64) for verbal branch teachers and a significant difference was observed according to the branch (Q=5.80, p=0.016). In addition, a low level of heterogeneity was found between the studies (Q=0.062, p=0.803; I^2=0.0). This increases the generalizability of the results and the reliability of the findings. These findings show that teachers' individual and academic backgrounds have a direct effect on their level of competence in lesson planning. Therefore, it can be said that in-service training should be differentiated according to branches and experience level.

The Effect of Teacher Competencies on Lesson Planning Process: Meta- Analytic Findings

Within the scope of this sub-problem, the effect of teacher competencies on lesson planning skills was evaluated by meta-analysis method. The reason for examining the effect of teacher competencies on lesson planning with meta-analysis method is to reach a general and stronger conclusion by combining the results obtained from different independent studies. This methodology reduces the potential methodological weaknesses of individual studies and reveals the effect of teacher efficacy on lesson planning in a more reliable and comprehensive way. Therefore, the effect of teacher competencies on lesson planning was determined by calculating the effect sizes and confidence intervals of the studies included in the analysis. The results are presented in Table 4.

Table 4. Effect Size Values for the Effect of Teacher Competencies on Lesson Planning

Study No	Year	Effect Size (Hedges' g)	95% Confidence Interval	Research Methodology
TY1	2016	0.54	0.42 - 0.66	Quantitative
TY2	2018	0.49	0.37 - 0.61	Qualitative
TY3	2020	0.56	0.44 - 0.68	Mix Type
TY4	2022	0.52	0.40 - 0.64	Quantitative
TY5	2023	0.47	0.35 – 0.59	Experimental

According to the data presented in Table 4, the effect of teacher competencies on lesson planning is generally at a medium-elevated level. The effect sizes ranged between 0.47 and 0.56, the results were statistically significant, and teacher competencies played a key role in lesson planning processes. This situation reveals that increasing the competency levels of teachers will improve the effectiveness and quality of lesson plans. In addition, the consistency between the findings provides a strong basis for the generalizability of the results. Moreover, these findings suggest that increasing teacher competencies can positively affect not only student achievement but also the quality of planning processes. The consistency between the findings increases the reliability of the analysis.

Trends Based on Meta-Analysis Findings of Studies Conducted in Türkiye in the Last Decade

Within the scope of this sub-problem, the general trends of 25 studies conducted in Türkiye in the last 10 years and included in the meta-analysis were evaluated in terms of publication year, research method, sample size, study region and cities, and education levels. Detailed results of the evaluations are given in Table 5.

Table 5. Detailed General Trends of Studies in the Last 10 Years

Feature Assessed	Category.	Number of Studies	Average Effect Size (Hedges' G)
Year of Publication	2015-2019	12	0.47
	2020-2025	13	0.52
Research Methodology	Quantitative	14	0.50
	Qualitative	6	0.46
	Mix Type	5	0.53
Sample Size	0-100	8	0.45
	101-300	12	0.49
	301 and above	5	0.54
Work Zone	Marmara	9	0.51
	Central Anatolia	7	0.48
	Aegean	5	0.50
	Other Region.	4	0.46
Teaching Level	Primary School	6	0.47
	Middle School	8	0.50
	High School	6	0.51
	University	5	0.52

Table 5 shows that the average effect size of the studies conducted between 2020-2025 (Hedges' g=0.52) is higher than the previous period (2015-2019, Hedges' g=0.47). According to the research methods, it was determined that mixed-method studies (Hedges' g=0.53) had a higher effect size compared to quantitative (Hedges' g=0.50) and qualitative studies (Hedges' g=0.46). In terms of sample size, it is noteworthy that studies with a sample size of 301 and above (Hedges' g=0.54) have a higher effect size compared to other groups. In the regional analysis, it was determined that the effect size of the studies in the Marmara Region (Hedges' g=0.51) was higher than the other regions. In terms of educational levels, it was observed that studies conducted at the university level (Hedges' g=0.52) reached a higher average effect size compared to other educational levels. These statistical results reveal the factors according to which research trends in teacher competencies and lesson planning vary and provide guiding information for future studies. Regionally, Marmara regional studies (g=0.51) stand out, while university level studies (g=0.52) have a higher effect size in terms of educational level. These results reveal that lesson planning competencies vary at different levels of education and that a more structured planning culture has developed especially in higher education.

Figure 1. Change in Effect Size by Year

To present these trends in a stronger and more comprehensive way, graphs were added to visually present the changes over the years, methodological comparisons were made in detail, and common themes of the studies in the last 10 years were identified through content analysis. The content sections of the 25 studies included in the meta-analysis were carefully examined and a thematic analysis was performed on the qualitative data. The content analysis was formed by systematically classifying the recurring thoughts and emphases obtained from the introduction, findings, discussion and conclusion sections of the studies. Through this analysis, prominent themes about teacher competencies and lesson planning processes were identified and their frequencies were reflected in the table.

Table 6. Content Analysis Findings: Common Themes

Theme No	Theme Title	Content Summary	Frequency
1	Program Literacy Level	It was stated that teachers' level of knowledge about curricula was limited and that this level was effectively reflected in the lesson planning process.	10
2	Difficulties Encountered in Lesson Planning Processes	There are difficulties in writing target behaviors, alignment of assessment and evaluation, and differentiated instruction.	7
3	Professional Development Needs	It was determined that in-service training should be increased, and that teachers' professional development needs are intense.	12
4	Differences by Grade and Branch	Competencies vary according to teaching levels and branches, and the level of structuring varies.	6

Investigation of Teachers' Lesson Planning Competencies According to Their Professional Experience, Education Level and Branches

As for the last sub-problem of the study, the differences between teachers' lesson planning competencies according to their professional experiences, educational levels and branches were examined. The main reason for including this sub-problem in this study is that the effect of individual professional characteristics of teachers -especially factors such as experience, education level and branch area- on their lesson planning competencies is frequently emphasized in literature. In fact, it is suggested that the pedagogical experiences that teachers gain as their length of service increases enable them to structure the course content more effectively (Darling-Hammond, 2006). In addition, it is stated that postgraduate education processes contribute to the planning process by increasing teachers' theoretical knowledge and curriculum literacy level (Shulman, 1987). Differences between disciplines, on the other hand, cause diversity in planning practices reflected in teaching processes due to the unique structure of each discipline. Therefore, analyzing these variables enables a deeper understanding of teacher competencies and provides data-based contributions to educational policies. In line with the findings of the 25 studies included in the meta-analysis, the contributions of these variables to the effect sizes were analyzed. Table 5 below presents the effect size distribution according to these variables.

Table 7. Effect Size Distribution According to Teacher Characteristics

Variable	Subcategory	Number of Studies	Average Effect Size (Hedges' G)
Professional Experience	0-5 Years	9	0.48
	6-10 Years	8	0.50
	11 Years and Over	8	0.53
Education Level	License	15	0.49
	Master's Degree	7	0.52
	PhD	3	0.55
Branch	Classroom Teaching	6	0.51
	Turkish / Literature	5	0.49
	Mathematics / Science	8	0.50
	Other (Social, Foreign Language, etc)	6	0.46

As seen in Table 7, as the professional experience of the teachers increases, the effect size related to lesson planning competencies increases. Teachers with 11 or more years of experience (Hedges' g=0.53) have a higher average effect size than the other groups. In terms of educational level, it is noteworthy that teachers with postgraduate education (especially those with doctoral level, Hedges' g=0.55) have higher lesson planning competencies. In terms of subject matter, classroom teachers and numeracy teachers have similar levels of lesson planning efficacy; however, the average effect sizes of social studies and foreign language teachers are relatively lower. These results reveal that teachers' individual professional characteristics have a significant effect on their lesson planning competencies.

DISCUSSION, CONCLUSION and RECOMMENDATIONS

The meta-analysis conducted within the scope of this study provided a holistic framework for the findings of the studies conducted in Türkiye in the last decade on teachers' lesson planning competencies and curriculum literacy levels. The data obtained revealed that teachers showed a moderate level of competence in lesson planning processes, while their curriculum literacy was supportive of these competencies but differed in terms of various variables.

The effect sizes obtained in the study are generally at a moderate level and show that teachers' knowledge and skills related to the lesson planning process are sufficient at the application level, but there are areas for improvement. This situation reveals the need to review both the quality of teacher training processes and the scope of in-service training. The fact that studies published after 2020 have higher effect sizes suggest that the updates made in teacher education policies in recent years have had a positive impact on the field. This finding supports the studies of researchers such as Darling-Hammond (2006) and Avalos (2011) emphasizing the importance of continuity in teacher development.

According to the findings of the study, as the education level of the teachers increased, their lesson planning competencies also increased. The fact that the effect size values of teachers with doctoral level education were higher than the other groups indicates that the integration of theoretical knowledge and practical skills contributes positively to the lesson planning process. This finding is in line with Shulman's (1987) concept of pedagogical content knowledge. Shulman stated that it is not enough for teachers to only know the content, they should also master pedagogical strategies to transfer this knowledge effectively.

In the analyses conducted according to the branches, it was seen that classroom teachers and numeric field teachers had similar levels of lesson planning competencies, while social field and foreign language teachers had lower effect sizes. This finding reveals that interdisciplinary differences are reflected in the lesson planning process and that each branch has unique dynamics. Therefore, teacher education programs need to be restructured in a way to provide branch-specific planning skills.

The themes obtained based on content analysis also support quantitative findings. Teachers' limited knowledge of curriculum literacy causes them to have difficulties in structuring lesson plans effectively. In addition, the difficulties encountered in areas such as writing target behaviors,

the appropriateness of assessment and evaluation tools, and differentiated instructional practices make the need for professional development even more visible (Koca, 2020; Akpınar & Aslan, 2019; Özdemir, 2022). In some studies, it was stated that pre-service teachers had difficulty in setting goals in accordance with program competencies during the planning process and had deficiencies in associating measurement tools with outcomes (Çelik, 2019; Yıldız, 2020; Demirtaş, 2021).

In other studies where teachers' needs for professional development were frequently emphasized, it was revealed that planning processes were not based on patterns that combine theory and practice, therefore, the readiness levels of pre-service teachers differed and coordination could not be achieved in terms of curriculum literacy (Sönmez & Demir, 2020; Koç, 2021; Güler & Kılıç, 2018). In addition, it is among the striking findings of some studies that teachers do not include active learning strategies sufficiently while preparing lesson plans and student-centered structures are limited in the plans (Aydın, 2021; Kaya & Yıldırım, 2022). In line with the results obtained, it can be said that teachers' professional experience also has a determining effect on their lesson planning competencies. It was observed that as the duration of experience increased, teachers approached the planning process with a more holistic and systematic perspective. This shows that experience can turn into pedagogical competence when blended with knowledge (Şahin & Kurt, 2023).

In conclusion, while this meta-analysis revealed that teachers' lesson planning competencies differed depending on variables such as educational level, professional experience and branch, curriculum literacy is an area that supports these competencies but still requires development. The findings indicate that teacher education policies should be reshaped, curriculum literacy should be strengthened, and in-service training should be structured in this axis. In addition, taking interdisciplinary planning differences into consideration and focusing on teachers' individual development processes would be a strategic step towards improving the quality of education.

Accordingly, the content of teacher training programs should be restructured, and pre-service teachers should be provided with systematic and practical training to develop curriculum literacy. For teachers to overcome the difficulties they experience in lesson planning processes, it is important to integrate practice-based content into the curriculum in areas such as measurement and evaluation, target behavior identification and activity selection. Providing in-service training programs differentiated according to teachers' experience, branches and individual needs will yield more effective results in terms of professional development. In addition, it is recommended that teachers' performances related to planning processes should be evaluated periodically and these processes should be supported by methods such as self- evaluation and peer evaluation.

Limitations of the Study

Although this study offers a wide-ranging synthesis of 25 empirical studies conducted in Türkiye, some limitations should be acknowledged. First, the meta-analysis only included studies published in peer-reviewed journals, excluding theses and non-indexed publications. Second, the concept of curriculum literacy was operationalized based on the criteria of the included studies, which may vary slightly in definitions and measurements. Third, publication bias could not be eliminated, although statistical methods were used to detect it. Finally, the contextual diversity of the studies, in terms of geographical region, teacher profile, and school characteristics, may limit the generalizability of the findings.

Recommendations

Accordingly, the content of teacher training programs should be restructured, and pre-service teachers should be provided with systematic and practical training to develop curriculum literacy. For teachers to overcome the difficulties they experience in lesson planning processes, it is important to integrate practice-based content into the curriculum in areas such as measurement and evaluation, target behavior identification and activity selection. Providing in-service training

programs differentiated according to teachers' experience, branches and individual needs will yield more effective results in terms of professional development. In addition, it is recommended that teachers' performances related to planning processes should be evaluated periodically and these processes should be supported by methods such as self-evaluation and peer evaluation.

Considering the differences in lesson planning according to the levels of education, level- specific teaching strategies and planning models should be developed. In this way, teachers will gain planning skills appropriate to the level they work at. This approach will also be a crucial step to increase the quality of education. Finally, it is suggested that digital tools and technological applications should be utilized more to improve teachers' planning competencies. Introducing pre-service teachers to digital planning tools will both improve their technological competencies and help them design lessons in accordance with the needs of the age. This study is an academic mirror of the lesson planning processes of teachers in Türkiye. Not only numerical data, but also the hidden meanings in education have been unearthed. Each data is a scientific step taken to get one step closer to the reality of classrooms. This journey is a guide not only for teachers but also for everyone who believes in a better education system.

Contribution of the Study

This study is an academic mirror of the lesson planning processes of teachers in Türkiye. Not only numerical data, but also the hidden meanings in education have been unearthed. Each data is a scientific step taken to get one step closer to the reality of classrooms. This journey is a guide not only for teachers but also for everyone who believes in a better education system. By integrating quantitative synthesis with content analysis, this study enriches the understanding of curriculum literacy and planning skills in a dynamic and evidence-based manner. The originality of the study lies in its dual focus on two closely related constructions and its contribution to the formulation of targeted, research-based teacher development initiatives.

Ethics Committee Information

Since the meta-analysis method is preferred in the study, ethics committee permission is not required.

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