

“Modeling and Analysis of Interventions Directed by Race and Gender of Students in the Mitigation of School Dropout in Brazil”



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Who am I?

- **Master of Science (Social Psychology) & Bachelor (Psychology)** for the Federal University of Paraíba, Brazil
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- **Research Manager** on the school route protection system project (SPTE)



Overview

- **School dropout as an interactional and institutional phenomenon**
- **School dropout in Brazil and it's implications**
 - Traditional warning systems
 - Our Relational Model (IAFREE)
- **Synthetic data**
- **Race, Gender and School Dropout**
- **Critical Pedagogy and Psychology as a way for interventions**



Brazilian Educational System

Note: Ages are approximate and may vary by country.

Brazilian System (Ensino Básico)	Subdivisions (in Brazil)	Duration	Typical Age Range	Closest Correspondence in Europe (examples)	Compulsory in Europe?
Educação Infantil Early Childhood Education	Creche (0–3 years)	0–3 years	0 – 3	Early Childhood Education and Care (ECEC) (e.g., nursery, preschool, kindergarten) <i>Not part of compulsory schooling in most European countries (varies by country).</i>	Usually not (compulsory varies by country)
	Pré-escola (4–5 years)	2 years	4 – 5		
Ensino Fundamental Primary and Lower Secondary Education (9 years total)	Anos Iniciais do Ensino Fundamental (Fundamental I) Years 1–5	5 years	6 – 10	Primary Education UK: Primary (Years 1–5) France: école élémentaire Germany: Grundschule Spain: Educación Primaria	Yes in all European countries
	Anos Finais do Ensino Fundamental (Fundamental II) Years 6–9	4 years	11 – 14/15	Lower Secondary Education UK: Lower secondary (Years 7–9 / Key Stage 3) France: collège Germany: Sekundarstufe I Spain: ESO (Educación Secundaria Obligatoria)	Yes in all European countries
Ensino Médio Upper Secondary Education	(Single stage)	3 years	15 – 17	Upper Secondary Education UK: Sixth form / college (Years 12–13) France: lycée Germany: gymnasiale Oberstufe / vocational tracks Spain: Bachillerato	Compulsory until minimum school-leaving age, then upper secondary is optional in most countries
Total: Ensino Básico		12 years	0 – 17	Covers early childhood education, primary education and lower secondary education.	



Key point:

Brazil's Ensino Fundamental (9 years) includes both what Europe calls primary education (ages ~6–10), and lower secondary education (ages ~11–14/15).



Why this matters:

International comparisons should account for these structural differences in stage definitions and transitions.

Characteristics of Brazilian Education

STRUCTURE

12 years of basic education

Nine years of elementary school (ages 6 to 14), followed by three years of upper secondary education (ages 15 to 17). Public basic education is free and compulsory.

COVERAGE

Approximately 47 million students

Around 80% of Brazilian students are enrolled in public schools [1]. The system is marked by considerable socioeconomic and regional heterogeneity.

CHALLENGE

Persistent Dropout patterns

Upper Secondary education concentrates the highest dropout rates, particularly during transitions between cycles, constituting a long-standing public concern [2]

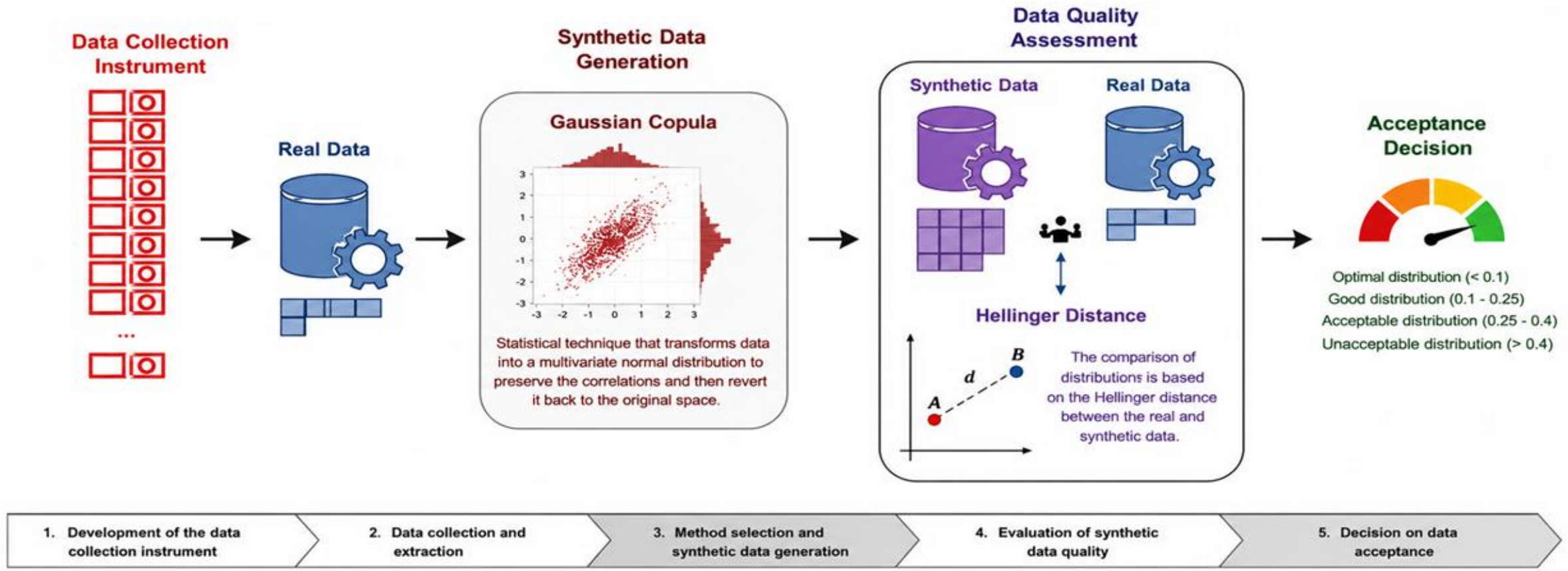
What we aim?

To examine how the intersectional markers of class, race and gender are determinants in risk analysis and in the formulation of dropout prevention strategies throughout an academic year.



Method

Synthetic Data Generation Using Neural Networks



*** Due to ethical considerations and compliance with Brazilian data protection legislation (General Law of Data Protection: LGPD).



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Method

Variable	Category	n	Valid %	Missing (%)
Sex	Male	1,830	49.5%	3.2%
	Female	1,800	48.7%	
	Prefer not to say	66	1.8%	
Employment Status	Currently employed	1,109	30.0%	3.2%
	Not currently employed	2,587	70.0%	
Residence Location	Rural area	592	16.0%	3.2%
	Urban area	2,569	69.5%	
	Indigenous community	27	0.7%	
	Quilombola community	34	0.9%	
	Do not know	474	12.8%	
Grade Retention	Never retained	3,142	85.0%	3.2%
	Retained once	470	12.7%	
	Retained twice or more	84	2.3%	
Race/Ethnicity	White	953	25.8%	3.2%
	Black	630	17.0%	
	Mixed race (Pardo)	1,911	51.7%	
	Asian descent (Amarelo)	58	1.6%	
	Indigenous	63	1.7%	
	Prefer not to say	81	2.2%	
School Dropout	Never dropped out	3,471	93.9%	3.2%
	Dropped out once	165	4.5%	
	Dropped out twice or more	60	1.6%	
Household Size	2 people	374	10.1%	3.2%
	3 people	893	24.2%	
	4 people	1,151	31.1%	
	5 people	751	20.3%	
	6 or more people	527	14.3%	

Table 1 [Real sample] Frequency Distribution of Sample Characteristics by Variable and Category (N = 3,817; N valid = 3,696)

Method

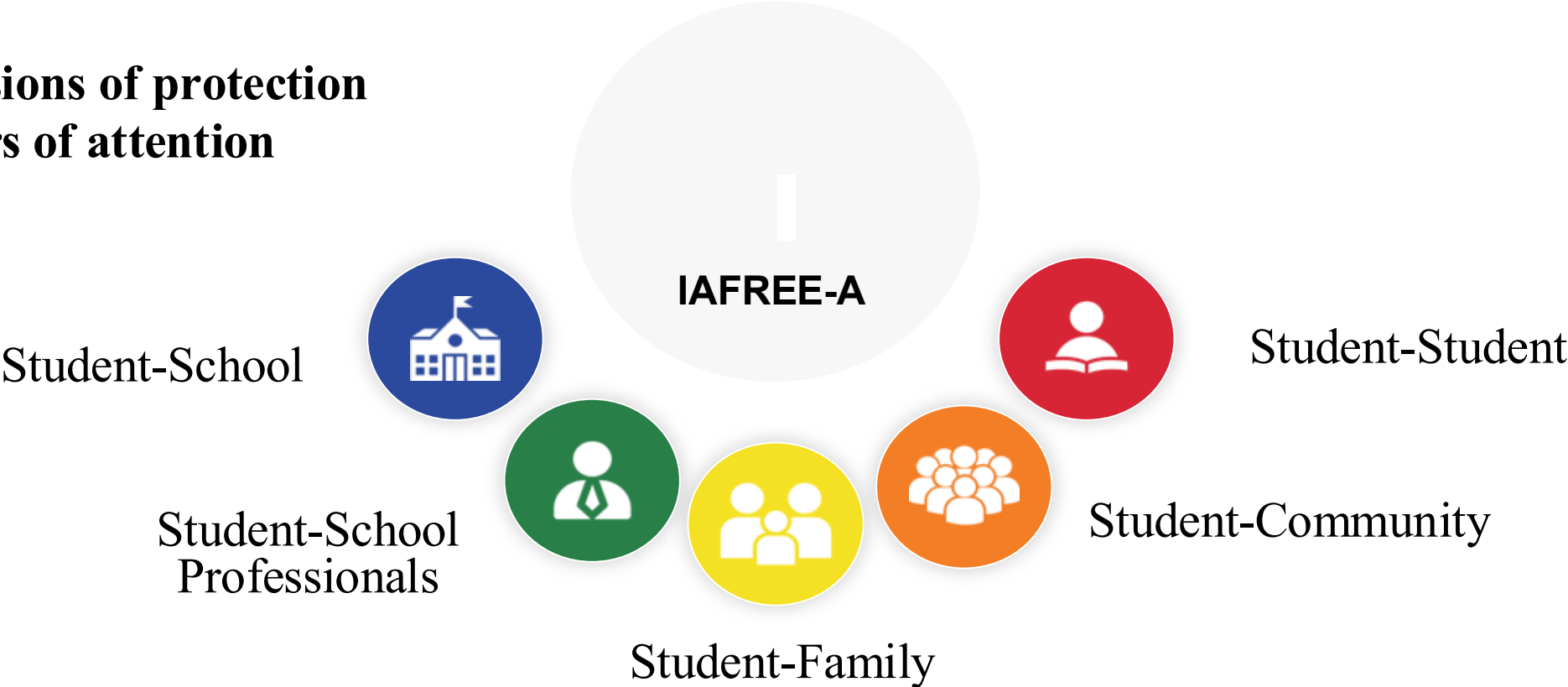
Variable	Category	n	Valid %	Cumulative %
Sex	Male	4,898	49.0%	49.0%
	Female	5,082	50.8%	99.8%
	Prefer not to say	20	0.2%	100.0%
Employment Status	Currently employed	2,067	20.7%	20.7%
	Not currently employed	7,933	79.3%	100.0%
Residence Location	Rural area	967	9.7%	9.7%
	Urban area	8,092	80.9%	90.6%
	Indigenous community	65	0.7%	91.2%
	Quilombola community	89	0.9%	92.1%
	Do not know	787	7.9%	100.0%
Grade Retention	Never retained	9,536	95.4%	95.4%
	Retained once	458	4.6%	99.9%
	Retained twice or more	6	0.1%	100.0%
Race/Ethnicity	White	773	7.7%	7.7%
	Black	2,365	23.7%	31.4%
	Mixed Race (Pardo)	3,549	35.5%	66.9%
	Asian Descent (Amarelo)	2,119	21.2%	88.1%
	Indigenous	1,194	11.9%	100.0%

Table 2 [Synthetic sample]
 Frequency Distribution of Sample Characteristics by Variable and Category
 (N = 10,000; No Missing Data)

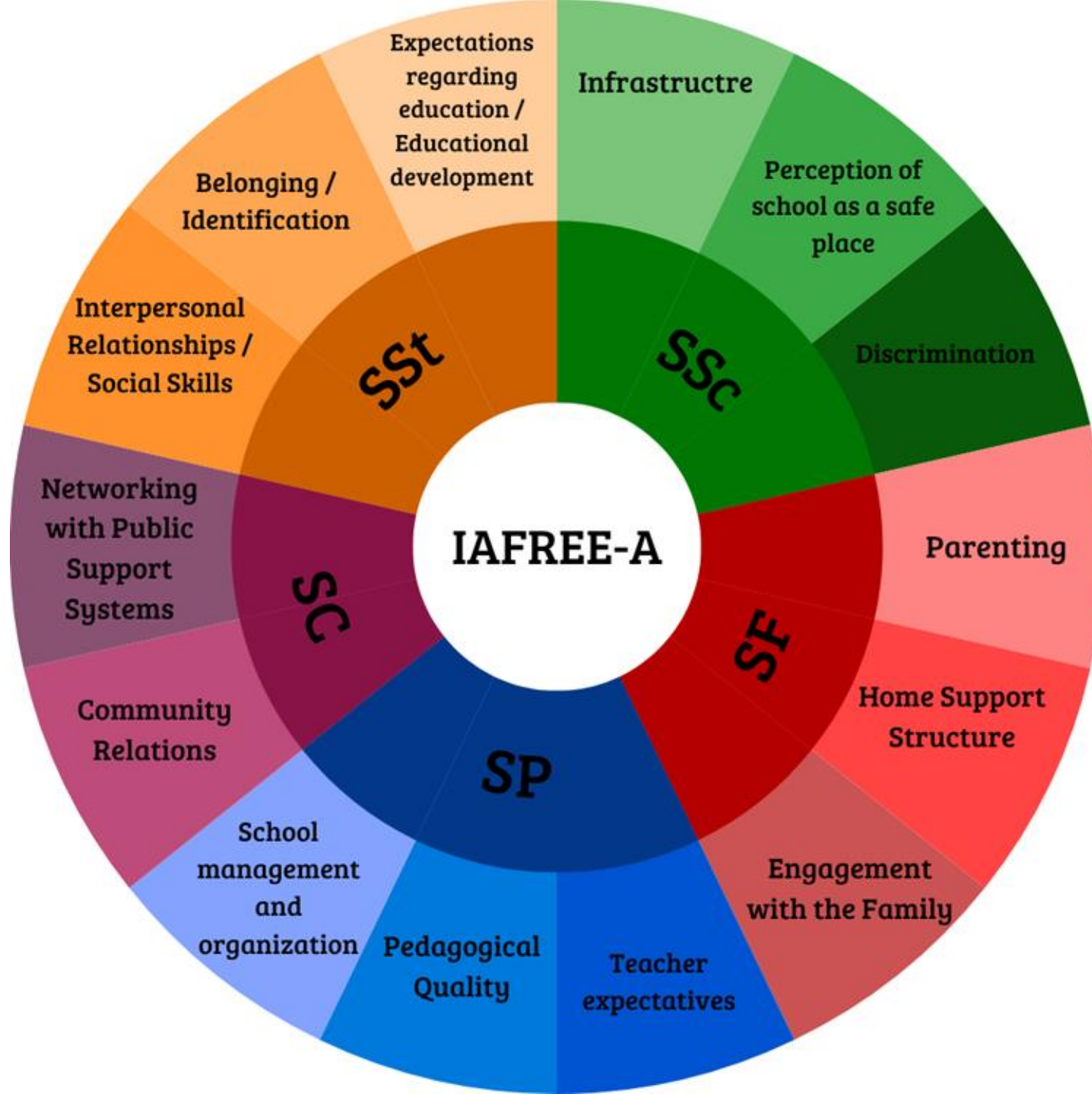
Instrument for Assessing Relational Risk Factors for School Dropout - Alternative Version (IAFREE-A)

The Alternative School Dropout Risk Factor Assessment Instrument (IAFREE-A) is a data collection tool created from mapping relational factors that influence student retention in school.

- 5 dimensions of protection
- 14 factors of attention



IAFREE-A



Results

Table 1. Mean IAFREE-A 46 dimensional scores by sex

Dimension	Male	Male	Female	Female
	M	SD	M	SD
Student – School	2,70	0,35	2,64	0,35
Student – School Professionals	3,02	0,40	2,99	0,40
Student – Family	2,84	0,41	2,79	0,42
Student – Community	2,89	0,34	2,82	0,35
Student – Student	2,85	0,56	2,67	0,57



Results

Table 2. Percentual of vulnerability by sex

Dimension	Male	Female
Student – School	96,45%	94,59%
Student – School Professionals	51,16%	44,57%
Student – Family	51,18%	38,57%
Student – Community	42,02%	36,97%
Student – Student	90,10%	88,27%



Results

Table 3. Means of the IAFREE-A dimensional scores by race

Dimension	White	Brown	Black
Student – School	2,67	2,67	2,67
Student – School Professionals	3,00	2,99	3,01
Student – Family	2,82	2,81	2,81
Student – Community	2,84	2,85	2,86
Student – Student	2,75	2,75	2,77



Results

Table 4. Percentage of vulnerability by race

Dimensão	White	Brown	Black
Student – School	47,62%	47,28%	48,09%
Student – School Professionals	89,37%	88,37%	89,42%
Student – Family	40,12%	39,52%	39,17%
Student – Community	94,61%	95,51%	95,83%
Student – Student	44,73%	43,75%	45,18%



Discussion

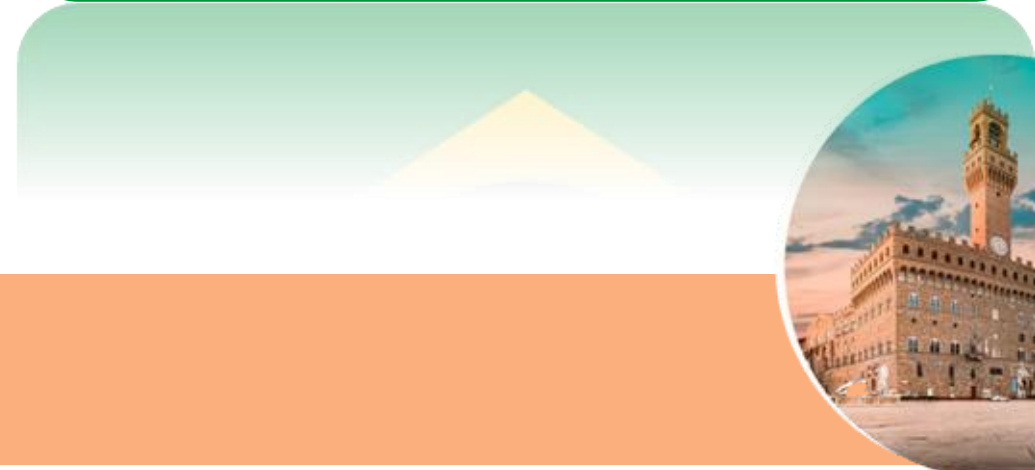
- **The relational and systemic nature of school dropout**
- **Weakness in the connection between school and community**
- **Gender differences and the need for specific interventions**



SPITE

SISTEMA DE PROTEÇÃO DE
TRAJETÓRIAS ESCOLARES

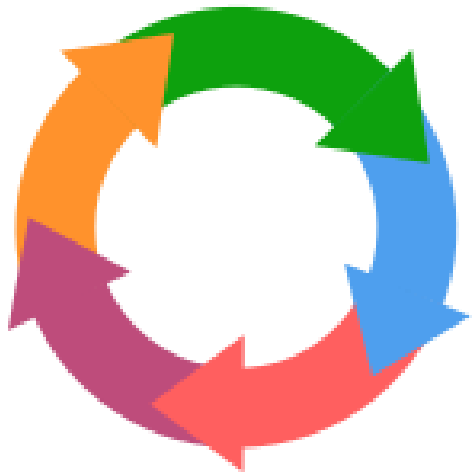
School Trajectory Protection System



Cycles of the School Trajectory Protection System

Implementation

Cycle



Instrument



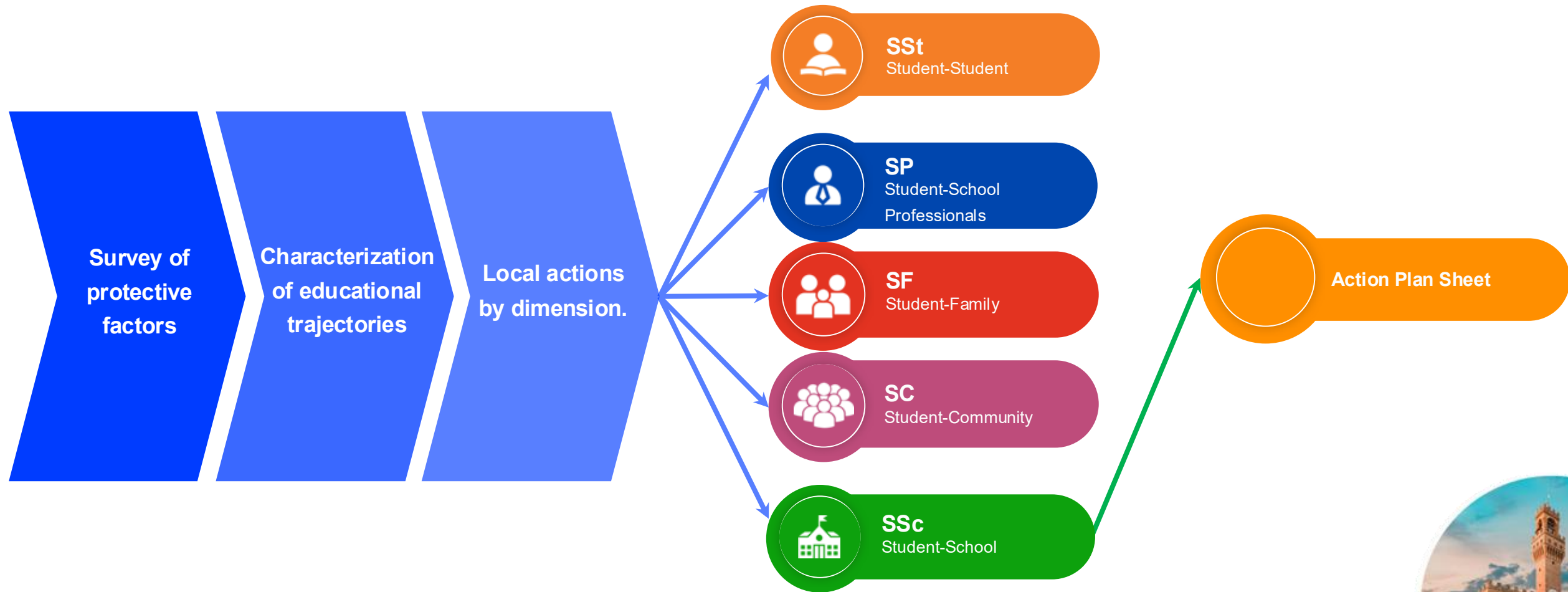
Platform



Interventions



Intervention models



Concluding remarks

How we can promote equity educational institutions?

- Critical Pedagogy
 - Paulo Freire
 - bell hooks
 - Nego Bispo
- Critical Psychology
 - Global South specificities



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