The Structure of Primary Literacy Teaching Curriculum and its Relationship with Technology: A Qualitative Research

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Article Info	ABSTRACT
	Since rapid changes in technology affect every aspect of life, the importance of technology integration in education is constantly increasing. It is very important to educate individuals who use technology in education as in all areas of life and to ensure technology integration in education. The research aimed to explore the basic structure of the literacy teaching curriculum and the relationship between the curriculum and technology. The research was designed as a case study. The study group of the study consists of 27 primary school teachers selected by the disproportionate stratified sampling from four regions of Turkey. 12-question interviews prepared by the researchers were used as a data collection tool, and content analysis was used in the analysis of the data. According to the findings of the study, the educational tools, and the suitability of the technological infrastructure of the educational materials for the use of the students are closely related to the literacy teaching curriculum. In light of the results obtained, it can be suggested to give more in-service training for technology integration in literacy teaching to teachers and to develop a platform for technology integration in literacy teaching by the Ministry of National Education.

İlk Okuma Yazma Öğretim Müfredatının Yapısı ve Teknolojiyle İlişkisi: Nitel Bir Araştırma

Makale Bilgileri	ÖZ
	Teknolojideki hızlı değişimler hayatın her alanını etkilediğinden, günlük eğitimde teknoloji entegrasyonunun önemi sürekli artmaktadır. Hayatın her alanında olduğu gibi eğitimde de teknolojiyi kullanan bireyler yetiştirmek ve eğitimde teknoloji entegrasyonunu sağlamak oldukça önemlidir. Araştırma, ilk okuma yazma öğretimi müfredatının temel yapısını ve müfredatın teknoloji ile ilişkisini keşfetmeyi amaçlamaktadır. Durum çalışması olarak tasarlanan araştırmanın çalışma grubunu Türkiye'nin dört bölgesinden orantısız tabakalı örnekleme yoluyla seçilen 27 sınıf öğretmeni oluşturmaktadır. Veri toplama aracı olarak araştırmacılar tarafından hazırlanan 12 sorudan oluşan bir görüşme formu kullanılmış ve verilerin analizinde içerik analizi yöntemi kullanılmıştır. Araştırmanın bulgularına göre, eğitim araçları ve materyallerinin teknolojik altyapısı ile öğrencilerin kullanımına uygunluğu, ilk okuma yazma öğretimi müfredatıyla yakından ilişkilidir. Elde edilen bulgular ışığında, Milli Eğitim Bakanlığı tarafından öğretmenlere ilk okuma yazma öğretiminde teknoloji entegrasyonuna yönelik daha fazla hizmet içi eğitim verilmesi ve ilk okuma yazma öğretiminde teknoloji entegrasyonuna yönelik bir platform geliştirilmesi önerilebilir.

INTRODUCTION

The use of technology in education is an ongoing issue as learning theories and learning environments have changed in recent years, as new technologies emerge to support various learning processes based on different learning theories (Valtonen et al., 2022). As digital technologies change and develop day by day, the demands for the use of technology integration in education have also increased (Lim et al., 2013; Shukla et al., 2020; Susanna, 2022). Considering the functionality of technology in learning processes and the use of technology to improve learning, the concept of technology integration comes to the fore (Muir-Herzig, 2004). When looking at education from a general perspective, technology integration should be done in every lesson. Technology integration not only requires the teacher to play an active role in the classroom but also supplies convenience to the tutor in terms of encouraging the understanding of the students in the classroom. According to Fu (2013), technology integration is an effective tool for change and learning can happen anywhere and anytime. Usluel et al. (2015) highlighted that the integration process is multidimensional and dynamic, and this process includes many variables such as teacher competencies, individual competencies, curriculum, education policies, technological infrastructure, and parents. The increasing place of technology in our lives day by day and with it bringing some changes in teaching education has started to make children's technology-assisted teaching necessary (Peled & Perzon, 2022). Ensuring technology integration, especially in teaching literacy will contribute to students' starting to read and write because this process is like a key that opens many doors, the first step in our lifelong learning journey. Acquiring literacy has an important place in an individual's life because the literacy teaching not only connects humanity with its past, but also conveys the experiences of humanity to new generations, and also undertakes an important task by providing communication between generations. In this respect, primary school teachers have important responsibilities in the literacy teaching process. To carry out a qualified literacy teaching process, it has become an extremely important issue for teachers to integrate technology into this process. According to Günüç (2017), the integration of technology in education increases the academic success of the students, ensures their individual development, increases their motivation for learning, and provides learning with fun, effective and permanent learning. For this reason, if technology integration is provided in literacy teaching, students' attitudes towards school, teachers, and courses can develop positively in the first years of their education life. The fear of school experienced in this period can be minimized thanks to the integration of technology. However, it is difficult for teachers to provide technology integration based on curriculum. Günüç (2017) explored that there are obstacles to technology integration in education, such as teachers' prejudice to technology use, not being able to use technology, and finding technological tools and equipment unnecessary. Chauhan (2017), on the other hand, assumes that technology can be a powerful tool in the learning process of students if technology is extensively associated with pedagogy. The current study aims to explore the general structure of the literacy curriculum and its relationship with technology depending on the views of the teachers. Revealing the different features of the general structure of the literacy teaching curriculum based on the opinions of the teachers, who are the most important actors in the implementation of the literacy teaching curriculum is significant. Nowadays, investigating the relationship between technology, which is used intensively at every stage of education and training processes, and literacy curriculum will contribute to the literature in this field. Additionally, determining the extent to which technology is used in the literacy learning processes of children born and raised in the digital age will contribute to the effective and easy learning of various technological applications by primary school teachers based on the results. Therefore, this situation will indirectly make students' literacy processes more reinforcing and interesting.

METHOD

Research Design

The current study was prepared as a case study, which is one of the qualitative research methods. A case study is a methodological approach that aims to explore a system in depth by collecting systematic information about its functioning (Chmiliar, 2010). In addition, case studies allow for in-depth analysis of

events, situations, environments, programs, social groups, or systems (McMillan & Schumacher, 2010).

Study Group

In the study, disproportionate stratified sampling, which is suitable for the cluster sampling method, was used. This sampling is a method in which the main mass is divided into clusters, then an arbitrary number of clusters is selected from these clusters, and people are selected from the sub-clusters created (Karagöz, 2021). Among the regions of Turkey, four regions (Marmara, Mediterranean, Aegean, and Central Anatolia) and one city is chosen from each region (Istanbul, Adana, Izmir, and Ankara) consisting of two schools from each city and 27 primary school teachers working in these schools.

Table 1.

Participant Demographic Information

Place of working	N
City center	12
Town	9
Village	6
Region of working	**N**
Marmara	9
Mediterranean	6
Aegean	7
Central Anatolia	5
Seniority	**N**
1-10 years	5
11-20 years	8
21-30 years	10
30+ years	4

When Table 1 is examined, 27 primary school teachers participated in the study. 9 of the teachers work in the Marmara Region, 6 in the Mediterranean Region, 7 in the Aegean Region, and 5 in the Central Anatolia Region. While 12 teachers work in the city center, 9 teachers work in the district and 6 teachers in the village. When the professional seniority of the teachers was examined, 5 teachers with a professional seniority of 1-10 years, 8 teachers with a professional seniority of 11-20 years, 10 teachers with a professional seniority of 21-30 years and 4 teachers with a professional seniority of 30+ years.

Research Instruments and Processes

In the research, a 12-question interview form was prepared by the researcher to examine current issues in literacy teaching. To ensure the validity of the prepared form, pilot interviews were conducted with 3 experts and 4 people, and necessary arrangements including grammar and language mistakes were made and the final version of the interview questions was given.

Following the aims designed in the research, interviews were conducted with 27 primary school teachers. Participation in the research was completely voluntary, and the data were obtained by interviewing all of the participants via the Zoom platform. The findings section was completed by creating codes and themes from the data obtained as a result of the interviews. The generated codes and themes were supported by direct quotes from the teachers. The teachers who contributed to the study were named differently (Teacher Ayşe, Teacher Burak, Teacher Selda…) and were used without giving their personal information.

Ensuring the reliability of qualitative data is a situation that shows how much the reader will trust the study (Fraenkel et al., 2012). In the analysis of qualitative data, the researcher gave the final shape to the codes with the views of an expert who is an expert in the field and who has worked on the subject before (Yıldırım & Şimşek, 2018). In the study, first of all, the answers given by the teachers to the interview form were examined and analyzes were made on all the data collected from the teachers. In the analysis of the opinions of the teachers, the themes were formed by grouping according to the similarity of the expressions, and the opinions were placed in the appropriate themes. In addition, the frequency values of teachers' opinions were determined in the study. Participant views that stand out for each theme are included with direct quotations.

The researchers calculated the reliability with the field experts' opinions and the formula of Miles & Huberman (2016). In the study, 162 codes were determined out of 29 themes determined depending on the opinions of the teachers, and 8 codes with disagreements were determined in three themes (assessment-evaluation, timing, technological products, and tools). In this regard, the reliability was determined as 162/(162+8)x100=95%, 29. In the findings section of the study, the opinions of the participants were given with direct quotations to ensure the reliability of the qualitative findings.

Data Analysis

The content analysis method, which is used in the analysis of qualitative research, was used in the analysis of the data obtained by taking into account the opinions of the classroom teachers. Content analysis is a basic process to collect similar data within the framework of certain concepts and themes and to organize and interpret them in a way that the reader can understand. The main purpose of content analysis is to reach concepts and relationships that can explain the collected data. In this way, the data is tried to be defined and the facts that may be hidden in the data are tried to be revealed (Yıldırım & Şimşek, 2018).

FINDINGS

The findings regarding the general characteristics of literacy program according to the primary teachers' views and the relationship between the literacy process and technology were evaluated with content analysis. Teachers' views on the general structure of the program, strategies, methods and techniques in literacy teaching, technological products and equipment in the literacy process, current tools and equipment in literacy teaching, measurement and evaluation in the literacy process, timing in literacy teaching and teachers' general approach analyzed with tables. The codes are presented in the form of tables. Table 2 shows the views about the structure of the literacy curriculum.

Table 2.

The Structure of the Literacy Teaching Curriculum

Structure of the curriculum	F
Learning outcomes	2
Effect of writing	3
Examining in terms of letter groups	1
Examining in terms of grammar	2
Values education	2

The general structure of the literacy teaching curriculum was examined by taking the frequency of teachers' opinions, and codes were formed in terms of "learning outcomes", "writing style", "examination in terms of letter groups", "grammar" and "values education". Regarding the structure of the curriculum, Teacher Mustafa said, "I do not think that the letter ordering in the curriculum should be applied. The atmosphere of each classroom is different, and the learning process of children can be different. If we keep it flexible, students cannot learn permanently." Teacher Ayşe said, "The alphabet order given in the updated curriculum

has been made qualified by examining the words created according to previous years. The literacy processes of children who can use more words are shortened." In this regard, Teacher Ayşe explained her views on the care of letter groups. Teacher Esra regarding the achievements discussed in the curriculum noted that: "It is important to give correct instructions to children and follow them. It takes a long time for the child who gets used to the wrong spelling technique to break the habit. For this reason, especially in the first letters, it should be given more slowly and by following the children in detail."

Table 3.

Strategies, Methods, and Techniques Used in Literacy Teaching

Factors affecting methods and techniques	f	Methods and techniques	f
Environment	3	Video playback	7
The general climate of the classroom (opportunities-limitations)	4	Mimic	3
Time planning	3	Drama	2
Teaching philosophy	2	Direct instruction	3
		Brainstorming	1
		Case study	2
		Question and answer	10
		Role-playing	2
		Montessori approach	1

Strategies, methods, and techniques used in teaching literacy were shown in Table 3 by taking the opinions of teachers. When the factors affecting method techniques were examined by taking the frequency of teachers' opinions, themes such as "environment", "the general climate of the classroom (opportunities-limitations)", "time planning" and "teaching philosophy" were formed. "Different methods and techniques should be used in the literacy teaching process. I think that success will be more limited in a class where the same method is followed all the time. For this reason, I always try to apply different methods and strategies in my class. However, there may be problems with the applications due to the crowded class size. We are trying to streamline my apps by minimizing these disruptions" [Kübra Teacher]. Teacher Berna also has some statements such as "I take care to prepare different works that attract the attention of children. I find it important to ensure the active participation of children in letter-teaching activities. It is impossible to ensure that all children participate in every study. For this reason, I take care to allow different children to take part in the studies."

Methods and techniques used in teaching literacy were examined by taking the frequency of teachers' opinions and "video playback", "mimic", "drama", "direct instruction", "brainstorming", "case study", "question and answer", and "role-playing", and "Montessori approach" themes were created. We did writing on sand and letters from cookies in the literacy learning process, they were important activities in terms of sound awareness and became interesting [Melike Teacher]. While expressing it as such, Teacher Cem also said: "There are many videos and application studies on the digital platform. This is how I teach in the classroom." Teacher Betül applied different techniques in the classroom and said "I have always observed the positive effect of drama studies in the education process. For this reason, I have studies made by using role-playing and role-changing techniques, especially in letter combination syllable studies". Teacher Filiz thinks "the show-and-make technique is important in teaching reading and writing. In the writing process, children must learn by showing all the details, starting with holding the right pencil and writing the correct letter". Table 4 indicates the technological products and tools in literacy teaching.

Table 4.

Technological Products and Tools Used in Literacy Teaching Process

Types of tools	F
Technological tools (smart board projection)	3
Written tools (Books, activity sheets, activity cards, etc.)	5
Use of tools	**f**
Technological tools	2
Written tools	5
Opportunities and limitations of technological tools	**f**
Support with images	6
Opportunities and limitations of written instruments	**f**
Opportunity for every child	7

Types of tools used in the literacy process were themed as "technological tools", "written tools", "the use of tools and equipment" "use of technological equipment" and "use of written tools".

Teacher Ali explained that he finds it logical to use the interest in the technology of children born into technological products, especially computers, and smartphones, in teaching literacy. He expressed his thoughts as "Without visual content, student's attention spans decrease even more. With the help of technology, I can do more reading and writing". According to Teacher Zeynep, "Digital game-like applications attract my students' attention more. I mostly use the possibilities of technology on the smart board with such applications". Similar to Teacher Zeynep, Teacher Kemal also noted "I use programs such as Morpa Campus, which are free to use, because there are activities that provide both my vote and practice, and I think that it appeals to children, it is quite colorful and the visuals are appropriate". Teacher Seda expressed that technology affects her lessons positively, and said "It is important to use tools that will attract their attention in terms of adapting to school and learning the classroom layout for children who have just started primary school. I can only attract the attention of children who grow up with technology by ensuring their harmony with technology. At the same time, technology has many positive aspects. We can offer different activities and visuals to children".

Different from these views, Teacher Eray emphasized the importance of concrete materials, "Besides technology, concrete materials are more suitable for the development of children. Because with the materials and concrete objects given to each child, the learning of the children who start the practices will be more efficient".

Table 5.

The Tools in Literacy Teaching

Common tools used in literacy teaching	f
New technological software	5
Three-dimensional letter materials	2
Materials suitable for the Montessori approach	2
Board games	4
Reading exercises with texts	6

Teachers' opinions about the current tools used in teaching literacy were taken and their frequency of views was determined, and they were divided into the following categories: "New technological software", "three-dimensional letter materials", "materials suitable for Montessori approach", "board games", and "reading exercises with texts". Teacher Demet said, "During the literacy education process, I had each child make a letter-by-word syllable piggy bank to reinforce letters and sounds. I encouraged the children to fill their piggy banks with the letters we learned and to read by pulling the papers. In this way, I allowed them to do it again and again, both at home and at school".

While talking about the materials Teacher Elif indicated that "I use three-dimensional letters within the scope of some sets I use in my classroom. As children see it as a game tool, they both attract their attention and reinforce what they have learned." expressed in the form. Teacher Burak also used the materials and applications in the classroom "Many researchers have shown that board games contribute to many skills of children in pre-school and primary school periods. I also try to play board games in my classroom, such as Sortie, Quick Math, and Five Points. At the same time, we prepare board games about literacy and math studies. And in this way, I give place to the works."

Table 6.

Assessment and Evaluation Tools in Literacy Teaching Process

For individual assessment	f
Observation form	4
Achievement evaluation form	3
Methods and techniques in the assessment and evaluation process	**f**
Drama	1
Peer review	3
Question answer	4
Direct instruction (appropriate reinforcement for gradual correct behavior)	2
Implemented examples	**f**
Dictation practice	5
Timed reading exercises	3
Game	1

In the literacy process, teachers' opinions on assessment and evaluation were taken, and codes of "observation form" and "outcome evaluation form" were created for the theme of individual evaluation. Regarding the method and techniques used in the assessment and evaluation process, "drama", "peer assessment", "question-answer", "direct teaching (giving reinforcement by the correct behavior shown by stages)", and "applications in the assessment and evaluation process", "dictation work", "timed reading exercises" and "game" codes were created. "I pay attention to make observations to determine whether my students have acquired skills such as the information, letters, and values they have learned in the process. The observation and evaluation forms given by the Ministry of National Education (MoNE) are very useful for me. If there is a lack of attitude, behavior, or knowledge that is expected to improve in the classroom, I try to do it again, and I try to intervene early by communicating with the parents in case of personal deficiencies" [Hakan Teacher].

While talking about her studies, Teacher Neslihan added, "I think that play and drama studies are important to determine whether the information gained has been learned or not. By doing gamification, I not only allow students to have fun but also make my assessments." Teacher Zeynep expressed, "I find it important to study dictation for the consolidation of reading and writing activities and for the evaluation of

the letter and syllable studies that children have problems with.".

Table 7.

Timing in Literacy Teaching

Planning the time	f
Giving voices	7
Studies on texts	5
Book studies	4
Use of time	**f**
Giving voices	5
Studies on texts	5
Book studies	6
The general approach of the teacher in teaching literacy	**f**
Teacher-centered	4
Student-centered	3

When the views about timing in teaching literacy were evaluated, Teacher Ali thinks that "I should do the literacy process in my classroom without sticking to the plan. Arranging it according to the situation in my classroom is important for classroom success. I make decisions about how much emphasis should be placed on voices, how often I will do activities and studies, regardless of the schedule". Regarding this issue Teacher Tuba has a different strategy and she says "I try to give sounds and letters quickly. After improving the sounds and letters, spend more time on reading studies, dictation studies, and reading comprehension studies. Accelerating the reading process and reading comprehension exercises are important in the next classes. Therefore, it is extremely important to focus on it." Moreover, Teacher Betül expresses her ideas by saying "I think the dates in the curriculum are appropriate. It is more correct to give the exercises slowly and by reinforcing them. I follow a style that concentrates on activities and studies. For the success of my students, I take care to progress in a systematic way by supporting them with home studies."

DISCUSSION, CONCLUSION, RECOMMENDATIONS

The general structure of the literacy curriculum was examined according to the views of the teachers, and the general features of the curriculum, learning outcomes, group characteristics of letters, and writing skills were determined to be effective. In addition, the features of the curriculum are related to the acquisition of grammar and values education. The factors that affect the selection and use of strategy methods and techniques in the literacy teaching process are related to the school environment, classroom climate, and time planning. Depending on the views, literacy teaching should start with an approach in which the teacher was in the center and more active at the beginning of the process. However, in the following process, the lessons were provided with an approach that took into account the general characteristics of the students in the classroom. Measurement and evaluation methods and techniques used for the evaluation of the literacy teaching process, the methods and techniques used in individual evaluation and group evaluation, and the methods and techniques used in the process are themed. The use of time in literacy teaching is related to the planning of literacy activities and the implementation of the planned studies. According to the teachers' opinions, the relationship between literacy teaching and technology, educational tools and equipment, the suitability of the technological infrastructure of the educational materials for the use of the child, and the possibilities and limitations are closely related to the literacy teaching curriculum. In other words, educational tools and materials are the most important factors affecting the literacy process.

Among the studies examining the factors that affect the literacy processes of children, factors such as having a preschool education, having a reading habit of the parents, the use of materials while learning to read and write, and the suitability of the materials used for the child are important (Zgourou et al., 2020). In the study of Agirregoikoa et al. (2021), the parental attitude exhibited in the family while learning to read and write, especially the children who were brought up in a family with a democratic family attitude, were faster than their peers and their reading comprehension skills improved. According to the study results, just as the family's reading habits affect the child's literacy process, the teachers' perceptions of literacy are also influential on the students. Since teachers' role models affect students' attitudes and behaviors, teachers' attitudes and behaviors toward reading affect students' attitudes toward reading. Helfrich & Clark (2016) and Ciampa & Gallagher (2018) studied how teachers' attitudes and behaviors towards literacy affect students' literacy habits and levels. Başar & Tanış (2020), Çetinkaya (2021), and Babayiğit & Erkuş (2017) carried out studies in which they concluded that the classroom environment and the classroom management behaviors of the teacher affect the success of the students in the literacy process. Along with the characteristics of the teacher and the classroom environment, the developmental characteristics of the student also affect the student's behaviors towards literacy. Related to this situation, Homer et al. (2014), Ronimus et al. (2014), Jere-Folotiya et al. (2014), McGuinness et al. (2014), Özyürek & Çavuş (2016), and Öztürk & Aksu (2019) argued that game-based literacy teaching increases student motivation and contributes to literacy teaching. In addition to the positive effects of game-based learning, digital games cause distraction in long-term applications because network-based digital games contain too many stimulants.

The opportunities and limitations provided by the use of technology-supported applications in the literacy learning processes of students have also been examined in various studies (Ihmeideh, 2009; Voogt & McKenney, 2007; Erbaş, 2021). According to related studies, teachers' perceptions of the use of educational technologies in lessons also affect the quality of students' literacy learning processes. For instance, Erbaş (2021) emphasized the necessity of adapting the software and technologies used in primary literacy teaching to the emergency distance education process. Although we live in such a digital age, primary school teachers highlighted that the computer-aided materials used in literacy teaching were not suitable for distance education. The fact that these materials are not adapted greatly affects the classroom teachers' perceptions of using the materials. The appropriate use of technology in line with the age group, environment and developmental characteristics of the students is a factor that increases student success. The computer-assisted literacy practices create an opportunity in terms of saving time, providing learning environments supported by different applications, and enabling more students to practice (Nafilah & Sakti, 2022). It is necessary to use computer-aided education tools, especially in the stage of making the sounds felt in the literacy process. The use of computer-assisted teaching materials in the literacy process of the students, the use of various materials, the concepts and letters learned from being abstract and concretized and contribute to the learning processes of the students. Reaching research results similar to these results, Meishar-Tal & Shonfeld (2019) and Cviko et al. (2012) highlighted that in a paper-free classroom environment, students' literacy learning processes use computer-aided software and that the material characteristics of the students and the personality traits of the students are effective on the motivation of the students towards literacy. Technology-based literacy teaching tools, which are used to attract students' attention in the literacy process and increase their interest in the lesson, allow students the opportunity to make applications that will support different development areas by bringing them face-to-face with many stimuli (Şahin & Özenç, 2021). The use of computer-assisted technological software to increase the motivation level of students to read and write by gaining literacy skills is considered important in terms of providing students with many applications that increase their learning experience in a short time (Vilaseca-Momplet et al., 2013). Experimental research has been carried out on the use of technological learning tools that increase students' learning experiences and facilitate access to information. Domingo & Gargante (2016), Spiteri & Chang-Rundgren (2020), and Turunen (2019) emphasized the importance of increasing teacher competencies for the use of digital technology tools in the results of the research.

There are many factors affecting the literacy processes of students especially parental literacy habits and teachers' attitudes toward literacy play a major role. Together with these factors, literacy practices carried out in the classroom affect students' perceptions of literacy. The quality of the literacy teaching curriculum affects the learning processes of the students. Curriculum content and activities that will guide teachers' practices make the literacy learning process easier by making the student more effective in literacy teaching. The use of digital technological educational tools provides an opportunity for students to gain more activities and experience, especially in the classroom. For this reason, it is necessary to diversify the technological software related to literacy following the developmental characteristics of the students and to use educational materials enriched with different stimuli that will contribute to the concrete learning of the students, determining the interests of the students and associated with them in the classrooms. Studies should be conducted in which applications that increase student interest and motivation by facilitating learning in literacy studies are applied experimentally in classrooms, and a platform for technology integration in literacy teaching can be developed by the MoNE.

BİLGİ NOTU

Author Contributions: Author 1: 50%-Research design, literature review, method, analysis, findings, and results, Author 2: %50- Literature review, research design, and method

Ethical Statement and Conflict of Interest

Scientific ethical principles and rules were taken as the basis in all stages of this research, including preparation, data collection and analysis, and reporting. The ethical standards and conditions of the Committee on Publication Ethics (COPE) have been accepted and acted accordingly. The study did not receive funding from an institution or organization. There is no conflict of interest in the article.

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