Problem

At the "Mamá Cigüeña" Child Development Center, teachers face persistent challenges in the creation, organization, and management of weekly micro curricular plans. This process—essential for ensuring a structured and developmentally appropriate learning environment—is currently carried out manually using Microsoft Word documents. As a result, teachers must repeatedly input information by hand, manage digital storage across devices or folders, and keep track of version updates without centralized control mechanisms.

This system is not only tedious and repetitive, but also highly inefficient, often leading to misplaced files, outdated content, and versioning conflicts. The time invested in these administrative tasks detracts from the more meaningful aspects of teaching, such as engaging with children or innovating classroom strategies. In addition to lesson planning, teachers are also responsible for managing a variety of associated elements resources and materials, evaluation criteria, methodological strategies, and their corresponding skills and descriptors. These must be documented and regularly updated to align with educational standards and developmental goals. However, the lack of an integrated or automated system increases the risk of information loss, especially when updates are forgotten or delayed.

Ultimately, this disjointed workflow not only affects planning accuracy and time management, but also impacts the quality and consistency of educational delivery. There is a clear need for a centralized, user-friendly system that streamlines planning, resource management, and documentation enabling educators to focus more on their core mission: fostering children's growth and learning.

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

In many societies, the early years of a child's life are increasingly recognized as a critical period for development. However, families today often face numerous challenges in providing optimal early childhood care. Changes in family structure, the rise of dual-income households, and urban lifestyles have created a growing need for professional, structured support in raising young children. As a result, child development centers have emerged as a solution to bridge the gap between home care and formal education, offering environments that nurture physical, cognitive, emotional, and social development from infancy onward.

One of the major problems child development centers address is the lack of access to quality early education and care during the formative years. Research has shown that early

experiences shape the brain architecture and foundational abilities of children, influencing their long-term academic performance, social behaviors, and even future employability. Without proper stimulation and supportive adult interaction during these years, children—especially those from vulnerable populations—are at risk of developmental delays and reduced school readiness.

Furthermore, working parents often struggle to find reliable and developmentally appropriate care that not only supervises their children but also promotes learning. In response, child development centers combine both care and education in structured settings, aligning with early childhood pedagogical principles. These centers provide safe, engaging environments that promote exploration, creativity, and autonomy through a combination of free play and guided activities tailored to children's age and developmental stage.

Another issue these centers help solve is the social isolation of children in early life, especially in urban environments with fewer extended family or community interactions. Through peer engagement, shared routines, and inclusive practices, children learn empathy, cooperation, and communication—skills that are crucial for lifelong success.

In essence, child development centers do not merely serve as daycare services—they are intentional, educational spaces designed to promote holistic development and school readiness. They fill a critical gap in both family and educational systems by offering structured support during one of the most sensitive and impactful stages of life.

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.