




Original article

Transforming Technology and Design Curricula: A Comparative Study of 2006–2018

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Abstract

This study aims to reveal the transformation of the Technology and Design curriculum in Türkiye by comparatively examining the curricula implemented in 2006, 2017, and 2018. The research is grounded in quantitative and qualitative data obtained from teachers' and inspectors' views on the 2006 curriculum and investigates the extent to which these views were reflected in subsequent revisions through document analysis. The curricula were compared in terms of aims, learning outcomes, vertical continuity, pedagogical orientations, and assessment approaches. The findings indicate that some criticisms were addressed in the 2017 and 2018 curricula through a reduction in learning outcomes, simplification of language, and increased flexibility. However, weak continuity across grade levels, limited instructional guidance, and persistent problems related to assessment practices and infrastructure were identified. In addition, the conception of technology has shifted from a production-oriented structure toward a framework-based approach, while digital competencies continue to be addressed at an instrumental level. Overall, the study concludes that curriculum effectiveness should be evaluated not only through textual revisions but also by considering.

Keywords: Comparative Curriculum Review, Curriculum Evaluation, Curricular Transformation, Technology and Design Curriculum

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INTRODUCTION

Technological development constitutes a dynamic and pervasive process that reshapes social structures and transforms individuals' ways of living. Beyond the diffusion of technical tools, this transformation fundamentally reconfigures how individuals access information, engage in problem solving, and participate in production processes. These structural changes generate new demands for technological competencies, rendering the systematic integration of technology into educational processes an imperative rather than a pedagogical choice. Accordingly, contemporary educational frameworks conceptualize technology not merely as an instructional aid, but as a central component that restructures learning environments and epistemic practices (OECD, 2023; UNESCO, 2022).

While technological advancements contribute to improving quality of life, education systems bear a critical responsibility in preparing individuals who can use technology consciously, critically evaluate technological developments, and adapt to continuous change. Within this context, technology education emerges as a distinct yet integrative field that enables individuals to understand technological systems, generate informed solutions to real-world problems, and actively shape their environments. Its primary aim extends beyond functional use, seeking instead to cultivate individuals who can analyze, question, and develop technology (De Vries, 2018; Rasinén, 2003;). In doing so, technology education supports the development of higher-order cognitive skills, including problem solving, analytical reasoning, decision making, design thinking, and systematic thinking (Ananiadou & Claro, 2009; Karaağaçlı & Mahiroğlu 2005; Novakova, 1999).

The multidimensional nature of technology education positions it as a core component of general education rather than a domain confined to vocational skill development. In increasingly industrialized and digitalized societies, general cultural literacy can no longer be conceived independently of science, technology, and production processes. From this perspective, technology education enhances individuals' capacity to engage with working life, understand production relations, and interpret complex technological systems, thereby strengthening their ability to participate meaningfully in contemporary social life (Black, 2019; OECD, 2020).

One of the central concepts underpinning technology education is design. When technology is conceptualized as a field of practice aimed at responding to human needs, the identification of these needs and their transformation into functional solutions inherently necessitate design. Within this framework, design is defined not merely as an activity concerned with producing aesthetically pleasing artifacts, but as a complex cognitive process in which scientific and technological knowledge, user needs, and societal expectations are holistically integrated. Çevik (1994) conceptualizes design as a cyclical decision-making activity and emphasizes the dynamic, iterative, and process-oriented nature of the design process. The design process begins with the recognition of a deficiency or problem and encompasses mental, creative, and critical thinking processes oriented toward generating solutions.

From this perspective, design is regarded as a fundamental learning domain that supports the development of 21st-century skills such as creativity, critical thinking, problem solving, and innovation (Cross, 2018; Ertaç, 2003; Özdemir, 2010; Plomp, 2020; Razzouk & Shute, 2012). Design also emerges as a process that enables technological innovations to acquire meaning and mediates their transformation into social value (De Vries, 2018; OECD, 2023). While the continuous evolution of individual and societal needs renders technological change inevitable over time, the design process contributes to shaping this transformation in ways that make human life more functional, sustainable, and meaningful.

When the relationship between technology and design is examined within an educational context, it becomes evident that contemporary technology education curricula position the design process as an integral component of learning (European Commission, 2019; Şenel & Gençoğlu, 2003). Although different countries employ varying terminology to describe technology education in international literature, there is a shared emphasis on equipping individuals with competencies related to planning, evaluation, production, design, and the development of technological foresight. Accordingly, technology education is conceptualized within a framework that supports innovation, entrepreneurship, ethical awareness, and multidimensional thinking skills (Rasinen, 2003; Voogt et al., 2015). Across many countries, technology education has been integrated into curricula from early childhood through secondary education, offering a broad scope of content that progresses from basic manual skills to digital technologies, biotechnology, and design-based learning practices (Black, 1998; De Vries, 1994; Gu, 2008; Johnston, 2005; OECD, 2020). With regard to the implementation of technology education within compulsory education, the literature identifies three main approaches: embedding technology-related learning outcomes within other subject areas, establishing independent courses for this purpose, or adopting a combined model that integrates both approaches (Uluğ, 2000). In the Turkish context, the approach adopted in technology education corresponds to this third, hybrid model. An examination of the development of technology education in Türkiye reveals that, for many years, the field was addressed under the heading of craft or work education.

From the 1930s onward, work education was included in national curricula and was largely implemented through a skill-based, manual-oriented approach. Over time, the course underwent various changes in terms of content, instructional time, and modes of implementation (Doğan, 1983; Uluğ, 2000). However, the literature frequently criticized this approach for its limited capacity to activate cognitive processes specific to design and technology, as well as for its inadequacy in fostering creativity, problem solving, and the integration of technological principles (Akbaş, 2003; Cesur, 1995; Mutlu, 2001). These critiques pointed to the course's failure to cultivate the competencies targeted by the curriculum. Consequently, the work education course taught in Grades 6, 7, and 8 was discontinued, and the Technology and Design course was introduced into the primary education curriculum beginning with the 2006–2007 academic year (MBE, 2006).

The Technology and Design curriculum was structured around an educational philosophy aimed at developing individuals who can anticipate needs, generate creative solutions, and effectively manage the design process (MBE, 2006). The transformation experienced in the Technology and Design curriculum represents a structural reconfiguration that extends beyond changes in nomenclature, learning outcomes, or content to encompass shifts in pedagogical orientations and underlying conceptions of learning. The effectiveness of curricula cannot be assessed solely through the articulation of aims and learning outcomes; rather, it must be evaluated in terms of the extent to which these aims are realized in practice. Curriculum evaluation studies therefore emerge as a fundamental mechanism for identifying the strengths and limitations of educational programs and for guiding their systematic improvement.

The curriculum evaluation process enables the determination of the degree to which educational objectives are achieved, the identification of challenges encountered during implementation, and the formulation of evidence-based improvements (Cronbach, 1982; Stufflebeam & Zhang, 2017; Tyler, 1993). The extent to which the design process envisaged by the curriculum is reflected in classroom practices, how teachers interpret curricular expectations, and the difficulties they encounter during implementation can only be revealed through systematic evaluation studies. Evaluations based on teacher and inspector perspectives, in particular, render the curriculum's practical applicability visible and provide concrete data to inform curriculum development efforts. Indeed, revisions made to Technology and Design curricula in Türkiye since 2006 largely reflect feedback obtained from field implementations and findings derived from curriculum evaluation research. The changes that Technology and Design curricula have undergone across different periods thus necessitate a comprehensive and holistic evaluation of the field.

The primary aim of this study is to examine the developmental trajectory of the Technology and Design curricula implemented in Türkiye through a two-phase approach. In the first phase, teacher and inspector perspectives on the general objectives of the 2006 Technology and Design curriculum and the learning outcomes for Grades 6, 7, and 8 were used to identify the conditions encountered during implementation as well as the challenges experienced in practice. In the second phase, the changes introduced in the learning outcome structures and overarching frameworks of the Technology and Design curricula revised in 2017 and 2018 were comparatively analyzed in light of the empirical findings obtained in the first phase. Accordingly, by establishing an analytical link between the empirical evidence derived from data collected in 2011 and subsequent curriculum revisions, the study aims to provide a comprehensive evaluation of the development of Technology and Design curricula.

MATERIALS and METHODS

This study is mixed-methods program evaluation research conducted through a two-phase approach. A mixed-methods design was adopted to enable a more comprehensive examination of the

research problem through the integrated use of quantitative and qualitative data (Creswell & Plano Clark, 2018). In program evaluation research, the use of multiple data sources facilitates a holistic understanding of both the theoretical structure of the curriculum and its implementation in practice (Stufflebeam & Zhang, 2017). In the first phase of the study, quantitative and qualitative data derived from teacher and inspector perspectives on the general objectives of the 2006 Technology and Design curriculum and the learning outcomes for Grades 6, 7, and 8 were analyzed. In the second phase, building on the empirical findings obtained in the first phase, the 2006, 2017, and 2018 versions of the Technology and Design curriculum documents were examined using document analysis. Changes in the learning outcome structures and overarching curricular frameworks were then comparatively evaluated. In this respect, the study adopts a sequential explanatory mixed-methods design aimed at establishing an analytical linkage between previously collected field data and subsequent curriculum revisions.

Study Group

The population of the study consisted of three different data sources: Technology and Design teachers working in Ankara during the 2010–2011 academic year, primary education inspectors serving in the same period, and the Technology and Design Course Curricula published by the Ministry of National Education in 2006, 2017, and 2018. The sample/study group included in both the quantitative and qualitative dimensions of the research was determined from this population through purposive sampling based on voluntary participation. Purposive sampling was preferred as it allows the selection of individuals who possess relevant knowledge and experience regarding the research topic (Patton, 2015). Accordingly, direct involvement of teachers and inspectors in the implementation of the Technology and Design curriculum was accepted as the main selection criterion. The quantitative and qualitative data obtained through scale administrations and interviews were based on teachers' and inspectors' implementation experiences and evaluations of the 2006 Technology and Design Curriculum, which was in effect during the data collection period. In the second stage of the study, the 2006 curriculum, together with the curricula published in 2017 and 2018, was examined comparatively through document analysis.

The population of the quantitative dimension of the study consisted of a total of 1,230 Technology and Design teachers working in the central districts of Ankara and 154 primary education inspectors serving in Ankara province. Since both quantitative and qualitative data collection techniques were employed, separate sampling procedures were conducted for each population group. In determining the quantitative sample of teachers, the seven central districts of Ankara were considered as strata, and proportional stratified sampling was applied. Based on a 95% confidence level and a 5% margin of error, the required sample size for the population of 1,230 teachers was calculated as 293 using the sample size formula (Çingir, 1994). In determining the sample distribution, the proportion of each stratum within the population was first calculated, and these proportions were then multiplied by the total sample size to determine the number of teachers to be reached in each stratum (Erkuş, 2009). During the data

collection process, a total of 332 Technology and Design teachers were reached, and the data obtained from these teachers were included in the quantitative analyses. (Creswell, 2014).

Table 1. Distribution of Technology and Design Course Teachers

District Name	Number of Teachers (N)	Number of Teachers in the Sample (n)
Altındağ	123	32
Çankaya	270	72
Etimesgut	115	32
Keçiören	245	61
Mamak	143	40
Sincan	131	39
Yenimahalle	203	56
TOTAL	1230	332

No separate sample was selected from the population of primary education inspectors in the study; instead, it was aimed to reach all 154 inspectors included in the population. However, responses were obtained from 72 inspectors, and data from 61 of them were found to be suitable for analysis and were therefore included in the study. In the qualitative dimension of the research, data were obtained from three sources: teachers, inspectors, and documents. The interviews conducted with teachers and inspectors were carried out to elicit their experiences and evaluations regarding the implementation of the 2006 Technology and Design Course Curriculum. In determining the study group for the interviews, neighborhood-based socioeconomic development level data for Ankara published by the Turkish Statistical Institute were taken as the basis. Accordingly, one primary school was randomly selected from neighborhoods representing low, middle, and high socioeconomic development levels. Face-to-face interviews were conducted with a total of six teachers (two from each selected school) and three inspectors, each responsible for supervising these schools. To ensure that diverse contexts and experiences were reflected in the study, maximum variation sampling was employed in the qualitative dimension (Yıldırım & Şimşek, 2021). Within the scope of the document analysis, the Technology and Design Course Curricula published by the Ministry of National Education in 2006, 2017, and 2018 were used as data sources. These curricula were regarded as the document population, as they constitute the only official and primary sources in the field. The 2006 curriculum was examined in relation to the findings obtained from the scale administrations and interviews, and all three curricula (2006, 2017, and 2018) were analyzed comparatively for this purpose (Bowen, 2009).

Data Collection Instruments and Techniques

The study was conducted using a mixed-methods design incorporating quantitative, qualitative, and document analysis components. In the quantitative dimension, a scale developed to determine teachers' and inspectors' views on the general aims and learning outcomes of the 2006 Technology and Design Curriculum was employed. The scale items were prepared based on a review of the relevant

literature and an examination of the curriculum, and expert opinions were sought to ensure content validity (Karasar, 2020). Likert-type scales are widely used as valid and reliable measurement tools for identifying individuals' attitudes and opinions (Likert, 1932; Tezbaşaran, 2008). Accordingly, the scale was constructed based on program evaluation criteria (Demirel, 2009; Erden, 1995; Ertürk, 1998; Senemoğlu, 2005; Sönmez, 2007; Varış, 1996) and was designed in a way that allowed teachers and inspectors to express their views separately for the 6th, 7th, and 8th grade levels. In this context, the scale was structured as a three-point Likert-type instrument consisting of the response options "Agree (3)," "Partially Disagree (2)," and "Disagree (1)." As a result of the statistical analyses conducted, the scale was found to have a single-factor structure, and the Cronbach's alpha internal consistency coefficient was calculated as .98, indicating a very high level of reliability.

In the qualitative dimension of the study, a semi-structured interview technique was employed. This technique was preferred as it allows for an in-depth exploration of participants' experiences and evaluations regarding the implementation of the Technology and Design Curriculum (Yıldırım & Şimşek, 2021). The interview questions were structured around the general aims of the curriculum, the applicability of the learning outcomes, and the problems encountered during the implementation process. Qualitative data were collected through the Technology and Design Curriculum Evaluation Interview Form. In the second stage of the study, the Technology and Design Curricula published by the Ministry of National Education in 2006, 2017, and 2018 were used as data sources. The curricula were examined using the document analysis method. Document analysis is a qualitative research method that enables the systematic and holistic examination of written materials (Bowen, 2009) and was employed to conduct a comparative evaluation of the curricula in terms of their general aims and learning outcome structures.

Data Analysis

In the analysis of quantitative data, frequencies and percentages were calculated for teachers' and inspectors' responses. The Chi-square test was employed to determine whether there were statistically significant differences between the views of Technology and Design teachers and inspectors regarding the aims, content, instructional process, and assessment dimensions of the curriculum (Büyüköztürk, 2020). Frequencies and percentages were also used in the analysis of responses to the open-ended items included in the scale. Teachers' and inspectors' views were organized separately and presented in tables, ranked from the most frequently reported problems and solution suggestions to those mentioned less frequently.

Qualitative data obtained from the semi-structured interviews were analyzed using the content analysis method. During the analysis process, the stages of coding, category (subtheme) formation, and theme development were followed, and the data were organized into meaningful units and interpreted accordingly (Miles, Huberman, & Saldaña, 2014; Yıldırım & Şimşek, 2021). In the document analysis,

the Technology and Design Curricula published by the Ministry of National Education in 2006, 2017, and 2018 were examined using a combination of descriptive and comparative approaches. Changes in the curricula in terms of their general aims, learning outcome structures, and learning domains were systematically identified and presented (Bowen, 2009). Since both quantitative and qualitative data collection techniques were employed in the study, validity and reliability procedures were addressed in accordance with the structure of each data collection instrument. In the quantitative dimension, the Cronbach's alpha internal consistency coefficient was calculated to determine the reliability of the Likert-type scale developed to identify teachers' and inspectors' views. The analysis yielded a Cronbach's alpha value of 0.98, indicating that the measurement instrument has a very high level of reliability and that the items consistently measure the same construct (Büyüköztürk, 2020).

In qualitative research, validity and reliability are addressed in line with the principles of credibility, dependability, and confirmability. In this study, various strategies were implemented based on the recommendations of Ekiz (2004) and Yıldırım and Şimşek (2021). Within this framework, data obtained during the pilot application of the semi-structured interview forms were shared with the participants to verify the accuracy of the researcher's interpretations (member checking). In addition, preliminary analyses were reviewed by a researcher with expertise in the field, and the analysis process was strengthened through expert review, with feedback obtained on the coding procedures and interpretations. The researcher's opportunity to observe pre-service Technology and Design teachers over an extended period within the scope of the teaching practicum course contributed to the contextualized and in-depth interpretation of the data. Furthermore, data triangulation was achieved through the combined use of teacher, inspector, and document data, thereby enhancing the consistency and credibility of the findings.

In the document analysis dimension of the study, the Technology and Design Curricula published by the Ministry of National Education in 2006, 2017, and 2018 were used as data sources. To ensure validity and reliability in document analysis, the criteria proposed by Bowen (2009) were taken into consideration. Accordingly, the documents analyzed were selected from among official and original Ministry of National Education publications, and the curricula were systematically examined under the headings of general aims, learning outcome structures, and learning domains. By employing descriptive and comparative approaches in combination, the consistency of the findings was ensured, and the results obtained were compared with findings derived from other data sources to establish coherence across data types. types.

FINDINGS

In this section, the quantitative and qualitative findings derived from teachers' and inspectors' views on the 2006 Technology and Design Curriculum were taken as the basis for a comparative analysis of the changes introduced in the revised curricula published in 2017 and 2018. The analysis was

structured around the five themes identified in the previous section, enabling a holistic examination of how practice-based findings related to the 2006 curriculum were reflected in subsequent curriculum revisions.

Table 2. Teachers' and Inspectors' Views on the General Objectives of the Technology and Design Curriculum

General objectives of the technology and design teaching program	Degree of Participation	Teacher		Inspector		Total		x ²	p
		f	%	f	%	f	%		
1. It is consistent with the general objectives of National Education.	Agree	219	66.0	38	62.3	257	65.4	.31	.856
	Partially agree	94	28.3	19	31.1	113	28.8		
	Disagree	19	5.7	4	6.6	23	5.9		
	Total	332	100	61	100	393	100		
2. It is internally consistent.	Agree	183	55.1	33	54.1	216	65.0	.19	.907
	Partially agree	122	36.7	22	36.1	144	36.6		
	Disagree	27	8.1	6	9.8	33	8.4		
	Total	332	100	61	100	393	100		
3. It is compatible with the general objectives of other programs.	Agree	163	49.1	24	39.3	187	47.6	3.38	.184
	Partially agree	127	38.3	31	50.8	158	40.2		
	Disagree	42	12.7	6	9.8	48	12.2		
	Total	332	100	61	100	393	100		
4. It is of a nature that will form the basis for determining learning outcomes.	Agree	162	48.8	29	47.5	191	48.6	6.03	.049*
	Partially agree	126	38.0	30	49.2	156	39.7		
	Disagree	44	13.3	2	3.3	46	1.7		
	Total	332	100	61	100	393	100		
5. It is of a nature that will form the basis for determining the content to be learned.	Agree	135	40.7	29	47.5	164	41.7	3.60	.165
	Partially agree	153	46.1	29	47.5	182	46.3		
	Disagree	44	13.3	3	4.9	47	12.0		
	Total	332	100	61	100	393	100		
6. It is appropriate for the developmental characteristics of students.	Agree	152	45.8	21	34.4	173	44.0	6.90	.032*
	Partially agree	126	38.0	34	55.7	160	40.7		
	Disagree	54	16.3	6	9.8	60	15.3		
	Total	332	100	61	100	393	100		
7. It is expressed in clear and understandable language.	Agree	175	52.7	28	45.9	203	51.7	4.69	.096
	Partially agree	114	34.3	29	47.5	143	36.4		
	Disagree	43	13.0	4	6.6	47	12.0		
	Total	332	100	61	100	393	100		
8. It is at a level that can be achieved by students.	Agree	149	44.9	25	41.0	174	44.3	2.21	.331
	Partially agree	145	43.7	32	52.5	177	45.0		
	Disagree	38	11.4	4	6.6	42	10.7		
	Total	332	100	61	100	393	100		

When teachers' and inspectors' views were examined separately, the proportion of teachers who expressed agreement with the statements regarding the general aims of the Technology and Design Curriculum ranged from 40.7% to 66%, while this proportion ranged from 34.4% to 62.3% among inspectors. Both groups demonstrated the highest level of agreement with the statement indicating that

the general aims of the curriculum are consistent with the general objectives of the Ministry of National Education. Overall, no large-scale differences were observed between teachers' and inspectors' perceptions regarding the general aims of the curriculum. However, statistically significant differences between teachers' and inspectors' views were identified for two of the eight statements. Accordingly, a significant difference was found between teachers and inspectors in their responses to the statement "The general aims of the Technology and Design Curriculum constitute a basis for the determination of learning outcomes" ($\chi^2 = 6.03, p < .049$). This finding indicates that teachers, compared to inspectors, evaluated the general aims of the curriculum as being more suitable for structuring learning outcomes. Similarly, a statistically significant difference was identified in responses to the statement "The general aims of the Technology and Design Curriculum are appropriate to students' developmental characteristics" ($\chi^2 = 6.90, p < .032$), suggesting that teachers perceived the general aims of the curriculum as more aligned with student development than did inspectors.

Table 3. Teachers' and Inspectors' Views on the 6th Grade Learning Outcomes of the Technology and Design Curriculum

Technology and Design Teaching Program 6th Grade Learning Outcomes	Degree of Participation	Teacher		Inspector		Total		χ^2	p
		f	%	f	%	f	%		
1. It is consistent with the general objectives of the program.	Agree	186	56.0	30	49.2	216	55.0	1.80	.406
	Partially agree	123	37.0	28	45.9	151	38.4		
	Disagree	23	6.9	3	4.9	26	6.6		
	Total	332	100	61	100	393	100		
2. It is capable of achieving the general objectives of the program.	Agree	152	45.8	28	45.9	180	45.8	3.05	.217
	Partially agree	147	44.3	31	50.8	178	45.3		
	Disagree	33	9.9	2	3.3	35	8.9		
	Total	332	100	61	100	393	100		
3. It is consistent with each other.	Agree	178	53.6	29	47.5	207	52.7	1.21	.545
	Partially agree	117	35.2	26	42.6	143	36.4		
	Disagree	37	11.1	6	9.8	43	10.9		
	Total	332	100	61	100	393	100		
4. It is expressed in clear and understandable language.	Agree	171	51.5	30	49.2	201	51.2	4.48	.106
	Partially agree	111	33.4	27	44.3	138	35.1		
	Disagree	50	15.1	4	6.6	54	13.7		
	Total	332	100	61	100	393	100		
5. It is related to the characteristics of the subject area.	Agree	145	43.7	27	44.3	172	43.7	2.15	.340
	Partially agree	144	43.4	30	49.2	174	44.3		
	Disagree	43	13.0	4	6.6	47	12.0		
	Total	332	100	61	100	393	100		
6. It is feasible.	Agree	149	44.6	27	44.3	176	44.8	1.42	.491
	Partially agree	136	40.1	28	45.9	161	41.0		
	Disagree	50	15.1	6	9.8	56	14.2		
	Total	332	100	61	100	393	100		
7. It is appropriate for the students' level of development.	Agree	148	44.6	25	41.0	173	44.0	4.17	.124
	Partially agree	136	41.0	32	52.5	168	42.7		

	Disagree	48	14.5	4	6.6	52	13.3		
	Total	332	100	61	100	393	100		
8. It is suitable for students' interests and needs.	Agree	124	37.3	24	39.3	148	37.7	4.04	.132
	Partially agree	140	42.2	31	50.8	171	43.5		
	Disagree	68	20.5	6	9.8	74	18.8		
	Total	332	100	61	100	393	100		
9. It is oriented towards the learning product.	Agree	134	40.4	25	41.0	159	40.5	4.46	.107
	Partially agree	143	43.1	32	52.5	175	44.5		
	Disagree	55	16.6	4	6.6	59	15.0		
	Total	332	100	61	100	393	100		
10. It is suitable for class levels.	Agree	151	45.5	25	41.0	176	44.8	4.79	.091
	Partially agree	132	39.7	32	52.5	164	41.7		
	Disagree	49	14.8	4	6.5	53	13.5		
	Total	332	100	61	100	393	100		
11. It is arranged according to prerequisite relationships.	Agree	164	49.3	25	41.0	189	48.1	3.96	.138
	Partially agree	125	37.7	31	50.8	156	39.7		
	Disagree	43	13.0	5	8.2	48	12.2		
	Total	332	100	61	100	393	100		
12. It is observable and measurable.	Agree	163	49.1	27	44.3	190	48.3	2.78	.248
	Partially agree	130	39.2	30	49.2	160	40.8		
	Disagree	39	11.7	4	6.5	43	10.9		
	Total	332	100	61	100	393	100		
13. It is of a quality that will enable effective learning.	Agree	155	46.7	23	37.7	178	45.3	11.3	.003*
	Partially agree	128	38.6	36	59.0	164	41.7		
	Disagree	49	14.7	2	3.3	51	13.0		
	Total	332	100	61	100	393	100		
14. It provides students with independent and creative thinking skills.	Agree	182	54.9	28	45.9	210	53.4	3.08	.214
	Partially agree	119	35.8	29	47.5	148	37.7		
	Disagree	31	9.3	4	6.6	35	8.9		
	Total	332	100	61	100	393	100		
15. It is of a quality that will provide students with different cognitive characteristics.	Agree	161	48.5	23	37.7	184	46.9	7.59	.022*
	Partially agree	131	39.5	35	57.4	166	42.2		
	Disagree	40	12.0	3	4.9	43	10.9		
	Total	332	100	61	100	393	100		
16. It is of a quality that will provide students with positive affective characteristics.	Agree	158	47.6	25	41.0	183	46.6	5.42	.066
	Partially agree	133	40.1	33	54.1	166	42.2		
	Disagree	41	12.3	3	4.9	44	11.2		
	Total	332	100	61	100	393	100		
17. It is of a quality that will provide students with different psychomotor skills.	Agree	156	47.0	26	42.6	182	46.3	2.22	.329
	Partially agree	127	38.2	29	47.6	156	39.7		
	Disagree	49	14.8	6	9.8	55	14.0		
	Total	332	100	61	100	393	100		

An examination of Table 3 indicates that the proportion of teachers who expressed agreement with the statements regarding the 6th grade learning outcomes ranged between 37.3% and 56%. For inspectors, the proportion of agreement ranged from 37.7% to 49.2%. While teachers reported

agreement at a level of 50% or higher for four of the seventeen statements related to the 6th grade learning outcomes, there were no statements for which inspectors reported agreement at or above the 50% level. Nevertheless, teachers' and inspectors' views differed in a statistically significant manner for only two statements, and in both cases, teachers' evaluations were found to be more positive than those of inspectors.

Table 4. Teachers' and Inspectors' Views on the 7th Grade Learning Outcomes of the Technology and Design Curriculum

Technology and Design Teaching Program 7 th Grade Learning Outcomes	Degree of Participation	Teacher		Inspector		Total		x ²	p
		f	%	f	%	f	%		
1. It is consistent with the general objectives of the program.	Agree	180	54.2	29	47.5	209	53.2	2.64	.266
	Partially agree	130	39.2	30	49.2	160	40.7		
	Disagree	22	6.6	2	3.3	24	6.1		
	Total	332	100	61	100	393	100		
2. It is capable of achieving the general objectives of the program.	Agree	142	42.8	28	45.9	170	43.3	4.29	.117
	Partially agree	158	47.6	32	52.5	190	48.3		
	Disagree	32	9.6	1	1.6	33	8.4		
	Total	332	100	61	100	393	100		
3. It is consistent with each other.	Agree	177	53.3	29	47.5	206	52.4	3.06	.216
	Partially agree	117	35.3	28	45.9	145	36.9		
	Disagree	38	11.4	4	6.6	42	10.7		
	Total	332	100	61	100	393	100		
4. It is expressed in clear and understandable language.	Agree	167	50.3	28	45.9	195	49.6	8.01	.018*
	Partially agree	112	33.7	30	49.2	142	36.2		
	Disagree	53	16.0	3	4.9	56	14.2		
	Total	332	100	61	100	393	100		
5. It is related to the characteristics of the subject area.	Agree	146	44.0	24	39.3	170	43.3	4.20	.122
	Partially agree	146	44.0	34	55.8	180	45.8		
	Disagree	40	12.0	3	4.9	43	10.9		
	Total	332	100	61	100	393	100		
6. It is feasible.	Agree	148	44.6	26	42.6	174	44.3	1.99	.369
	Partially agree	132	39.7	29	47.6	161	41.0		
	Disagree	52	15.7	6	9.8	58	14.7		
	Total	332	100	61	100	393	100		
7. It is appropriate for the students' level of development.	Agree	144	43.4	26	42.6	170	43.3	7.54	.023*
	Partially agree	137	41.2	33	54.1	170	43.3		
	Disagree	51	15.4	2	3.3	53	13.4		
	Total	332	100	61	100	393	100		
8. It is suitable for students' interests and needs.	Agree	112	33.7	22	36.1	134	34.1	5.79	.055
	Partially agree	150	45.2	34	55.7	184	46.8		
	Disagree	70	21.1	5	8.2	75	19.1		
	Total	332	100	61	100	393	100		
9. It is oriented towards the learning product.	Agree	128	38.6	23	37.7	151	38.4	5.69	.058
	Partially agree	145	43.6	34	55.7	179	45.6		
	Disagree	59	17.8	4	6.6	63	16.0		

	Total	332	100	61	100	393	100		
10. It is suitable for class levels.	Agree	143	43.0	25	41.0	168	42.7	3.33	.189
	Partially agree	136	41.0	31	50.8	167	42.5		
	Disagree	53	16.0	5	8.2	58	14.8		
	Total	332	100	61	100	393	100		
11. It is arranged according to prerequisite relationships.	Agree	156	47.8	23	37.7	182	46.3	4.35	.113
	Partially agree	127	38.3	32	52.5	159	40.5		
	Disagree	46	13.9	6	9.5	52	13.2		
	Total	332	100	61	100	393	100		
12. It is observable and measurable.	Agree	159	47.9	24	39.3	183	46.6	3.55	.169
	Partially agree	132	39.8	32	52.5	164	41.7		
	Disagree	41	12.3	5	8.2	46	11.7		
	Total	332	100	61	100	393	100		
13. It is of a quality that will enable effective learning.	Agree	148	44.5	24	39.4	172	43.8	7.68	.021*
	Partially agree	132	39.8	34	55.7	166	42.2		
	Disagree	52	15.7	3	4.9	55	14.0		
	Total	332	100	61	100	393	100		
14. It provides students with independent and creative thinking skills.	Agree	182	54.9	28	45.9	210	53.4	3.49	.174
	Partially agree	117	35.2	29	47.5	146	37.2		
	Disagree	33	9.9	4	6.6	37	9.4		
	Total	332	100	61	100	393	100		
15. It is of a quality that will provide students with different cognitive characteristics.	Agree	163	49.1	24	39.4	187	47.6	7.26	.026*
	Partially agree	128	38.6	34	55.7	162	41.2		
	Disagree	41	12.3	3	4.9	44	11.2		
	Total	332	100	61	100	393	100		
16. It is of a quality that will provide students with positive affective characteristics.	Agree	157	47.2	26	42.6	183	45.5	5.33	.069
	Partially agree	131	39.5	32	52.5	163	41.5		
	Disagree	44	13.3	3	4.9	47	12.0		
	Total	332	100	61	100	393	100		
17. It is of a quality that will provide students with different psychomotor skills.	Agree	164	49.4	28	45.9	192	48.9	1.49	.473
	Partially agree	128	38.6	28	45.9	156	39.6		
	Disagree	40	12.0	5	8.2	45	11.5		
	Total	332	100	61	100	393	100		

An examination of Table 4 shows that teachers' levels of agreement with statements regarding the 7th grade Technology and Design Curriculum learning outcomes ranged from 33.7% to 54.9%. The statement that received the highest level of agreement among teachers was that the learning outcomes enable students to develop independent and creative thinking skills (54.9%). In contrast, the lowest level of agreement was observed for the statement concerning the appropriateness of the learning outcomes to students' interests and needs (33.7%). With regard to inspectors' views, the proportion of agreement ranged between 36.1% and 47.5%. Inspectors reported the highest levels of agreement with the statements indicating that the learning outcomes are consistent with the general aims of the curriculum and that there is coherence among the learning outcomes (47.5%). The lowest level of agreement among

inspectors was again observed for the statement related to the alignment of the learning outcomes with students' interests and needs (36.1%). While teachers indicated agreement at a level of 50% or higher for four of the seventeen statements related to the 7th grade learning outcomes, inspectors reported agreement at or above the 50% level for two statements. Statistically significant differences between teachers' and inspectors' views were identified for four statements. However, the presence of significant differences in only four of the seventeen statements suggests that the professional role variable does not constitute a generally determining factor in perceptions regarding the 7th grade learning outcomes.

Table 5. Teachers' and Inspectors' Views on the 8th Grade Learning Outcomes of the Technology and Design Curriculum

Technology and Design Teaching Program 8 th Grade Learning Outcomes	Degree of Participation	Teacher		Inspector		Total		x ²	p
		f	%	f	%	f	%		
1. It is consistent with the general objectives of the program.	Agree	181	54.5	30	49.2	211	53.7	2.39	.302
	Partially agree	128	38.6	29	47.5	157	39.9		
	Disagree	23	6.9	2	3.3	25	6.4		
	Total	332	100	61	100	393	100		
2. It is capable of achieving the general objectives of the program.	Agree	144	43.4	30	49.2	174	44.3	7.07	.029*
	Partially agree	153	46.1	31	50.8	184	46.8		
	Disagree	35	10.5	0	0	35	8.9		
	Total	332	100	61	100	393	100		
3. It is consistent with each other.	Agree	174	52.4	31	50.8	205	52.2	.363	.834
	Partially agree	119	35.9	24	39.4	143	36.3		
	Disagree	39	11.7	6	9.8	45	11.5		
	Total	332	100	61	100	393	100		
4. It is expressed in clear and understandable language.	Agree	167	50.4	30	49.2	197	50.1	8.36	.015*
	Partially agree	113	34.8	29	47.5	142	36.2		
	Disagree	52	15.8	2	3.3	54	13.7		
	Total	332	100	61	100	393	100		
5. It is related to the characteristics of the subject area.	Agree	147	44.3	27	44.3	174	44.3	3.18	.204
	Partially agree	144	43.4	31	50.8	175	45.5		
	Disagree	41	12.3	3	4.9	44	11.2		
	Total	332	100	61	100	393	100		
6. It is feasible.	Agree	148	44.5	28	45.9	176	44.8	2.83	.242
	Partially agree	130	39.9	28	45.9	158	40.2		
	Disagree	54	16.3	5	8.2	59	15.0		
	Total	332	100	61	100	393	100		
7. It is appropriate for the students' level of development.	Agree	144	43.4	24	39.4	168	42.7	12.56	.002*
	Partially agree	133	40.1	36	59.0	169	43.1		
	Disagree	55	16.5	1	1.6	56	14.2		
	Total	332	100	61	100	393	100		
8. It is suitable for students' interests and needs.	Agree	113	30.0	23	37.7	136	34.6	6.52	.038*
	Partially agree	145	43.7	33	54.1	178	45.3		
	Disagree	74	22.7	5	8.2	79	20.1		
	Total	332	100	61	100	393	100		

9. It is oriented towards the learning product.	Agree	133	40.1	25	41.0	158	40.2	5.77	.056
	Partially agree	138	41.5	32	52.5	170	43.3		
	Disagree	61	18.4	4	6.5	65	16.5		
	Total	332	100	61	100	393	100		
10. It is suitable for class levels.	Agree	142	42.7	26	42.6	168	42.8	5.16	.075
	Partially agree	133	40.1	31	50.8	164	41.7		
	Disagree	57	17.2	4	6.6	61	15.5		
	Total	332	100	61	100	393	100		
11. It is arranged according to prerequisite relationships.	Agree	162	48.8	27	44.3	189	48.1	3.28	.194
	Partially agree	122	36.7	29	47.5	151	38.4		
	Disagree	48	14.5	5	8.2	53	13.5		
	Total	332	100	61	100	393	100		
12. It is observable and measurable.	Agree	157	47.2	28	45.9	185	47.0	3.74	.154
	Partially agree	133	40.1	30	49.2	163	41.5		
	Disagree	42	12.7	3	4.9	45	11.5		
	Total	332	100	61	100	393	100		
13. It is of a quality that will enable effective learning.	Agree	147	44.2	28	45.9	175	44.6	7.47	.024*
	Partially agree	132	39.8	31	50.8	163	41.6		
	Disagree	53	16.0	2	3.3	55	14.8		
	Total	332	100	61	100	393	100		
14. It provides students with independent and creative thinking skills.	Agree	183	55.2	31	50.8	214	54.5	1.99	.369
	Partially agree	114	34.3	26	42.6	140	35.6		
	Disagree	35	10.5	4	6.6	39	9.9		
	Total	332	100	61	100	393	100		
15. It is of a quality that will provide students with different cognitive characteristics.	Agree	163	49.0	28	45.9	191	48.6	4.33	.114
	Partially agree	127	38.3	30	49.2	157	39.9		
	Disagree	42	12.7	3	4.9	45	11.5		
	Total	332	100	61	100	393	100		
16. It is of a quality that will provide students with positive affective characteristics.	Agree	156	47.0	28	45.9	184	46.8	4.58	.101
	Partially agree	130	39.1	30	49.2	160	40.7		
	Disagree	46	13.9	3	4.9	49	12.5		
	Total	332	100	61	100	393	100		
17. It is of a quality that will provide students with different psychomotor skills.	Agree	161	48.5	29	47.5	190	48.3	2.10	.349
	Partially agree	130	39.2	28	45.9	158	40.2		
	Disagree	41	12.3	4	6.6	45	11.5		
	Total	332	100	61	100	393	100		

An examination of views regarding the 8th grade Technology and Design Curriculum learning outcomes indicates that teachers' levels of agreement ranged between 30% and 55.2%, while inspectors' agreement rates ranged from 37.7% to 50.8%. Inspectors expressed the highest level of agreement with the statements indicating that the learning outcomes are internally coherent and that they foster students' independent and creative thinking skills (50.8%). Teachers reported agreement at a level of 50% or higher for four of the seventeen statements related to the 8th grade learning outcomes, whereas inspectors reached this level of agreement for only two statements. A general evaluation of Table 5

reveals that teachers' views were more positive overall than those of inspectors. Nevertheless, the fact that statistically significant differences were identified in only five of the seventeen statements suggests that the professional role variable does not constitute a generally determining factor in perceptions regarding the 8th grade learning outcomes. This situation may be attributed to teachers' experiences based on direct classroom practices, whereas inspectors' views may reflect observations encompassing multiple schools and instructional contexts. When teachers' and inspectors' views on the 6th, 7th, and 8th grade Technology and Design Curriculum learning outcomes are considered together, it is evident that the proportion of agreement generally remained below 50% across all three grade levels. The frequent selection of the "partially agree" option by both groups across many statements indicates that, although certain aspects of the learning outcomes are perceived as adequate, there remain areas open to improvement.

Table 6. Problems Related to the General Objectives and Learning Outcomes According to Teachers' Views

Problems Related to General Objectives and Learning Outcomes	f
Unnecessary maintenance and neglect of the lesson	21
Repetition of what can be preserved in grades 6, 7, and 8	18
Lack of suitability of learning outcomes to students' study abilities and attitudes	15
Lack of interest in the lesson	10
Lack of learning outcomes	7
Complexity and incomprehensibility of learning outcomes	7
Learning outcomes that are inaccessible to low-level information in the socio-economic system	5
Failure to provide knowledge and skills	5
Lack of information about tools and equipment	3
Lack of activities to achieve learning outcomes	3
Long lifespan of 7th grade (below the level)	3
Long lifespan of 8th grade (below the level)	3
Lack of application-oriented goals in general applications	2
Goals that are more design-oriented	2
Delay in providing details that will enable the achievement of learning outcomes	2
Learning deficiencies caused by the lack of suitability for classification of learning outcomes	1
Lack of knowledge regarding basic drawing techniques	1
Lack of late initiation of profitability related to innovation	1
Generality of learning outcomes	1
Lack of inquiry-oriented profitability	1

The problems most frequently reported by teachers regarding the learning outcomes are, respectively, "the course being regarded as unnecessary and not taken seriously," "the learning outcomes not being compatible with students' study habits and attitudes," and "the repetition of learning outcomes across the 6th, 7th, and 8th grades." Students' lack of interest in the course and the perception of differences in their study habits may be influenced by the Secondary Education Examination System

(SBS) and by teachers' limited internalization of the course. Regarding the third issue, it can be considered that the spiral curriculum approach may not be fully understood by teachers.

Table 7. Suggested Solutions Regarding the General Objectives and Learning Outcomes According to Teachers' Views

Suggested Solutions Related to General Objectives and Learning Outcomes	f
Supporting the achievement of learning outcomes by ensuring that workshops are equipped with technological equipment	25
Adding some learning outcomes from the "Vocational Training" course (Materials, machinery and engines, technical drawing knowledge)	10
Making learning outcomes understandable, simple and straightforward	8
Ensuring readiness for this course by providing thinking and problem-solving training to 4th and 5th graders	4
Avoiding repetition of learning outcomes and having different learning outcomes in each grade	4
Including skill-oriented learning outcomes	3
Making learning outcomes more understandable (clear)	2
Adding learning outcomes related to technical drawing knowledge	2
Adding application-oriented objectives to general objectives	2
Organizing with learning outcomes related to thinking education in 6th grade, creative thinking in 7th grade, and project work in 8th grade	2
Including learning outcomes related to innovation from 6th grade onwards	1

When the teachers' recommendations regarding the general aims and learning outcomes of the curriculum presented in Table 6 are examined, the three most frequently proposed suggestions are as follows: "Supporting the attainment of learning outcomes by ensuring that workshops are equipped with appropriate technological infrastructure," "Incorporating certain learning outcomes from the Work Education course into the Technology and Design course," and "Revising the learning outcomes to make them clearer, simpler, and more concise." These recommendations can be regarded as proposals that would contribute positively to the curriculum; however, the suggestion ranked second may stem from teachers' partial reluctance or difficulty in fully embracing the Technology and Design course curriculum.

The qualitative findings reveal that teachers' and supervisors' views on the implementation of the Technology and Design curriculum differ significantly according to the socioeconomic level of the school. Although teachers and supervisors evaluate the aims and learning outcomes of the curriculum within similar conceptual frameworks, they place different emphases and priorities on the course's position within the education system, its continuity, and the conditions under which it is implemented. This differentiation indicates that the curriculum should be addressed not only in terms of its pedagogical dimensions but also in relation to its contextual and structural conditions. In addition to the quantitative findings obtained from the scale related to the 2006 Technology and Design curriculum, qualitative findings obtained from interviews conducted to provide a more comprehensive understanding of the subject are presented grouped into four themes.

Aim, Significance, and Teaching–Learning Approach of the Technology and Design Curriculum: The interview findings encompass teachers’ and supervisors’ perceptions regarding the position of the Technology and Design course within the education system, its necessity as an independent subject, and its field-specific identity. The findings indicate that views on the positioning of the course vary markedly according to the socioeconomic level of the school. Teachers working in schools with a high socioeconomic profile reported that the Technology and Design course does not require a distinct area of expertise and that, in its current structure, it does not need to be positioned as an independent subject. These teachers suggested that the course would be more functional if it were organized as a component of applied fields such as work education, home economics, or technical courses. One teacher’s statement—“I do not believe that the Technology and Design course is particularly necessary or that it requires specialized training...” (High-Teacher1)—clearly reflects this critical stance toward the course’s field specificity. Within this group, discussions about the course’s role in the education system primarily focus on efficiency, specialization, and instructional workload. In contrast, teachers working in schools with middle and low socioeconomic levels perceive the Technology and Design course as a distinctive learning domain that fosters students’ creativity, problem-solving, and productive skills. Teachers in low socioeconomic settings, in particular, emphasize the course’s transformative impact on students. A teacher’s remark—“This course changes children’s imagination and perspectives” (Low-Teacher1)—illustrates the strong perception of the course’s pedagogical value in this context. Supervisors’ views generally acknowledge the positive pedagogical orientation of the course; however, they also highlight that the insufficient clarification of the Technology and Design course’s position within the education system and its disciplinary identity leads to ambiguities in practice. One inspector commented, "There are no disconnects between the learning outcomes, but the application times and distribution across grade levels can be challenging for teachers" (Inspector-Medium). According to the supervisors, this lack of clarity results in varied interpretations and implementations of the course at the school level, thereby indirectly limiting the overall effectiveness of the curriculum.

Curriculum Continuity and Vertical Structuring: Within this theme, views are examined regarding the limitation of the Technology and Design course to grades 6–8, the lack of vertical continuity in the curriculum, and the effects of this limitation on the learning process. The findings indicate that criticisms concerning curriculum continuity are expressed across all socioeconomic levels; however, the underlying rationales and emphases differ. Teachers working in schools with high and middle socioeconomic levels regard the restriction of the course to specific grade bands as a fundamental factor that weakens the effectiveness of the curriculum. These teachers emphasize that the absence of preceding and subsequent course stages negatively affects the sustainability and retention of learning outcomes. One teacher’s statement—“It starts in sixth grade and ends in eighth grade... there is no before and no after” (High-Teacher1)—clearly reflects the perception that the curriculum lacks vertical coherence. Teachers at the middle socioeconomic level further highlight that the problem of continuity

becomes more pronounced in the eighth grade due to increasing exam-related pressure. Teachers working in schools with low socioeconomic levels, by contrast, report that the impact of the curriculum increases significantly when continuity is ensured. According to these teachers, students who are exposed to the course from earlier grade levels develop into more creative, self-confident, and solution-oriented individuals in later years. A teacher's remark—"Students who have taken this course since grade six are very different by the time they reach grade eight" (Low-Teacher1)—supports this observation regarding the long-term effects of the curriculum. Supervisors' views also suggest that implementing the curriculum within a limited time frame may constrain the durability of learning outcomes. One inspector expressed this situation by saying, "The program's goals are positive, but the course's place within the system is not clear; the permanence of the gains is strengthened when continuity is not ensured" (Inspector-Supervisor). The supervisors argue that strengthening the vertical coherence of the Technology and Design course would both enhance the meaningfulness of the learning outcomes and clarify the course's function within the education system.

General Aims of the Curriculum, Structure of Learning Outcomes, and Spiral Design: This theme focuses on teachers' and supervisors' views regarding the perception of the general aims of the Technology and Design curriculum, the clarity and comprehensibility of the learning outcomes, their appropriateness for student development, and their spiral structure across grade levels. The findings indicate that evaluations of the curriculum's general aims and the structure of learning outcomes vary according to the socioeconomic level of the school. Teachers working in high socioeconomic contexts approached the general aims of the Technology and Design course from a critical perspective. These teachers stated that the course does not require a distinct area of expertise and that positioning it as an independent subject is not essential. Accordingly, they suggested restructuring the course as a component of applied subjects such as work education, home economics, or technical courses. One teacher's statement—"I do not believe that the Technology and Design course is truly necessary... after in-service training, anyone can teach this course... I would include it as part of a technical or work-related course" (High-Teacher1)—demonstrates that, at this level, the general aims of the curriculum are primarily debated in relation to the course's position and function within the education system. In contrast, teachers working in schools with a middle socioeconomic profile evaluated the general aims of the curriculum largely positively and reported that these aims were attainable. Teachers' responses indicate that there is no pronounced perception of problems regarding the general aims. Statements such as "They are very appropriate and attainable for me; there are no problems" (Middle-Teacher1) and "There is no problem with the general aims" (Middle-Teacher2) support this view. Teachers working in low socioeconomic contexts described the general aims of the curriculum as strong and functional, emphasizing particularly the dimensions of creativity and inquiry. One teacher's observation—"Bringing children into society as creative individuals... it challenges the teacher as well... it creates a need to conduct research... the aims strongly support inquiry" (Low-Teacher1)—suggests that the

curriculum aims have a developmental function for both students and teachers. Similarly, another teacher reinforced this perspective by stating, “The general aims are sufficient and well-designed... they are clearly articulated” (Low-Teacher2). Following these evaluations of the general aims, perceptions regarding the structure and spiral nature of the learning outcomes were also found to differ by socioeconomic level. Teachers working in middle socioeconomic schools generally evaluated the learning outcomes positively; however, they noted repetitions particularly between the seventh and eighth grades and reported that sufficient differentiation was not achieved. A teacher’s remark—“Some learning outcomes seem like repetitions of the previous ones” (Middle-Teacher2)—clearly reflects this critique concerning the progressive structure of the outcomes. Teachers working in low socioeconomic schools, on the other hand, emphasized that the learning outcomes provide a complementary structure across grade levels and support students’ development. The statement “As students progress from grade six to grade eight, the learning outcomes begin to make sense and fall into place” (Low-Teacher1) indicates that the spiral structure of the outcomes becomes more meaningful over time. Supervisors noted that there is theoretical coherence between the general aims of the curriculum and the structure of the learning outcomes; however, they argued that the variations observed in teachers’ views are related not to the curriculum design itself but rather to implementation duration, the limited number of instructional hours, and planning processes. “In my opinion, the readiness level of the students has not been given enough consideration. The readiness level of a student in Village A is not the same as that of a student in Primary School B in Çankaya. ...school conditions and regional differences should also have been taken into account. The learning outcomes have a spiral structure and are suitable for achieving general goals.” It was emphasized that school conditions significantly influence both the perception and the implementation of the general aims and learning outcomes.

Curriculum Implementability, Constraints, and Perspectives for Improvement: This theme centers on the conditions under which classroom implementations of the Technology and Design curriculum can be realized, as well as on suggestions for curriculum improvement. Teachers’ and supervisors’ views make visible the physical, administrative, and systemic constraints encountered during the implementation process and highlight the decisive role these constraints play in shaping the effectiveness of the curriculum. The findings indicate that, although the aims and learning outcomes of the curriculum are largely accepted, their implementation is constrained by schools’ socioeconomic conditions and structural factors inherent to the education system. Teachers working in schools with low socioeconomic status identify the lack of workshops, insufficient materials, and overcrowded classrooms as the primary factors hindering curriculum implementation. In this regard, one teacher’s statement “There is a lack of workshops, and the classes are very crowded” (Low-Teacher2) demonstrates that the realization of learning outcomes is largely dependent on physical conditions. A notable finding within this group is the shared perception that, despite considering the curriculum’s learning outcomes and overall approach to be adequate, existing implementation conditions prevent this

potential from being fully realized. The statement “The learning outcomes are sufficient; the problem lies in the implementation conditions” (Low-Teacher1) succinctly captures this view. Accordingly, expectations in this group focus less on adding new learning outcomes and more on improving existing conditions. In schools with high and middle socioeconomic profiles, the exam-oriented nature of the education system emerges as the main factor limiting curriculum implementability. In particular, the high-stakes examination process (SBS) leads students and parents to perceive the Technology and Design course as a secondary subject, which directly affects classroom practices. One teacher’s remark “Because of the SBS exam, it is difficult to engage students in this course” (High-Teacher2) clearly illustrates how exam pressure constrains the course’s functionality. Teachers working in middle socioeconomic contexts similarly emphasize that, especially at the eighth-grade level, time constraints and exam preparation render the implementation of certain learning outcomes impractical. Perspectives on curriculum improvement vary by socioeconomic level but are largely shaped by these implementation-related constraints. Teachers in high socioeconomic schools argue that the curriculum should strengthen its focus on manual skills and technical applications and that integrating the course with applied subjects such as work education, technical courses, or home economics would enhance its functionality. In contrast, teachers in middle and low socioeconomic contexts emphasize that the core approach of the curriculum should be preserved, and that priority should instead be given to improving learning environments, reorganizing instructional time, and revising planning processes. Supervisors’ opinions indicate that expectations regarding increased curriculum applicability are primarily concentrated on the resources available to schools. One inspector expressed this situation by saying, “The program’s objectives are appropriate; however, physical conditions and class sizes make it difficult to achieve these objectives” (Inspector-Subordinate). Supervisors point out that disparities in resources among schools hinder the standardized implementation of the curriculum; therefore, they stress the need for clearer definitions of assessment and evaluation processes, an increase in practical implementation guidelines for teachers, and stronger mechanisms for monitoring and follow-up.

These views suggest that curriculum effectiveness is directly linked not only to the structure of learning outcomes but also to the structural and administrative arrangements that support implementation. Overall, the findings reveal that most criticisms directed at the Technology and Design curriculum focus on implementation conditions rather than on the curriculum content itself. The results indicate that expectations for curriculum improvement would remain incomplete if socioeconomic conditions and the exam-oriented structure of the education system are not taken into account.

The quantitative and qualitative findings obtained from teachers and supervisors reveal perceptions regarding the aims and learning outcomes of the 2006 Technology and Design curriculum. In order to examine the extent to which these perceptions were reflected in subsequent curriculum revisions, the following section presents a comparative analysis of the 2006, 2017, and 2018 Technology and Design curricula using the document analysis method.

Tablo 8. The Purpose, Importance, and Teaching-Learning Approach of Technology and Design Curricula

Sub-Dimension	2006 Curriculum	2017 Curriculum	2018 Curriculum
Basic Approach	The constructivist learning approach is the basis.	The constructivist approach has been preserved, but a simpler objectives structure has been adopted.	The approach established in 2017 has been maintained.
Core Skills and Values	The program does not include basic skills and values as a separate framework.	Basic skills and values are clearly defined in the introduction to the program.	The core skills and values defined in 2017 have been retained.
Individual Profile	The emphasis is on cultivating creative, imaginative, inquisitive, and entrepreneurial individuals. A productive, questioning individual.	Emphasis is placed on the problem-solving individual and the individual who understands and can manage technology and design processes.	The entrepreneurial, creative individual profile defined in 2017 has been maintained.
Technology-Society Relationship	Social responsibility and environmental awareness are emphasized. Clear and detailed.	The concept of technology and design literacy is explicitly included. Relevance to daily life.	The emphasis on technology and design literacy has been retained. Indirect and limited
Field Identity	Emphasis on the design process and production.	Emphasis on field skills and problem-solving.	-
Program Rationale	Creativity, design, and production. Production and design-based.	Lifelong learning, innovation. Interdisciplinary and problem-based.	Policy-aligned, skills-based

Document analysis reveals that perceptions regarding the aims and significance of the Technology and Design curriculum demonstrate a certain degree of continuity across the 2006, 2017, and 2018 curricula, while also undergoing meaningful transformations in terms of pedagogical orientation and disciplinary identity. An examination of the curriculum documents indicates that a constructivist learning approach is maintained as the overarching framework in all three versions; however, this approach has been reinterpreted around different priorities over time. In the 2006 curriculum, the primary aim of the course was defined as educating creative, inquisitive, and productive individuals, with the design process and production activities placed at the core of the program. This structure reflects a pedagogical orientation that foregrounds students' individual creativity and organizes the learning process around tangible products.

By contrast, while the constructivist framework is preserved in the 2017 and 2018 curricula, there is a marked strengthening of emphases on problem solving, technology and design literacy, entrepreneurship, and skills-based learning. This shift suggests a repositioning of the course toward the goal of educating individuals who not only produce but also understand, manage, and critically evaluate technology within its social context.

Teachers' and supervisors' views further support this transformation. Although participants generally evaluate the aims of the course and its importance within the education system positively, they also report that the disciplinary identity of the course is not perceived clearly in practice and that, in some schools, it is treated as a "secondary" subject. Particularly in contexts characterized by limited

physical resources and a dominant culture of academic achievement, the aims of the Technology and Design course are reported to be insufficiently reflected in classroom practice. This finding indicates that perceptions of the course’s aims and significance are shaped not only by curriculum texts but also by implementation conditions and the structural priorities of the education system.

From this perspective, the restructuring of the course in the 2017 and 2018 curricula into a skills-based and policy-aligned framework can be interpreted as an effort to strengthen the legitimacy of the Technology and Design course within the education system. However, teachers’ views suggest that for these objectives to be realized in practice, issues of curriculum continuity, vertical structuring, and implementability must also be addressed in a coherent manner. While perceptions of the aims and significance of the Technology and Design course illuminate how the program’s position within the education system is defined, the extent to which these aims are translated into student learning brings the structural characteristics of the curriculum to the forefront. In particular, how the course is structured across grade levels, how learning outcomes progress vertically, and how curriculum continuity is ensured play a decisive role in determining whether the stated aims are realized in practice. Accordingly, the following theme examines how the 2006, 2017, and 2018 versions of the Technology and Design curricula are designed in terms of continuity and vertical structuring.

Table 9. Vertical Structure of Technology and Design Curricula

Sub-Dimension	2006 Curriculum	2017 Curriculum	2018 Curriculum
Grade levels covered by the curriculum	6th, 7th, and 8th grades	7th and 8th grades	7th and 8th grades
Continuity of the curriculum duration	3 years	2 years	2 years
Organization of learning outcomes	Structured on the basis of the “Design,” “Construction,” and “Production” strands	Strand-based approach was abandoned; a structure based on learning domains was adopted	The structure based on learning domains defined in 2017 was preserved
Learning domains	Learning domains function as strands	Specific learning domains are not clearly defined	Learning domains were maintained in the same form
Vertical alignment	Strand-based continuity	Interrelation among learning outcomes	Interrelation among learning outcomes
Understanding of vertical continuity	Explicit and gradual structure	Implicit and limited continuity	Implicit and limited continuity
Preparatory role for upper grades	Clear	Structurally limited	Structurally limited
Progression logic of learning outcomes across grades	Spiral and stepwise	Concentrated	Concentrated

The statement in the 2006 Technology and Design Curriculum that “the Technology and Design course aims to develop students’ thinking, designing, and producing processes in a gradual and progressive manner” (MEB, 2006) clearly indicates that the course was intended to serve a preparatory function in Grade 6 and a deepening function in Grades 7 and 8. This emphasis demonstrates that the

curriculum envisioned a planned and staged progression across grade levels. In contrast, the statement in the 2017 curriculum that “the Technology and Design course aims for students to produce products based on the design process” (MEB, 2017) does not provide an explicit framework regarding how this process is structured across grade levels. This creates the impression that vertical continuity is addressed implicitly rather than explicitly within the curriculum. Similarly, the 2018 curriculum statement that “the aim is to develop students’ problem-solving, creative thinking, and production skills” (MEB, 2018), while reflecting an output-oriented approach, appears to fall short of clearly defining process-oriented and vertically structured learning pathways.

The findings of the document analysis indicate that the 2006 Technology and Design Curriculum established vertical continuity in a clear and systematic manner, whereas in the 2017 and 2018 curricula this continuity weakened following the removal of Grade 6 from the scope of the program. This finding is consistent with teachers’ and supervisors’ views that the course offers a structure with “no before and no after.” In the 2017 and 2018 curricula, the learning outcomes for Grade 6 were not directly retained; some were simplified and integrated into the Grade 7 outcomes, while others were entirely excluded from the curriculum. Moreover, the learning outcomes for Grades 7 and 8 were not direct continuations of those in the 2006 curriculum but were substantially restructured. This reorganization resulted in a quantitative narrowing of the curriculum’s vertical scope and a weakening of its spiral structure.

A comparison of the curricula in terms of vertical structuring points to a clear divergence in approaches across the three versions. In the 2006 curriculum, the course was structured to span Grades 6, 7, and 8, with the learning process designed to progress gradually through the “Order,” “Design,” and “Construction” strands. The curriculum text explicitly states that these strands support students’ processes of understanding their environment, designing, and producing in a staged manner (MEB, 2006). This structure reflects a strong conception of vertical continuity, aiming to deepen the knowledge and skills acquired in lower grades at higher grade levels.

By contrast, the 2017 curriculum abandoned the strand-based structure and limited the course to Grades 7 and 8, reorganizing the program around learning areas (MEB, 2017). Although the introduction to the curriculum emphasizes that this change was intended to simplify the program and enhance its implementability, it effectively dismantled the three-year holistic structure of the course and structurally constrained the preparatory role of the lower grade. As a result, vertical continuity was shifted from an explicit curricular design to implicit connections among learning outcomes.

An examination of the 2018 curriculum shows that the grade-level structure and learning-area-based organization adopted in the 2017 curriculum were largely retained. While the curriculum text emphasizes that learning areas should be addressed in an interconnected manner, it does not present a clear and staged framework for how progression across grade levels is to be achieved (MEB, 2018).

This indicates that the limited conception of vertical continuity introduced in the 2017 curriculum continued in the 2018 version.

An evaluation of the learning outcomes in terms of inter-grade progression reveals that the 2006 curriculum foregrounded a spiral and incremental structure, whereas the 2017 and 2018 curricula concentrated learning outcomes within a shorter time frame. Reducing the duration of the program from three years to two limited students' opportunities to develop design-process-related skills in a gradual manner. This finding aligns with teachers' and supervisors' interview statements emphasizing that the course should be introduced from earlier grade levels. In conclusion, the 2006 Technology and Design Curriculum can be considered to offer a more holistic and explicit structure in terms of vertical organization and continuity, whereas in the 2017 and 2018 curricula continuity appears to be addressed in a more implicit manner rather than through a clearly articulated structure. This shift is likely to have constrained the course's long-term learning objectives and the development of students' design-based thinking skills.

Tablo 10. Objectives and Outcomes Structure in Technology and Design Curriculums

Sub-Dimension	2006 Curriculum	2017 Curriculum	2018 Curriculum
Structure of aim statements	Aim statements are long and detailed. They are explanatory and comprehensive.	Shorter, more focused, and clearer aim statements are used. They are general and concise.	Aim statements have been simplified in terms of language and aligned with policy documents.
Number of learning outcomes (6th grade)	39	-	-
Number of learning outcomes (7th grade)	39	51	51
Number of learning outcomes (8th grade)	39	42	42
Total number of learning outcomes	117	93	93
Organization of learning outcomes	Spiral and stepwise	Thematic repetitions	Thematic repetitions
Wording of learning outcomes	Detailed, broad, process-oriented, and concrete expressions are used	More general, clear, and behavior-oriented expressions are used	Some learning outcome statements have been linguistically simplified
Computer/ Digital dimension	Learning outcomes related to computers and digital tools are explicitly included	Digital tools are included as elements supporting design and problem-solving processes	Digital tools are included as elements supporting design and problem-solving processes
Measurability of learning outcomes	Process and product are evaluated together	Process-oriented assessment is prioritized	Process-oriented approach has been maintained

Within the scope of Theme 3, the aim statements, number of learning outcomes, organization of outcomes, linguistic structure, and levels of measurability of the Technology and Design curricula (2006, 2017, and 2018) were compared. The findings clearly reveal a transformation in the pedagogical orientations of the curricula.

In the 2006 Technology and Design Curriculum, the aims are characterized by a lengthy, detailed, and explanatory structure. The aims are articulated through comprehensive statements addressing dimensions such as creativity, problem solving, the production process, and individual development. This reflects a broad curricular framework intended to provide strong guidance for teachers (MEB, 2006). In contrast, the 2017 curriculum exhibits a noticeable shortening and simplification of aim statements, which are presented within a more general framework. The aims are expressed in clearer and more focused terms, with detailed explanations largely avoided (MEB, 2017). This shift may be associated with an increased emphasis on flexibility and granting greater autonomy to practitioners in curriculum implementation. The 2018 curriculum maintains this approach while further aligning aim statements with basic skills and values education. The aims are formulated in a simplified, framework-like manner consistent with policy documents (MEB, 2018), thereby functioning less as prescriptive guidance and more as broad educational goals. The findings indicate a substantial reduction in the number of learning outcomes across the curricula. While the 2006 curriculum included a total of 117 learning outcomes—39 for each grade level—the total number was reduced to 93 in the 2017 and 2018 curricula. The reduction, particularly in Grade 6 outcomes, can be interpreted as an effort to decrease curricular density through simplification. This trend suggests a post-2017 curricular orientation that prioritizes quality over quantity. Reducing the number of learning outcomes aims to provide teachers with greater opportunities for depth and flexibility in classroom implementation (MEB, 2017; MEB, 2018).

In the 2006 curriculum, learning outcomes are organized in a spiral and incremental structure, progressing systematically across grade levels and building new skills upon prior learning. This organization explicitly supports vertical continuity (MEB, 2006). In contrast, the 2017 and 2018 curricula abandoned this approach in favor of an organization based on thematic repetition. Learning outcomes are clustered around specific learning areas, and progression across grade levels becomes more implicit. While this strengthens horizontal coherence, it weakens the curriculum's emphasis on vertical continuity. An analysis of the linguistic structure of learning outcomes further highlights these differences. In the 2006 curriculum, learning outcomes are broad, detailed, and process-oriented, encompassing not only final products but also stages such as design, experimentation, evaluation, and production. In the 2017 curriculum, learning outcomes are reformulated into shorter, more general, and behavior-oriented statements. Although the emphasis on process is retained, the language is noticeably simplified (MEB, 2017). This trend becomes even more pronounced in the 2018 curriculum, where learning outcomes are linguistically streamlined, and several are framed in a more general manner, leaving detailed interpretation largely to teachers' professional judgment (MEB, 2018).

Regarding the conceptualization of technology, the 2006 Technology and Design Curriculum predominantly frames technology in relation to physical production, manual skills, and tangible design processes. Digital tools and computer use are not explicitly defined at the level of learning outcomes;

instead, technology is primarily associated with material production and hands-on design activities (MEB, 2006). In contrast, the 2017 and 2018 curricula implicitly incorporate digital tools into the language of learning outcomes as elements that support design and problem-solving processes. However, in both curricula, computers are not addressed as a distinct learning area or a core objective; rather, they are positioned as instrumental resources that support the learning process (MEB, 2017; MEB, 2018).

In terms of assessment and evaluation, the 2006 curriculum adopts an approach based on the joint assessment of process and product, explicitly recommending mandatory tools such as learning journals, observation forms, and other process-oriented instruments (MEB, 2006). The 2017 curriculum maintains an emphasis on process-oriented assessment while introducing greater flexibility in the selection of assessment tools, granting teachers increased autonomy in this regard (MEB, 2017). The 2018 curriculum continues this approach, preserving process-oriented assessment but replacing mandatory tools with advisory guidelines. This shift indicates that assessment and evaluation practices are increasingly left to teachers' pedagogical preferences (MEB, 2018).

Overall, the findings obtained within the scope of Theme 3 demonstrate that the Technology and Design curricula have become progressively simplified, flexible, and framework-oriented from 2006 to 2018. This transformation in the structure of aims and learning outcomes reflects a shift from detailed, teacher-directed guidance toward a policy-aligned, skills-based approach that affords greater autonomy to teachers.

Table 11. Comparison of Technology and Design Curricula in Terms of Their Applicability

Sub-Dimension	2006 Curriculum	2017 Curriculum	2018 Curriculum
Physical Environment	Workshop-based application assumption	Flexible learning environments	Flexible learning environments
Teacher Role	Guidance and implementation	Facilitator	High responsibility for implementation
Assessment and Evaluation	Examination system disregarded	Indirectly addressed	-
Understanding of Evaluation	Development-based	Achievement-based	Achievement + competency based
Alternative Assessment Tools	Clear and detailed	General statements	General + value based

Table 11 makes it possible to analyze the extent to which the limitations regarding the implementability of the Technology and Design curriculum, as expressed by teachers in the 2006 program, were taken into account in the 2017 and 2018 curricula. In this context, the table establishes an indirect relationship between teacher opinions (2006) and changes in curriculum design (2017–2018).

Teacher views in the 2006 program revealed that the implementation of the course was based on assumptions regarding workshops, tools, equipment, and physical infrastructure; however, these conditions were not met in many schools. Teachers stated that the learning environments envisaged by

the curriculum did not correspond to school realities. In this respect, the shift in the 2017 curriculum away from a compulsory workshop-based structure toward an emphasis on more flexible learning environments can be interpreted as a curriculum-level response to the problems voiced in 2006. In the 2018 curriculum, the complete withdrawal of detailed regulations concerning physical environments indicates that this flexibility was further increased. Nevertheless, this does not mean that teacher expectations were fully met. The reduction of guiding statements related to physical conditions in curriculum documents resulted in a structure in which practical problems were largely left to teacher initiative.

In the 2006 curriculum, the teacher was defined as a central actor who plans the design process, manages implementation, and organizes assessment. Teacher opinions indicated that while this role was clearly defined, it also increased the practical workload. The redefinition of the teacher's role as a "facilitator" in the 2017 and 2018 curricula can be interpreted as an attempt to simplify the intensive role definition of 2006. Although the guiding role of the teacher in the process was preserved in the curriculum texts, detailed implementation responsibilities were reduced. However, the decrease in explicit guidance for teachers meant that the implementation difficulties expressed in 2006 were not structurally resolved but instead became dependent on teacher competence.

In the 2006 curriculum, the assessment and evaluation process was described in detail, explicitly including alternative tools such as portfolios, process assessment, and reflective journals. Teacher views showed that although these tools were pedagogically valuable, they were not sustainable in practice. The presentation of assessment and evaluation in more general terms in the 2017 and 2018 curricula can be interpreted as a reflection of the teacher criticisms expressed in 2006 on curriculum design. However, while this simplification provided practical convenience for teachers, it also introduced the risk of ambiguity in assessment criteria. Therefore, in the assessment dimension, it can be argued that there was a shift from a detailed but difficult-to-implement structure in 2006 to a more flexible but less directive structure in 2017 and 2018.

Teacher views regarding the 2006 curriculum indicate that implementation problems largely centered on physical conditions, teacher roles, and assessment workload. The revisions made in the 2017 and 2018 curricula can be regarded as attempts to respond to these issues at the level of curriculum design. However, it cannot be claimed that these changes fully met teacher expectations. While the simplification of the curricula alleviated some structural problems, it also resulted in a framework in which responsibility for implementation was largely placed on teachers. This situation suggests that the implementability of the Technology and Design course should be addressed not only through curriculum texts but also in conjunction with school conditions and teacher support mechanisms.

DISCUSSION

In this study, quantitative and qualitative data obtained from teacher and inspector views regarding the 2006 Technology and Design Curriculum were examined comparatively with the curricula published by the Turkish Ministry of National Education in 2017 and 2018. This approach is consistent with the principles of “temporal comparison” and “the enacted dimension of the curriculum” recommended in curriculum evaluation studies (Ornstein & Hunkins, 2018; Stake, 2011).

The quantitative findings from 2006 indicate that teachers’ and inspectors’ evaluations of the general aims of the Technology and Design curriculum were largely concentrated at a moderate level. In particular, views were only limitedly positive regarding the extent to which program aims formed the basis for learning outcomes and their alignment with students’ developmental characteristics. Qualitative findings further revealed that although teachers valued the program’s emphasis on higher-order skills such as creativity and problem solving, they perceived the learning outcomes as insufficiently differentiated across grade levels and containing repetitions. This situation corresponds with the frequently discussed “intended–enacted curriculum gap” in the technology education literature (Goodlad, 1979; Van den Akker, 2003). The inclusion of contemporary goals such as creativity, problem solving, and productivity in curriculum documents does not necessarily guarantee that these goals will be equally reflected in classroom practices. The reduction in the number of learning outcomes and the simplification of their wording in the 2017 and 2018 curricula can be interpreted as a curriculum-level response to the criticism of “excessive content load” expressed by teachers in 2006. However, the absence of a clearly structured spiral progression across grade levels in both later curricula suggests that the problems of repetition and insufficient differentiation identified in the 2006 data were not structurally resolved. Similar findings have been reported in other curriculum evaluation studies conducted in Türkiye (Demirel, 2017; Gömleksiz & Kan, 2012).

Teacher views from 2006 also revealed that limiting the Technology and Design course to grades 6–8 weakened the continuity of the learning process. Teachers emphasized that introducing the course at earlier ages would strengthen students’ creativity, productivity, and problem-solving skills. This finding aligns with international perspectives advocating for the systematic provision of technology education from early childhood onward. In particular, the STEM and technology literacy literature highlights the critical importance of grounding technological thinking in early developmental stages (English, 2016; ITEA, 2007; OECD, 2019). Nevertheless, the fact that the 2017 and 2018 curricula maintained the same grade-level boundaries indicates that this criticism voiced in 2006 was not reflected in curriculum design. This situation suggests that the position of the Technology and Design course within the education system continues to be treated as a “secondary” field. From a sociological perspective, it is well established that exam-oriented education systems tend to marginalize applied and process-based subjects (Apple, 2004; Ball, 2012). In the Turkish context, the lack of continuity in the Technology and Design course can be interpreted as a manifestation of this structural issue.

Teacher and inspector views regarding the 2006 Technology and Design curriculum acknowledged the strength of its creativity and production dimensions, while also implicitly criticizing its insufficient alignment with contemporary technological transformations. Qualitative data indicate that teachers primarily associated the concept of technology with tangible production and manual skills, whereas digital technologies were not positioned at the center of the curriculum. Document analysis findings confirm that this perception is consistent with the curriculum text. Indeed, the 2006 curriculum did not explicitly include computers or digital technologies at the learning outcome level. In contrast, the 2017 and 2018 curricula indirectly incorporated digital tools into learning outcomes as elements supporting the design process. This change suggests that the criticisms expressed in the field in 2006 were reflected in curriculum documents to a limited extent. However, the fact that computers were not structured as a separate learning domain in either curriculum implies that the relationship between the Technology and Design course and digital literacy remained largely instrumental. Contemporary approaches to technology education emphasize that digital technologies should be treated not merely as tools supporting production, but also as learning domains that foster critical thinking, design thinking, and ethical awareness (ITEA, 2007; OECD, 2020; Voogt et al., 2013). From this perspective, it can be argued that the revisions made in the 2017 and 2018 curricula partially addressed the expectations identified in the 2006 data, yet failed to construct a clear and holistic conceptualization of technology at the level of aims and learning outcomes.

Teacher views from 2006 identified the most prominent challenges related to curriculum implementation as inadequate physical infrastructure, lack of workshops, and the unsustainability of assessment and evaluation processes. In particular, the mandatory use of journals, portfolios, and process-based assessment tools was reported as a major source of practical difficulty. The presentation of assessment and evaluation in more general terms in the 2017 and 2018 curricula indicates that these criticisms were reflected in curriculum documents. However, rather than providing clarity, this simplification generated ambiguity in assessment practices. This finding suggests that curriculum simplification efforts, when not accompanied by guidance and support mechanisms, may create new areas of difficulty for teachers (Fullan, 2007; Priestley et al., 2015). Similarly, defining the teacher's role as a "facilitator" is consistent with constructivist and student-centered approaches; however, the reduction of concrete implementation guidance has led teachers to rely on their individual interpretations of the curriculum. This indicates that the implementation challenges identified in 2006 have not been eliminated, but rather have persisted in a different form.

The Technology and Design course is not merely a field in which technical skills are taught; it is a fundamental area of education that shapes individuals' ways of perceiving, transforming, and reconstructing the world. Dewey's understanding of experiential and problem-based learning emphasizes that learning occurs through active participation and lived experiences (Dewey, 1938). In

this sense, the Technology and Design course provides an important learning environment that supports students as active producers rather than passive recipients of knowledge.

In the 21st century, transformations driven by digitalization, artificial intelligence, and automation require individuals not only to be technology users, but also to understand, question, and evaluate technology from an ethical perspective. Digital literacy, design thinking, and problem-solving skills are among the core components of the contemporary human profile (OECD, 2020; Voogt et al., 2013). From this standpoint, strengthening Technology and Design curricula can be regarded not only as a pedagogical necessity, but also as a societal imperative. The findings of this study indicate that the problems identified through teacher and inspector views in 2006 were partially addressed at the document level in the 2017 and 2018 curricula, yet largely persisted in terms of implementation, continuity, and assessment. This underscores the need to approach curriculum development not solely at the level of content and learning outcomes, but in conjunction with implementation contexts, school conditions, and teacher experiences.

CONCLUSION and RECOMMENDATIONS

In this study, quantitative and qualitative data obtained from teacher and inspector views regarding the 2006 Technology and Design Curriculum were examined comparatively with the curricula published by the Turkish Ministry of National Education in 2017 and 2018. By introducing a temporal dimension to curriculum evaluation, this approach aimed to reveal the extent to which criticisms grounded in teacher experience were reflected in subsequent curriculum revisions.

The findings indicate that the main problems articulated by teachers in 2006 clustered around the feasibility of curriculum implementation, insufficient differentiation of learning outcomes across grade levels, the lack of sustainability in assessment and evaluation processes, and ambiguities concerning the position of the course within the education system. An examination of curriculum documents shows that some of these criticisms were addressed at the document level in the 2017 and 2018 curricula through a reduction in the number of learning outcomes, simplification of their wording, and the flexibilization of assessment and evaluation approaches.

However, these revisions did not substantially eliminate the problems reported by teachers at the implementation level. The reduction of directive statements related to practice in curriculum texts led not so much to a reduction in teachers' workload as to increased uncertainty. Structural problems persisted, particularly with regard to physical conditions, assessment processes, and the continuity of the course across grade levels. This finding underscores that curriculum revisions should be considered not only in terms of content and learning outcomes, but also in relation to school conditions and implementation contexts.

One of the significant conclusions of the study concerns the transformation in the conceptual scope of technology within the Technology and Design curricula. In the 2006 curriculum, technology

was predominantly framed through physical production, manual skills, and tangible design processes, while computers and digital tools were not explicitly defined at the level of learning outcomes. In contrast, the 2017 and 2018 curricula indirectly incorporated digital tools into the language of learning outcomes as elements supporting design and problem-solving processes. Nevertheless, in these curricula as well, computers were not positioned as a distinct learning domain or a core objective, but rather as instrumental supports for learning activities. This suggests that the systematic development of digital competencies has been structured primarily through the Information Technologies and Software course rather than through the Technology and Design course.

Another important conclusion relates to the position of the Technology and Design course within the education system. Teacher views from 2006 indicate that the lack of continuity and the marginalization of the course within an exam-oriented system constrained the effectiveness of the curriculum. The fact that this structural situation was largely preserved in the 2017 and 2018 curricula demonstrates that, despite the strategic importance of the course in relation to 21st-century skills and digital transformation, it has not been sufficiently strengthened within the education system.

In conclusion, this study reveals that despite significant structural changes introduced to the Technology and Design curriculum between 2006 and 2018, the core problems identified through teacher experience have largely persisted. This finding highlights that curriculum effectiveness should be evaluated not solely on the basis of curriculum texts, but in conjunction with teacher perspectives, implementation conditions, inter-course divisions of responsibility, and systemic factors. Considering the importance of the Technology and Design course in the context of 21st-century skills, design thinking, and digital literacy, it can be argued that teacher experience should be incorporated more strongly, explicitly, and sustainably into curriculum development processes.

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