

Problem

Teachers often find the process of creating, storing, and managing weekly plans at the "Mamá Cigüeña" Child Development Center tedious, repetitive, and inefficient. They must manually generate documents, organize their storage, and keep accurate records of updates. This workflow often results in misplaced files, version control issues, and a significant loss of time from other important tasks.

This administrative burden distracts from the teachers' primary goal: providing high-quality education and supporting children's development.

Teachers also manage resources, materials, and evaluation criteria as part of their planning process. Similarly, the use of skills, methodological strategies, and their respective descriptions must be recorded and updated consistently, which can lead to information loss due to constant forgetting to update them.

Overview

We propose the development of a software product that streamlines the creation, storage, and management of weekly educational activity plans.

The system will enable teachers to create, edit, and organize their plans through an intuitive user interface, automatically store them within a structured directory, and ensure secure access through authentication mechanisms.

By automating document generation and facilitating the retrieval and modification of plans, the software will significantly reduce administrative burden, minimize errors, and allow teachers to focus more on delivering high-quality education and supporting the children's development.

Background

Child development centers combine care and education in early childhood, offering safe environments for play and learning. They typically cater to babies and young children during part-time or full-time hours. The goal is to promote the child's overall development through play, exploration, and predictable routines that encourage physical, cognitive, social, and emotional growth. These activities are organized following a structured yet flexible planning, adapted to the group's needs and the children's sleep/wake cycle.

Children engage in playful and educational activities that promote physical, cognitive, social, and emotional development. These include free play for creativity and autonomy, structured games with specific goals, sensory and motor activities to improve coordination, and artistic activities like crafts and puzzles that develop fine motor skills and logical thinking. Language activities, such as storytelling and songs, enhance vocabulary and social skills. Outdoor play supports gross motor development and interaction with the natural environment. Activities are designed to be both educational and fun, with a balance between indoor and outdoor spaces.

To optimize attention, children are often grouped by age or developmental level for most activities. Typically, they are divided into homogeneous groups, which helps adapt the tasks to each stage . However, interaction across ages is also encouraged: for example, in small group activities or pairs, older children may help younger ones (e.g., shared reading, cooperative games) . This system promotes inclusion and social learning. In any case, each educator attends to only a few children at a time, which allows for close supervision and individualized support.

Within the classroom, play corners or stations are often set up,

where children rotate freely or as directed by the teacher. Spatial organization ensures that each group of children has access to materials suited to their activity and avoids overcrowding. During free play, groups may form spontaneous "circles" or small teams based on affinities or interests. The organization fosters both teamwork and individual self-expression.

Time management is a key element. Educators structure the day into predictable blocks, but also include smooth transitions (e.g., signaling a change in activity with a song or a picture symbol) . They ensure that long periods of uninterrupted play alternate with moments of order and rest. According to pedagogical recommendations, the daily organization should consider aspects such as: the relationship between wake and sleep times, meal and snack schedules, the alternation between indoor and outdoor activities, and the balance between free play and directed activities . For example, no intense activity is scheduled just before nap time or departure, and time is set aside for tidying up after each session.

Analyst Comparison

To evaluate the effectiveness of the planning process, we measure the time and effort required by teachers to generate their weekly schedules before and after using the software product. Initially, teachers manually created their plans, often requiring several days due to the lack of centralized organizational tools.

With the new software, each teacher uses an intuitive interface to input activities, organize topics, and generate complete weekly plans in significantly less time. The main performance metrics considered are the Total Planning Time (TPT), which records the total hours needed to complete a weekly plan, and the Planning Efficiency Rate (PER), calculated by dividing the number of planned activities by the TPT.

Additionally, we evaluate the Time Savings (TS) percentage, comparing the time spent on manual planning versus using the software. A higher TS value indicates a greater reduction in planning effort. Table 1 shows an example of performance comparison between manual planning and planning using the software tool.

