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COMPARISON OF DIGITAL ASSESSMENT AND DOCUMENTATION SYSTEMS USED IN THE EARLY CHILDHOOD EDUCATION IN TURKEY, GERMANY AND SPAIN

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ABSTRACT

This is a comparative education study that aims to compare the digital documentation systems used in the preschool education programs and institutions in Turkey, Germany and Spain and to reveal the similarities and differences between these systems. The study was planned as a qualitative research in terms of its descriptive aspect, and as a comparative educational study in terms of its content and method. Comparative education helps us to understand how education systems are shaped by the wealth, ideology, social-cultural characteristics of the country, and the effects of globalization on educational policies and practices in different regions and countries. The study aims to examine the existing data through document analysis and to compare and better understand preschool education conditions by making in-depth observations in order to compare digital documentation systems by focusing on the dimension of observation. The study group consists of the digital documentation systems used in Turkey, Germany and Spain. The EBA system developed by the Ministry of Education in Turkey, KITALINO digital documentation used in Germany and Transparent Classroom application used in Spain were examined in the study. In the analysis of the data, digital documentation systems were shown in tables in line with the determined criteria and comparisons were made. Based on these comparisons, comments and suggestions were made. It was observed in accordance with the results of the comparative education study that there are various applications in the early childhood education in Turkey, Germany and Spain in terms of digital documentation.

Keywords: comparative education, digital documentation, preschool education, Turkey, Germany, Spain

INTRODUCTION

In today's world, documenting the actions of the children for their education and development has become a crucial element of the early childhood education studies (Alasuutari et al., 2020). The digital tools that have become prominent in the 21st century are improving, increasing their impact and usage areas with the integration of the internet and ease of access. Education has become one of these usage areas. Technological tools facilitate managing, processing, storing and sharing information in education with different paradigms and increase the efficiency of education (Tekinarslan, 2008). We encounter these digital tools, which serve different purposes in education, in the documentation and assessment that has become an inseparable part of the education. Documentation and assessment are the ongoing process of gathering evidence for the learning and development of the child during the educational process

(McAfee et al., 2015). Innovative technologies have the potential to provide quality educational assessment that would be more useful for the teachers and further contribute to the learning of the students (Koomen & Zoanetti, 2018). Wortham (2014) describes these digital tools, which he named as technology-based assessment, as the adaptation of paper assessments such as reading or mathematics checklists or carried out in connection with a certain curriculum to computer software.

In the 21st century, children grow up in a world where their lives are shaped by digital technologies (Edwards et al., 2018; Flewitt & Cowan 2019). Today, the transition to digital documentation has been inevitable due to the pandemic experienced all over the world. There seems to be no other alternative, especially when factors such as time, cost and, above all, reliable and legally proper storage of data are considered (Alanko et al., 2019; Stratigos & Fenech, 2020). Digital documentation and assessment tools and technologies have an important role in educational development and facilitating learning as they have become highly accessible to individuals around the world.

The skills, knowledge and capacity of the child during the early childhood period, which differs from other educational levels, rapidly develop (Buldu & Erden, 2017, Chin et al., 2021). In order to support this rapid development of children and to prepare educational environments for them, it is important to recognize and evaluate them during their education process (Ceyhan & Ören, 2011). The teacher collects data on the child with various tools and products to document and support the learning and development of the child (Randel & Clark, 2013). The content of the documentation includes observation, standard tests, teacher-parent interviews, activity samples, various media records, environmental factors and the assessment records (Brassard & Boehm, 2011). Observation is one of the most important ways to collect data on children in early childhood, which is a complex process. Teachers assess the development of the child by analyzing the observations made on the child and decide what they mean (Featherstone, 2013).

Assessment and documentation are essential for all educational processes in early childhood education (Flewitt & Cowan, 2019; Stacey, 2015). Documentation and assessment of learning directly affects the teaching process. Assessment should focus on the documentation of a combination of learning processes and products as a way of directing pedagogical decisions rather than focusing on products (Stacey, 2015; Ahmad, 2015). In the field of early childhood education, assessment and documentation play an important role in the implementation of effective ways to assess and document the development and learning of children.

Digital assessment and documentation saves time and increases possibilities in preschool education institutions due to the simplified work steps (Alasuutari et al., 2020). Documenting and assessing observations in daily life is not always easy. Educators have limited time and need to devote most of their time to children. However, if digital facilities are used, it becomes easier to document educational processes in preschool institutions (Knauf, 2019, 2020). Children can easily be involved in this documentation process depending on which method used. In this way, a holistic understanding can be achieved in the education process. It is essential to first understand why and how digital documentation systems are used among teachers (Alasuutari et al., 2020; Knauf, 2020). The aim is to develop an attitude towards digitalization in the world of children and preschool education institutions and to reach an understanding on how digital tools for teachers as a subject and tool can be integrated into

daily pedagogical life, what goals are associated with it, and how it should be integrated into the resulting understanding.

Observation and documentation are of great importance in early childhood education institutions (Schönborn & Kuhl, 2020). They form the basis of training activities in these institutions. Through documentation and assessment, teachers can become aware of the individual development of each child and recognize their current needs (Knauf, 2015). Observations are the starting point of the assessment and documentation process. By means of documentation and assessment, children can understand and shape their development by carrying out their own educational processes. With the documentation of the assessments, daily activities in preschool education institutions become visible and the confidence of parents in the education process increases (Gallagher, 2018). There are many applications and software available today that can make documentation and assessment much easier. These can take various names such as digital observation and documentation, digital assessment, digital portfolio, e-portfolio. Especially digital technologies can become real contributors in preschool education institutions, provided that they are used carefully.

The aim of this study is to compare digital documentation and assessment tools used in Turkey, Germany and Spain. In line with this purpose, the data of each country were examined under separate headings and these data were compared by creating a comparison table.

METHODOLOGY

This study was designed as a qualitative study in terms of its descriptive aspect, and as a comparative educational study in terms of its content and method. Comparative education helps us to understand how education systems are shaped by the wealth, ideology, social-cultural characteristics of the country, and the effects of globalization on educational policies and practices in different regions and countries (Bray & Koo, 2003; Aynal, 2012; Bray et al., 2014). Comparing the education systems between different countries allows us to see the differences and similarities, and to find alternative ways to overcome the deficiencies in the systems.

Data Source and Study Group

The data source of this educational study consists of the digital documentation and assessment tools implemented in Turkey, Germany and Spain.

The sources scanned for document review are the existing programs related to the preschool education systems of Turkey, Germany and Spain, the information, documents and documents personally accessed from the relevant ministries and consulates, the reports of international organizations, books, theses and published articles in the field of comparative education, UNESCO, OECD, UN, Eurydice representations were used.

Data Collection and Analysis

In this study, document review was used as data collection method. Document review is a qualitative research method used to regularly and systematically examine the content of written and digital documents (Berg & Lune, 2017).

During the data collection phase, E-Portfolio System from Turkey, KITALINO software in Germany and Transparent Classroom software from Spain were selected as data collection tools in order to compare the digital documentation systems used in the preschool education of the said countries.

In this comparative educational study, document analysis, which is one of the descriptive analysis methods, was used in the data analysis process. Document analysis is a systematic method used to examine and evaluate all documents, including written and digital materials (Edlund & Nichols, 2019).

FINDINGS

In the findings section of the study, the data of the compared countries were examined under separate headings. A comparison table, which is used in comparative education analyses, was created with these data to make a comparison between the digital documentation systems used in Turkey, Germany and Spain.

Documentation System Used in Turkey

The e-school system has been used in primary education since 2007 and in secondary education since 2008 in order to ensure coordination between schools, to eliminate non-standardization, compliance problems and economic costs (Baglıbel et al., 2010).With the amendment made in the Preschool Educational Institutions Regulation in 2014, the Preschool and Primary Educational Institutions Regulation of the Ministry of National Education (MONE) was brought together and made into a single regulation. With these changes, it is required to keep achievement assessment and child files in the e-school system. The information in the e-school system is shared with the parents and can be transferred to the institutions in the future where the child will attend to (Ministry of Education, 2014).

"Movement of Enhancing Opportunities and Improving Technology" (FATİH) was designed by MONE in 2010. The Educational Informatics Network, abbreviated as "EBA", constitutes the second main component of this project. EBA, designed by the "General Directorate for Innovation and Educational Technologies" in order to use effective materials by employing information technology equipment in the education process, was opened in 2012 as a social network where the reliable and reviewed digital content that is appropriate with class levels can be found. EBA, which was designed for all partners of education, especially teachers and students, also enables teachers to prepare content for children and a portfolio for the child (Ates et al., 2015). Even though EBA emerged as a subheading of the e-School system, it has been observed that these systems complement each other. Information on the content of e-School and EBA systems are as follows:

The Digital Assessment and Documentation System: EBA (Educational Informatics Network)

EBA Educational Informatics Network, which was developed by the MONE through the "Movement of Enhancing Opportunities and Improving Technology" (FATİH) project, is a platform which enables teachers to create digital content for their classroom, or share, edit and receive feedback in this sense and to make online lessons. As EBA platform allows digital documentation, it goes beyond that and creates a general educational informatics network for all education levels. The system features of the EBA tool are as follows:

i) *Preschool Institution Information:* It is the section where the progress report and daily attendance information of the children are entered by the teacher at the end of each semester.

ii) *Preschool Child Processes:* It is the section where the student's detailed identity and family information, along with leaving the school, referral and general attendance information are entered and displayed.

iii) *Library:* It provides access to Cartoons, Games, Radio Theater, Reading Hour, Practice, audio and visual Books/Magazines as well as audio-only and visual-only books.

iv) *Reports*: It provides reporting on the participation of children on the content shared with the parent system or defined for each child. Furthermore, the performance of the child in that study is recorded in the system with the graded scale on the "General Performance Reports" screen.

v) *Professional Development:* It is a section where the teachers are notified of the courses and trainings prepared for their professional and personal development as well as an interactive platform that they can create according to their field of interests or participate in existing groups. Moreover, a library section is located here in which e-books can be found.

vi) *Portfolios:* It is a section that has a class list of the teacher and allows the data to be entered under each child's report card grades, performance level, studies, and achievement certificates. In this section, there is information about the child's score and the class and school rankings formed accordingly.

vii) *Other Sections:* There is a calendar in which important days are marked with monthly bulletins prepared by the R&D department under the title of Files, a licensed program section to produce content, and a scoring system determined according to the teacher's activity regarding the contents. Moreover, the EBA system provides the ability to survey parents or receive feedback from them.

viii) *Access of the child:* With the EBA student section, children are also provided with specially prepared access for them. In this section, children collect various awards and crests according to the activities that they participate in. In this way, teachers can track the participation of the child in the practice.

In Turkey, it has been decided that the digital assessment system will be included within the scope of 2023 Education Vision published by the Ministry of Education in 2018. Within the scope of the 2023 Education Vision, decisions were taken to prepare an e-portfolio, starting from early childhood education to continue with other educational levels, in order to activate measurement and assessment methods to increase the quality of education in the goals of the digital assessment system (MONE, 2018).

These goals and items included in the MONE 2023 Education Vision show that a digital assessment system has started to be used with the purposes of monitoring, assessing, improving and directing children (MONE, 2018). Therefore, assessing, monitoring and supporting the individual characteristics of the children, which has gained importance in the 21st century, are tried to be carried out in a digital environment.

Digital Assessment and Documentation System Used in Germany

In Germany, there is a common framework program for the early childhood education, which was determined by the federal government. All states develop their educational programs according to this framework program (Eurydice, 2020). Observation and documentation of children's actions in terms of development and education in Germany has become an essential component of early childhood education practice and research (Knauf, 2019). Observation and documentation are of great importance in the education systems of all states in Germany and form the basis of education (Knauf, 2015). Each federal state has an education program established by the relevant ministries and guidelines for observation and documentation based on these programs. However, there is no performance assessment in the preschool education. Therefore, regular and targeted observation is carried out in many institutions according to a certain plan (Alasuutari et al., 2020).

In Germany, there are many observation and documentation methods in both traditional and digital form. In this part of the study, digital documentation tool named "KITALINO", which is being used in Germany, is examined.

Digital Assessment and Documentation System Used: KITALINO

KITALINO was created in partnership with HERDER, publisher in the field of early childhood education, AKDB - Bavarian State Municipal Data Processing Institute, FRÖBEL GmbH and QiK Online-Akademie. KITALINO is a professional online software that educators and the administrators of the preschool education institutions can use to save time and carry out the documentation and portfolio works in a digital environment. Assessment of the pages are automatically conducted and graphically processed in the system. Individual development curves of the children can also be viewed and easily compared with each other. With the additional "FOTOLINO" application, media content can be created quickly and safely by children and integrated directly into the individual reports or shared with parents.

KITALINO includes both observation and documentation options. This tool offers the option to print the digital data by way of a printer. With KITALINO, the digitalized observation and documentation inventories, BaSiK, PERiK, Liseb, Seldak and Sismik, are automatically assessed and this saves time in the observation and documentation process. The system features of the KITALINO tool are as follows:

i) *Systematic Observation and Documentation*: Most of the systematic observation methods include assessment scales and a combination of the free sections in order to make a more extensive observation, examples and remarks. All of these ensures that the input values are understandable. With KITALINO, these diverse observation inventories can be collected together and can provide many benefits in terms of time and quality, especially for institutions.

ii) *User Profiles:* There are three different types of users in the KITALINO digital documentation system. These are children, educators and parents. Teachers can create documentation or portfolios from the profiles of children who need observation and the data of existing children profiles can be changed. Parents can register to the system by responding to the invitations sent by the educators. The system also offers Excel templates for adding children and employees to KITALINO.

iii) *Observation:* KITALINO offers the possibility to perform standardized observations with BaSiK, Liseb, Seismic, Seldak and PERiK which are assessment tools. An observation page can be created for each child through the child profile. Current completed or active pages can be viewed or edited. After the start of the observation phase, the status of the observation can be seen on the child's page. Observation pages are divided into clear, easy-to-read sections. After clicking on the content sections, relevant questions pop up. Answers can then be clicked or texts can be entered freely. Upon request, institutions can include their own tests in the application.

iv) *Assessment:* The assessment of the observations works automatically. The development process is visualized for each child. The page can be assessed after the observations are completely entered. The result of the observation is clearly displayed in graphics and can be saved in PDF format or printed via a printer for later use. Practical suggestions that are useful for the BaSiK assessment are integrated. These facilities can be used for educational planning and team discussions. In principle, only pages with "completed" status can be assessed correctly. If the surveys are still in edit mode and not all questions have been filled in, the assessment may not be accurate. Standardized tests are automatically assessed and clearly displayed in graphics. In standardized tests (e.g. BaSiK, sismik, etc.), quantitative assessment is performed using the relevant standard tables. The three observation periods of a child can be compared with each other. Each point in time is assigned its own color so that progress can be seen at a glance.

v) *Creating Portfolio:* With KITALINO, the child's portfolio can be documented using multimedia. Portfolio of each child is kept in the respective sections. All media related to the portfolio section (photos, videos and audio recordings) can be viewed or listened to. Portfolios can be loaded from an external memory and renamed. Any number of text or photographs can be added. The portfolio can then be printed for the child file and can be shared securely by e-mail upon receiving the consent of the parents. A template can be chosen from the different templates to create a portfolio. Upon request, personal designs can also be added to KITALINO. The portfolios created can be edited at any time. The portfolio or its content can be easily shared with parents via e-mail. Consent of the parents is a prerequisite for this, as the e-mail address and mobile phone number of the parents must be stored in the profile of the child. Parents receive the portfolio with a password protected link and the corresponding password via SMS.

vi) *Media with FOTOLINO*: FOTOLINO is a complementary application with its digital media. Here, photo, video and audio recording can be edited and managed. The FOTOLINO application is used to take photos and record videos or audio. These can be individually assigned to children or groups. The interesting part of the application is the password protected child mode. With this mode, children can make recordings and view them. Child mode allows children to take photos and recordings without changing other data.

vii) *Communication with Parents*: With "KITALINO for Families" important information can be sent digitally to parents in a safe, clear and quick manner. Announcements are made to parents with a digital "notice board". With the calendar function, all important dates such as closing times, celebrations or trips can be entered into the calendar. Child profiles created in KITALINO can be safely and quickly linked to the family profile. An invitation from KITALINO can be printed and distributed to families to invite parents and other family members to digital communication. Accept and decline functions are available to keep track of the number of participants. Families can then register easily and confidentially by scanning a QR code or entering a 9-digit code with their smartphone or tablet.

viii) *Academic Interface for Educators*: KITALINO offers ever-growing possibilities in all aspects of documentation, parenting and preschool education. Articles with a solid basis on current topics can be easily found on the interface created for educators. In addition to these articles; (i) academic articles; (ii) practical advice; (iii) reference books; and (iv) expert literature recommended by herder publishing for the organization of further education or preschool education are available.

ix) Data Security and Confidentiality: All data are stored in a data center in Germany. Furthermore, systems are constantly monitored. Important security updates are regularly made and suitable security systems are used. Thus, the highest possible protection for the data is always ensured. Daily backups of data are stored on the servers in Germany, guaranteeing the highest possible data security at all times. Nobody except the user can access the data.

Digital Documentation System Used in Spain

Many digital assessment and documentation systems are used in Spanish public schools. The purpose of documentation and assessment in the preschool period in Spain is not to grade students or to assess their performance. Assessment in preschool education is regulated by the Ministry of Education and Vocational Education and completed by the education authorities of the Autonomous Communities. Preschool education is carried out in two cycles, for children between 0-3 and 3-6 years old. In the second cycle, the assessment process of students in their own regions is defined, but some Autonomous Communities can do this for both cycles, while it is usually carried out only for the second cycle. Although each school has its own digital assessment and management systems such as "Dinentia", schools can also share assessments with parents via e-mail (Eurydice, 2020).

In this part of the study, the digital documentation tool called "Transparent Classroom", which is being used in Spain, is examined.

Digital Assessment and Documentation System Used: Transparent Classroom

This assessment tool is a software that enables the recording of observations for children in Montessori classrooms in a digital environment and to make various assessments about the development of the children by means of the possibilities brought by technology. This tool, which was originally developed in 2012 for record keeping purposes only for Montessori educators, later started to allow sharing with parents. The tool is built by a team of eight people, including an AMI certified Montessori educator. Although Transparent Classroom is a software developed in Seattle, it has users in many regions of the world. Furthermore, there is a website where you can access the contents of the tool and all the information about it.
The system features of the Transparent Classroom tool are as follows.

Record Keeping

i) *Keeping observation records:* As seen in Figure 1, Montessori studies are separated into sections in the keeping observation record interface of the system. Whichever section is chosen, the studies belonging to that field are listed and the information about each child is shown with color codes. Color codes provide information about the stage of child in the study. These are as follows: presented, working on, specialized, needs repetition and planned. In addition, it is possible to take notes about the attitude of the child towards studying. These notes can be related to studies, as well as providing the opportunity to communicate with the parents with the note creation part in the profile of the child or to record data on the social and emotional development of the child.

ii) *Lesson Plan:* The tool offers the ability to plan the next week and optionally to print this plan. Thus, the tool enables Montessori educators to determine which subject to focus for the child during that week or day. The studies that have been conducted can be removed from the plan list with the click tab.

iii) *Content editing:* With this feature, the Montessori educator can add, remove or edit the studies conducted. *Uploading photos:* The tool allows the learning adventure of the child to be presented in the form of a visual diary, and these photos are shared with the family via the mobile application of the tool and e-mail.

Child

i) *Adding children and parents to the system:* Information about children and their families is entered into the system by educators or administrators. This section contains information about the name, surname, date of birth, gender, class and education and information about the development of the child (allergy, teething, etc.). When different information is requested to be entered, changes can be made in the system. The contact and address information of the child's parents or guardians can also be entered into the system.

ii) *Class change:* The system offers the opportunity to transfer the registration of the child who changes the class in the middle of the term or at the end of the term, along with all the entered data.

iii) *Communication with parents:* Parents can access the profile of their child from the application or website with their own password, and Montessori educators can determine in the system which information would be available to the parents. Furthermore, the ability to send e-mails to the parents via the system is one of the features.

Meeting Reports

i) *Use of Meeting Reports:* Transparent Classroom allows the preparation of the reports for parents, with customizable sections that contain information such as the branch and stage of the child. *Designing meeting reports:* Different types of reports can be created, the content of which is completely prepared by the user, as well as getting reports with the contents prepared by the system.

Optional Features

i) *Daily Monitoring:* It is a feature that allows data entry for children under the age of three to monitor the daily care of the child and to share it with the parents. This feature offers the ability to enter information about the care of the child during the day such as changing diapers, sleeping and eating. *Attendance/Absence:* It contains information about the attendance of the child to the school. In this section, if the child did not attend the school, information regarding the reason for absence can be entered (Figure 7).

Parent Photo Upload

i) Parents can upload the photographs of their children to their profiles from the mobile application of "Transparent Classroom". The tool allows the teacher of the child to see, tag, comment and reply to this post with a photograph.

Comparison of the Digital Documentation Systems Used in the Preschool Education in Turkey, Germany and Spain

In this part of the study, the comparison table created in the light of the study findings is included. The themes in the comparison Table 1 were created by the researchers as a result of the literature examined.

Table 1
Similarities and Differences of the Digital Documentation Systems Used in the Preschool Education in Turkey, Germany and Spain

	Turkey	Germany	Spain
Digital Documentation System	EBA (Educational Informatics Network)	KITALINO	Transparent Classroom
Implemented Year	2007	2019	2012
General Purpose of the Digital Documentation	Coordination Standardization Consistence Affordability	Digital application of the documentation and portfolio works. Saving time	Informing parents Saving time, recording the documentation and portfolio works digitally

Partners Providing Support in Financing and Creating the System	MONE	HERDER Publishing AKDB - Bavarian State Municipal Data Processing Institute FRÖBEL GmbH QiK Online-Akademie	Private Enterprise
Supported Devices	Tablet, telephone, computer	Tablet, telephone, computer	Tablet, telephone, computer
Child's Access to the Application	Access through parent system	Has a separate interface for the child.	Not available
Teacher's Access to the Application and Offered Facilities	For professional and personal development Academic and cultural publications, courses and trainings	For professional and personal development Academic articles, practical advice from experts in the field of education, reference books.	The educator can only use the program. Does not offer academic and personal development opportunities to the educator.
Parent's Access to the Application	Username and password generated by scanning a QR code or created by the parents themselves	Username and password generated by scanning a QR code or created by the parents themselves	Username and password created by the parents themselves
Data Confidentiality and Security	The guide of "Considerations for the Protection of the Children's Personal Data" was published by the Personal Data Protection Authority.	The data is stored on a server in a data center located in Freiburg, Germany.	A Data Protection Annex (DPA) containing the European Commission's Standard Contractual Clauses (or "SCCs")

When Table 1 is examined, it is observed that there are similarities and differences between the digital assessment and documentation systems used in preschool education in Turkey, Germany and Spain.

The partners that have supported the financing and creating the digital documentation systems, which have been implemented in different years, are made up of MONE in Turkey, public and private institutions in Germany and private enterprises in Spain.

As Table 1 is examined, it is seen that there are some similarities and differences in the general purpose of the digital documentation systems implemented. The digital documentation systems implemented in Germany and Spain are similar in terms of general purposes. Saving time and digital recording of documentation works are among the primary purposes of these systems. Considering the general purposes of digital documentation system in Turkey, coordination in terms of interoperability, standardization, ensuring compatibility between

systems and affordability are among these purposes. It should be mentioned that one of the primary purposes of all programs is saving time and affordability.

As it is seen that the devices supported by all three digital documentation systems compared are similar and provide application access to parents. However, the application in Spain do not offer access to child while the child has access to the application in Germany and Turkey and this access is ensured to be safe. In the system used in Turkey, the child can access the system through the parent system while in Germany, there is a specially crafted interface for children. And children can also add content to their own portfolio. The protection of personal data of children is important for the countries examined. It is observed that this situation is reflected in digital documentation systems as well.

It is observed that in terms of offering access and facilities to teachers, the application used in Turkey and Germany offer various facilities to teachers, but the application used in Spain does not offer content for the teachers.

When the parent's access to digital assessment and documentation tools are examined, it is seen that the tools in all three countries had interfaces for the parents and the tools allowed each parent to log into the system with their own username and password. Furthermore, the systems in Turkey and Germany also enable the parents to access the system with a QR code. When the data confidentiality and security of the Digital Assessment and Documentation Systems are examined, it is understood that the system used in Turkey is created in accordance with the guide of Considerations for the Protection of the Children's Personal Data published by the Personal Data Protection Authority. The system in Germany performs data security by storing it on the server located in the data center in Freiburg while data confidentiality and security criteria of the tool used in Spain are recognized to ensure that all personal data are transferred in accordance with EU data protection law, which contains a Data Protection Annex (DPA) including the European Commission's Standard Contractual Clauses (or "SCCs") and in accordance with the standardized contract terms that have been adopted.

DISCUSSION AND IMPLICATIONS

Comparison of the Digital Documentation Systems Used in the Preschool Education in Turkey, Germany and Spain

Observation and documentation are of great importance in preschool education institutions. Through observation and documentation, teachers can become aware of individual development of each child and recognize their current needs.

Today, transition to digital documentation has been inevitable, especially due to the pandemic experienced all over the world. According to Flewitt and Cowan (2019), digital documentation is an option that can help education processes, especially considering factors such as time, cost and, most importantly, reliable and legally proper storage of data. It was observed as a result of comparative education study that various works have been made for digital documentation and education in the early childhood education in Turkey, Germany and Spain.

In the last few years, various studies have been carried out on behalf of digital documentation in Germany (Kanuf, 2015). It has been observed that it saves a lot of time to digitally evaluate standardized observation documents such as Seldak, PERiK, seismic, Liseb and BaSiK. Digital templates have also been found to be useful for portfolio work as they are easy to use (Alanko et al., 2019; Kehe et al., 2019; Knauf 2019). According to Abdullahi and Adebayo (2019), the key to the effective management of early childhood care education is the promotion of digital learning in preschool education and this can provide innovation as an alternative to classroom teaching. Considering the study, digitization produces information that can be communicated in many ways.

Teachers who want to be active in digital education should first try digital tools themselves. Just like testing a picture book or board game before it is used, teachers should have the opportunity to get to know and test technology and its options. Educational documentation in preschool educational institutions is the starting point of educational work (Knauf, 2020; Stratigos & Fenech, 2020). With digital documentation, all activities in preschool educational institutions become observable, and as a result, communication with parents is strengthened.

Comparing the education systems of different countries allows us to see the differences and similarities, and to find alternative ways to overcome the deficiencies in the systems. The importance of comparative education, supported by regulations and reports (OECD, 2019a, 2019b, 2020; UNESCO, 2015, 2016), has become clearly evident and it has been concluded that an understanding must be developed starting from the first years of life.

Digital documentation increases the possibilities in preschool education institutions. Documenting observations in daily life is not always easy. Educators have limited time and need to devote most of their time to children. Furthermore, documentation in everyday life becomes much easier when you use digital tools. You can easily involve children depending on which method that you use. Considering the countries compared, it was seen that the child was included in the digital documentation system in Germany, but it was not the case for the system used in Spain. In Turkey, the system can provide access to the system through the parent system under parental supervision.

CONCLUSION

In this study, digital documentation practices that are being used in Turkey, Germany and Spain were examined. With the introduction and impact of technology in education, we have started to see many innovative changes in the teaching methods of educational institutions in recent times. Educational institutions have been improving their systems to increase academic rigor. Schools and kindergartens use digital media and documentation systems in the teaching-learning process to create a suitable learning among students.

If a preschool educational institution initiates digital documentation and assessment practices as a subject in the institution, various pre-assessments are required. Reflection of the personal and professional attitudes of the teachers and the term digital documentation needs to be clarified. Questions about the education and participation of children and parents are essential parts of the education implementation process, as well as clarifying equipment and education needs. After this joint and intense discussion process, an institution's own

pedagogical digital documentation concept should be developed. This allows the field to be stabilized in a sustainable way.

Today, the confidentiality and security of personal information has become even more important in the use of technological tools. It is concluded that there are necessary regulations to meet this criterion in all three systems examined.
For future researchers, it is recommended to examine different countries and different digital documentation systems.

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