



At a Glance **FUNDAEC**

In the area of youth engagement and social transformation, the Foundation for the Application and Teaching of Science (FUNDAEC) operates two main educational programs—the Sistema de Aprendizaje Tutorial (Tutorial Learning System or SAT) and the Preparation for Social Action (PSA). Both programs are designed to integrate academic learning, moral reasoning, and community engagement through formal and non-formal educational programs. Through its curriculum, program delivery, and broader conceptual framework in which it operates, the programs link questions pertaining to gender norms to notions of community well-being and social transformation by engaging students through both practical activities and spaces for reflection with the help of trained tutors.

Founding Background

FUNDAEC was founded in 1974 in Cali, Colombia, by a group of scientists and educators affiliated with the University of Valle, including Dr. Farzam Arbab, who played a central role in articulating

its philosophical and pedagogical foundations. The organization emerged in response to the limitations of traditional schooling in rural Colombia, which often alienated young people from their communities and offered little relevance to their lived realities. Its founding

purpose was to link scientific learning with community development through alternative educational models, thereby fostering both individual empowerment and collective well-being. FUNDAEC initially worked with rural youth in marginalized communities of southwestern Colombia, focusing on expanding access to quality secondary education through the creation of the Sistema de Aprendizaje Tutorial (SAT), a tutorial-based system designed to integrate academic knowledge with locally grounded problem-solving. While its early focus was primarily on improving rural education and livelihoods, issues of gender and education became increasingly central as the organization's programs evolved. By the 1990s and 2000s, FUNDAEC had incorporated explicit commitments to gender equality and social justice into its conceptual framework, embedding these principles within its curricula, program delivery, and professional development activities. Today, gender transformation is a defining element of both the SAT and PSA programs, which view gender equality as essential to achieving human prosperity and community advancement.

Overview of Adolescent Programs Offered

Sistema de Aprendizaje Tutorial (Tutorial Learning System or SAT)

The SAT program is FUNDAEC's flagship formal education model, created to provide high-quality, relevant secondary education for rural youth. It integrates

academic learning, moral reasoning, and community service, linking science and mathematics to daily life and local development. Students meet in groups guided by a trained teacher (called a tutor to signal that the pedagogy is dialogical) using a structured series of texts that promote dialogue and the application of knowledge in local contexts. SAT's design encourages learners to apply classroom concepts to agricultural, environmental, and social challenges, reinforcing civic participation and critical thinking.

Preparation for Social Action (PSA)

The PSA program builds on SAT's foundation but targets older youth and young adults seeking to contribute to community life through service and leadership. It focuses on developing scientific, organizational, and moral capabilities for social action. Learners study a sub-selection of the SAT curriculum, and undertake collective projects such as health promotion, environmental protection, and local business development. PSA groups are facilitated by trained tutors who promote participatory learning and reflection. The program's flexible design enables implementation both inside and outside formal education systems, making it adaptable to different countries and community contexts.

Target Population

SAT serves youth (ages roughly 12–18) in rural and peri-urban areas seeking formal

secondary education. PSA targets slightly older youth and young adults, often high school students or graduates as well as out-of-school learners, preparing them for social and economic engagement. Both programs are coeducational.

Relationship to Formal Systems

PSA functions as a nonformal complementary program that can be integrated with local schools or community development initiatives. SAT is a formal secondary education program that has been offered in partnership with local governments in Latin America. Currently the most extensive implementation of SAT is in Honduras, where a local Honduran NGO, Bayan Association, works alongside the government to provide teacher training and ongoing pedagogical accompaniment/coaching.

Program Structure and Duration

SAT typically spans six years, offering lower and upper secondary school (grades 7-12). PSA is modular and flexible, designed to last two to three years, depending on local adaptation.

Program Delivery

Both programs use the term “tutor” to signal a different style of education that is not based on lectures, but rather a student-centered approach to learning that emphasizes dialogue. In SAT, the tutors are university graduates who have completed their formal teacher training.

In PSA, tutors are trained community volunteers. In both cases, tutors receive comprehensive professional development through FUNDAEC’s training system.

Curriculum

The SAT curriculum is a series of over 80 texts authored by experts at FUNDAEC. The texts are interdisciplinary, and organized across five capability areas including mathematics, science, language, technology and community service. The curriculum is designed to foster reasoning, reflection, and application of knowledge through community projects. Each student receives a copy of the texts, which they write in (similar to a workbook), and the texts emphasize that students are also generating knowledge through their community engaged research. The teacher/tutor is expected to work through all the lessons in the texts with students. Raising critical awareness about gender is a theme woven throughout the curriculum, rather than a one-off lesson or module.

Geography and Reach

SAT operates in Colombia, Honduras, Brazil, Nicaragua, Guatemala, and Ecuador. In 2023, it reached approximately 12,465 students, with more than 300,000 youth served cumulatively since its inception. PSA is currently implemented in 13 countries. The texts created by FUNDAEC have been used for teacher training in Uganda.

For more information, see: fundaec.org

OVERVIEW AND MISSION

Over more than five decades, FUNDAEC has developed and refined educational programs that integrate intellectual, moral, and practical learning. These include the Sistema de Aprendizaje Tutorial (SAT), the Preparation for Social Action (PSA) program. Together, these initiatives aim to empower individuals—particularly rural youth—to become agents of change within their communities by uniting scientific inquiry, ethical reflection, and service to humanity. Shifting adolescent gender norms is viewed as a component of a larger goal, community well-being.



Approach to Shifting Adolescent Gender Norms

FUNDAEC’s approach to shifting gender norms is grounded in its broader conceptual framework, which links social transformation

to the moral and intellectual empowerment of individuals and communities. Rather than treating gender equality as a discrete programmatic goal, FUNDAEC weaves it through every dimension of its educational philosophy and practice. The organization views gender transformation as an ongoing process of reflection and collective learning in which individuals, families, and institutions align their actions with principles of justice and the oneness of humanity. As articulated in its foundational documents, FUNDAEC views gender equality as essential to achieving human prosperity, and must therefore be addressed both as an individual capacity and a social condition.

Within FUNDAEC’s core programs—the Sistema de Aprendizaje Tutorial (SAT) and Preparation for Social Action (PSA)—gender equality is not treated as a single topic but as a recurring theme embedded across the texts students study and the ways in which the program engages with the broader community. Lessons in its texts aim to develop capabilities in moral reasoning, science, and mathematics, and regularly prompt students to identify and question

unjust assumptions about social hierarchies, including those based on gender. One SAT lesson on truthfulness, for example, challenges students to consider whether “the idea that men are superior to women” is an erroneous belief and to reflect on the broader linkages between gender inequality and other forms of oppression. This pedagogical approach avoids prescriptive statements about gender roles, instead fostering critical inquiry, discussion, and practical action in students’ local contexts.

FUNDAEC’s programming emphasizes that the process of reflection extends beyond students to tutors, coordinators, and community members. FUNDAEC does not try to teach about gender through direct instruction. Rather, the strategy is to create learning spaces where tutors and youth can think together about equality, justice, and service in their own daily lives, their families and their communities. To do this, professional development is emphasized for program facilitators, and it includes extensive training sessions where teachers/tutors critically examine their own beliefs

about gender and pedagogical practices, thereby linking gender equity to teacher growth and community well-being.

Importantly, FUNDAEC’s commitment to shifting gender norms is also reflected in its organizational culture and leadership. Across its programs, women occupy a substantial proportion of tutoring and coordination roles—81 percent and 86 percent, respectively, within the PSA program. Women trained through FUNDAEC’s programs assume leadership roles in environmental restoration, agricultural innovation, and local governance initiatives, reinforcing the organization’s belief that gender equity is inseparable from sustainable community development. Additionally, through its emphasis on economic activities, from small productive projects to the establishment of local businesses, the program has also enabled women and girls to take greater ownership of their economic decisions and generate their own income, directly challenging entrenched gender norms about who contributes financially within the household.



THEORY OF CHANGE

How does FUNDAEC’s programming attempt to shift adolescent gender norms?

FUNDAEC’s theory of change situates gender transformation within a broader process of moral, intellectual, and social development. It rests on the premise that sustainable change in gender relations cannot be achieved through isolated interventions or awareness campaigns, but must emerge from educational processes that cultivate the capacities of individuals and communities to think critically, act justly, and collaborate in service of collective well-being. Within this vision, collective well-being is not understood as attainable in the absence of justice or equality; it depends on overcoming the limitations on human development imposed by gender norms and ensuring that all members of society can contribute fully to the advancement of their communities. The organization envisions transformation as unfolding across interrelated levels—individual, relational, and structural—through participatory learning and community-based action. The conceptual framework of SAT and PSA revolves around a few core beliefs: (a) the oneness of humanity; (b) that justice is integral to achieving human progress and is a capacity that must be developed in individuals, communities, and institutions; (c) that gender equality is essential to achieving human prosperity; (d) that knowledge has the power to raise humanity from its present condition; and (e) that social change—or the transformation of human society—will not take place unless individuals and social structures evolve to reflect the aforementioned principles.

Coupled with these core principles are a number of features of its programs that attempt to foster increased consciousness of the need for gender equality in students, and to a shift in how they think about gender relations in their everyday lives. Those features include: (1) gender equality is not a one-off lesson but is rather woven across the curriculum; (2) gender is linked with the larger concept of justice; (3) students engage in reflection, dialogue, and debate; (4) teachers are given the opportunity to reflect critically on their understanding of gender in professional development sessions; and (5) the curriculum emphasizes that gender transformation requires change

among individuals and in social structures such as the family.

At the individual level, FUNDAEC’s programs encourage students, tutors, and community members to develop reflective capacities that enable them to question entrenched assumptions about gender and power. This is accomplished through curriculum (a series of workbooks/texts) and pedagogical methods that prompt learners to connect abstract principles such as justice and equality with everyday experiences. The change FUNDAEC envisions begins with how a person learns to see themselves—as capable of reasoning, of contributing,

and of serving. From that understanding, equality becomes a natural expression, not an external imposition. This metacognitive orientation, linking learning with self-knowledge and moral reasoning, helps participants internalize gender equity as part of their broader understanding of human purpose and social responsibility.

At the relational level, FUNDAEC's model transforms gender norms by reconfiguring relationships between teachers and students, and among members of the community. The tutorial system central to both the SAT and PSA programs fosters cooperative learning, dialogue, and shared problem-solving. These pedagogical relationships create learning environments where all students engage as co-learners and co-creators of knowledge. In doing so, the programs cultivate new understandings about collaboration and leadership, particularly with women taking on more leadership roles. This emphasis on partnership extends beyond the classroom: for instance, PSA graduates often take on joint community projects, ranging from reforestation to health promotion, that model gender-inclusive collaboration in public life.

At the structural level, FUNDAEC's long-term strategy involves embedding gender equity into institutional and community systems, with particular emphasis on the core social structure of the family. The organization's decentralized model intentionally promotes women's leadership within local coordination and tutoring roles, while also supporting men to redefine their participation in non-traditional spheres of care (particularly in the

family). FUNDAEC sees the contribution of its educational activities to gradually reshaping the distribution of power and responsibility within local institutions. At the same time, FUNDAEC is cautious of being prescriptive. Rather than defining a fixed end state, the emphasis of its educational activities is on fostering human agency and collective learning, seeking to create the conditions in which individuals and communities can ask new questions, reflect on their realities, and determine for themselves how change will unfold.

Overtime, this multi-level approach produces reinforcing cycles of change: individual reflection leads to transformed relationships, which in turn influence local structures and norms. FUNDAEC's approach to change positions education as both the method and medium of gender transformation—one that fosters the inner capacities and social conditions necessary for equitable participation in community life. In this way, gender equality is not a peripheral goal but a natural outcome of a broader process of human development grounded in justice, knowledge, and service.

Research and Program Evaluations

FUNDAEC has built long-term collaborations with researchers from leading universities, including UC Berkeley, Harvard, the University of Chicago, and the University of Toronto. One area of research has examined the overall academic outcomes for students who have been exposed to FUNDAEC's programming. A randomized evaluation in Uganda, where teachers were trained with

FUNDAEC materials, found that training teachers to implement a “learning how to learn” approach—emphasizing questioning, hypothesis testing, and evidence-based reasoning—produced dramatic and sustained improvements in student performance. Within two years, the national examination pass rate increased from 51 to 75 percent, placing the program among the most effective globally in learning-adjusted years of schooling per dollar invested. In Honduras, a quasi-experimental study of the Sistema de Aprendizaje Tutorial (SAT) program found similar effects: students scored approximately 0.2 standard deviations higher on standardized mathematics and language assessments than peers in traditional schools, with lower per-student costs. Together, these findings suggest that FUNDAEC’s participatory and reflective pedagogy strengthens the quality of classroom teaching.

Another focus of research has looked more specifically at gender-related outcomes, including girls and women’s empowerment and developing critical thinking about gender. Qualitative studies document that participation in SAT fosters women’s confidence, decision-making power, and economic agency, while encouraging men to take on more cooperative and caregiving roles. Longitudinal evidence indicates that graduates describe not only greater involvement in community leadership and civic life but also more equitable intimate relationships characterized by mutual respect, shared decision-making, and partnership. Women who serve as tutors or local coordinators frequently become visible

role models, challenging restrictive norms about leadership and public participation. A design-based research study of SAT in Honduras found that adolescents, particularly boys, began to question machista attitudes and express more equitable views of gender and power. Together, these studies demonstrate that FUNDAEC’s approach to education, grounded in reflection, dialogue, and service, can foster both academic achievement and shift adolescent gender norms.

What is Working?

Several aspects of FUNDAEC’s approach stand out as promising practices for shifting adolescent gender norms through education and community development. First, the organization’s systemic model engages different social actors, including students, families, tutors, and community members, in reflection and collective action, ensuring that gender equity is not treated as a specialized agenda but as an integrated dimension of human and community growth. This cross-cutting engagement fosters a shared sense of responsibility for social change, reinforcing gender-equitable norms within the home, school, and broader community.

Another central innovation is FUNDAEC’s curriculum, its series of texts developed over nearly fifty years. The curriculum serves as a cornerstone of implementation fidelity and pedagogical quality. The 1:1 ratio of texts to students ensures that every learner has direct access to the material, promoting consistency across classrooms and regions. These texts, which blend academic content

with moral reflection and community application, allow programs to maintain coherence while remaining adaptable to local realities. Several studies have examined the academic quality and learning outcomes of FUNDAEC’s curricular materials, both within Colombia and in international adaptations such as the teacher training initiative in Uganda. Evidence consistently links the use of these texts with improved student learning outcomes, particularly in mathematics, science, and reasoning skills. The SAT model’s emphasis on critical inquiry, dialogue, and applied problem-solving appears to cultivate higher-order thinking skills, which are essential for questioning inherited social hierarchies and constructing more equitable norms. This suggests that the development of analytic and reflective capacities, central to FUNDAEC’s pedagogy, is intrinsically tied to the gradual process of

shifting gender norms. Learners become capable not only of understanding their realities but of envisioning and acting upon more just alternatives.

Finally, the organization’s flexible structure, offering both formal, degree-granting education and nonformal programs, further enhances its flexibility, allowing for contextual adaptation while preserving conceptual integrity. Importantly, FUNDAEC’s educational philosophy has always been intertwined with rural livelihoods and sustainable agriculture. By integrating scientific knowledge, environmental stewardship, and practical agricultural skills into the curriculum, FUNDAEC not only equips learners for economic independence but also nurtures a deep sense of collective responsibility for the ecological and social well-being of their communities.

