Usability Evaluation of Brazil's Higher Education Admission System (SiSU): Barriers and Recommendations

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Abstract. Introduction*: This paper reports on a large-scale Usability Test of Brazil's Unified Admission System (SiSU), conducted in partnership with the Ministry of Education (MEC) with 65 participants (including public school, private school, and university students).* ***Objective:*** *The objective was to evaluate the usability of SiSU and provide recommendations for improving the user experience for the 2026 edition.* ***Methodology****: The usability test was a large-scale evaluation of the SiSU system. The test included a group of users performing a set of tasks in a controlled environment. Data was recorded on participants' performance, opinions, and feelings about their experiences. The study also included an online survey and the User Experience Questionnaire - Short Version (UEQ-S) to gather impressions of the system.* ***Results:*** *The results showed an 81% task success rate but revealed recurring issues such as technical jargon, interface inconsistencies, navigation difficulties, and form-filling barriers. Improvement proposals were prioritized based on impact and implementation effort, with numerous recommendations classified as low-effort yet high-impact. The study reinforces the importance of applying Human-Computer Interaction (HCI) methods to enhance inclusive digital public services.*

Keywords *Usability Evaluation, Unified Admission System (SiSU), Higher Education Admission, Digital Public Services, E-government.*

1. Introduction

In the last decade, the efforts of the Brazilian federal government have increased in ensuring the improvement of public services, primarily through digital means. The implementation of digital technologies, such as online platforms and integrated systems, has simplified bureaucratic procedures, reducing the need for physical travel to public departments and speeding up citizen services. In 2024, for example, the government established the levels of public service maturity, allowing society to assess how well a public service aligns with the principles, rules, and tools of Digital Government. These

aim to ensure user rights, increase public efficiency, and build a digital government [Brasil 2024]. Among these principles, special attention is given to writing texts in service pages using plain language, following a more useful and appropriate copy style to users.

The digital transformation of public policies and initiatives has been widely discussed in the literature [Benavides et al. 2020], with examples from countries such as Germany [Bond et al. 2018] and Indonesia [Wahyu Sulistya et al. 2019]. In Brazil, this process takes place through various strategies, including partnerships with external stakeholders in the development of solutions. Notable examples include government startup initiatives [Figueiredo et al. 2024, Venson et al. 2024] and collaborations with universities [Menezes et al. 2024, Melo et al. 2022].

Access to education and higher education in Brazil is historically marked by socioeconomic and structural inequalities. However, in recent year it has become part of this digital transformation movement. To expand opportunities for admission to public universities, the Brazilian government created, in 2010, the Unified Admission System (SiSU), a digital platform that allows students to use their scores from the National High School Exam (ENEM) to compete for spots in nearly all Brazilian public higher education institutions.

Before SiSU launch, Brazilian universities adopted their own admission methods, resulting in a general elitist and restrictive scenario. Due to geographical, socioeconomic, and educational factors, this fragmented approach created silos in access to higher education in Brazil. The adoption of SiSU as a unified admission system, along with other programs implemented by the federal government, represented a crucial step toward democratizing access to education, promoting greater inclusion and equity in the Brazilian educational system.

Although ENEM and SiSU represent advances in the democratization of higher education, they also bring several challenges. Gonçalves, when examining participation data in ENEM and SiSU, found that despite an increase in the participation of low-income students in higher education, disparities in performance, scores, and access to courses persist between more and less advantaged regions [Gonçalves 2025]. Luz and Veloso highlight that the use of technical language in the SiSU call for applications document complicates the understanding of the process of system [Luz e Veloso 2014]. Additionally, although SiSU aims to be a universal unified admission system, it still emphasizes competition among the best-performing students. Vargas points out that many candidates are unaware of the system's rules and end up losing their spots [Vargas 2019]. In Ristoff's study [Ristoff 2014], between 2004 and 2012, a decrease in the percentage of white students in Brazilian universities was observed, accompanied by a slight increase in the representation of Black and mixed-race students. However, university campuses remain significantly whiter than Brazilian society as a whole. While in 16 courses the representation of Black students is equal to or higher than their proportion in the population, mixed-race students, who make up 43% of the population, are still underrepresented. Additionally, there was a reduction in the number of students from high-income families (above ten minimum wages) between 2004 and 2012, but significant socioeconomic disparities in access to higher education persist.

This paper presents part of the results of a broad Human-Computer Interaction

(HCI) evaluation of SiSU, to support the Brazilian Ministry of Education (MEC) activities in the 2025 edition of SiSU.

This paper is structured into six main sections. The *Background* section establishes the conceptual framework for higher education in Brazil, examining how SiSU and ENEM serve as democratic mechanisms for including socioeconomically vulnerable populations. In the *Partnership Project Between MEC and the University*, we contextualize this work within its institutional collaboration between government and academia. The *Usability Test Methodology* section details our research design and participant sampling approach. *Results* presents the key findings from our methodological implementation. *Challenges and Lessons Learned* discusses both the insights gained and limitations encountered during the study. Finally, *Discussion and Final Remarks* synthesizes the research contributions and outlines directions for future work.

2. Background

2.1. Higher Education Admission in Brazil

Higher education in Brazil has undergone several phases, shaped by the political models adopted throughout its history.

In the Republican period (1889-nowadays), higher education underwent significant transformations. Initially, the system was divided into two branches: secular state education and private institutions. This period saw a rise in the number of colleges and the establishment of Brazil's first universities, such as the University of Rio de Janeiro in 1920 and the University of Minas Gerais in 1927 [Flores 2017].

However, concerns arose regarding the lack of preparation among students, leading to the introduction of admission exams, later known as "*vestibulares*". These exams were designed to assess candidates' intellectual abilities and select the most qualified for limited public university seats. Over time, access methods were reassessed and modified [Flores 2017, Silva 2001].

After the 1988 Constitution, democratic governments alternated between intensifying support for private institutions through student financing programs, such as the *Fundo de Financiamento Estudantil* (FIES) [Student Financing Fund] [1] and the *Programa Universidade Para Todos* (Prouni)[Program University for All] [2] , and expanding the number of seats in public universities through political initiatives like the *Programa de Apoio a Planos de Reestruturação e Expansão das Universidades Federais (Reuni)* [Support Program for Restructuring and Expansion Plans of Federal Universities][3].

Despite increased access to higher education, admission processes have historically favored individuals with privileged socioeconomic conditions, such as access to quality basic education, stable family support, and reliable transportation—factors often shaped by racial inequalities. To address these social-racial asymmetries in access to public universities, the 2012 Quota Law[4] was implemented, reserving public

[1]https://acessounico.mec.gov.br/fies
[2]https://acessounico.mec.gov.br/prouni
[3]https://reuni.mec.gov.br/
[4]https://www.gov.br/mec/pt-br/lei-de-cotas/historico

universities seats for students from public schools and underrepresented racial groups [Flores 2017, Silva 2001]. To encourage and enable access to public universities, two other public policies were implemented, as discussed in the following sections: the *Exame Nacional do Ensino Médio* (ENEM) [National High School Examination] (enem.inep.gov.br) and the *Sistema de Seleção Unificada* (SiSU) [Unified Admission System] (acessounico.mec.gov.br/sisu).

2.1.1. National High School Examination (ENEM)

ENEM is a standardized test administered annually in Brazil since 1998. Over the years, millions of students have taken the exam, which serves multiple purposes, the most significant being admission to public universities [Gonçalves 2025, Sousa Lima et al. 2021].

Three main programs utilize ENEM scores: SiSU grants access to public universities; Prouni provides scholarships for low-income students in private higher education institutions; and FIES offers student loans for the payment of school fees. Additionally, adults who did not complete high school at regular age can use their ENEM scores to obtain a high school diploma [Gonçalves 2025, Sousa Lima et al. 2021].

The exam is conducted over two days, typically in November, and assesses various academic subjects. The first day covers language and humanities disciplines, including Portuguese, Literature, History, Geography, and Philosophy. The second day evaluates Mathematics and Natural Sciences, encompassing Physics, Chemistry, and Biology. The two tests in all add up to 180 objective questions. In addition to these objective questions, students must write an argumentative essay on a given social or cultural topic [Gonçalves 2025, Sousa Lima et al. 2021]. In 2024, more than 4 million people took the test[5].

In summary, ENEM is more than just a standardized test; it is a critical mechanism for expanding access to higher education and fostering social mobility in Brazil. It reflects the country's efforts to address educational inequality while providing students with a platform to pursue academic success [Gonçalves 2025].

ENEM has been analyzed from multiple perspectives, including its impact on academic outcomes [Sousa Lima et al. 2021] and its influence on students' educational trajectories [Gonçalves 2025]. Some authors also applied data mining algorithms to ENEM databases in order to predict the profile of those enrolled in ENEM [de Castro Rodrigues et al. 2019], to predict parameters on newly created questions [Marinho et al. 2023] and to provide a data-centric approach for exam size reduction [Kim et al. 2021] (in this case, also considering the datasets of the Scholastic Aptitude Test (SAT)). A recent research work has investigated the differences and similarities of ENEM essays created by human groups from different socioeconomic status (SES), and by large language models (LLMs) [Locatelli et al. 2025].

[5]https://app.powerbi.com/view?r=eyJrIjoiMjNkZWMxNjctNzViNS00N2VlLTkwMjctZDQwZDQ2MzE5ZGQzIiwidCI6IjI2ZjczODk3LWM4YWMtNGIxZS05NzhmLWVhNGMwNzc0MzRiZiJ9

2.2. Unified Admission System (SiSU)

SiSU is a Brazilian public policy within the scope of e-Gov, designed to allow access to higher education in public institutions and democratize opportunities for students nationwide. Established in 2010, this online system allows candidates to use their ENEM scores to compete for seats in federal or state higher education institutions, centralizing the admissions process [de Castro Ariovaldo e Nogueira 2018].

The admission process takes place right after the ENEM results are released, in the beginning of the year. Based on their scores, students can apply through SiSU to compete for seats in participating institutions. Each candidate may select up to two course options, ranking them in order of preference.

During the application period, the system updates cutoff scores daily, i.e. the minimum score required for admission to each program. This dynamic process allows applicants to monitor their chances and adjust their choices until the deadline. At the end of the process, admissions are granted to those with the highest scores, and selected candidates must confirm their enrollment directly with the institution to which they were admitted.

Managed by Brazil's Ministry of Education (MEC), SiSU is a free system that exemplifies the potential of e-government initiatives in addressing inclusion and accessibility challenges. By centralizing university admissions into a single platform, the system removes barriers such as individual applications and associated fees, benefiting students from remote and lower-income regions. Additionally, universities gain operational efficiency, as SiSU optimizes seat allocation and enhances geographic mobility among students. When combined with Brazil's affirmative action policies, such as the Quota Law, SiSU serves as a mechanism for increasing the representation of historically marginalized groups in higher education [de Castro Ariovaldo e Nogueira 2018, Nogueira et al. 2017]. However, challenges persist, including disparities in internet access and digital literacy, which disproportionately affect students from vulnerable backgrounds.

In the 2025 SiSU edition there were more than 260 thousand available seats in more than 6000 undergraduate courses of 124 different higher education institutions[6] . This year, SiSU registered 1,3 millions of applicants (3% more than in 2024). According to data from MEC[7], 254,899 candidates were admitted, which represents an occupancy rate of 97.3%, the biggest in seven years. In 2025, with 128,691 securing spots through open competition and 126,208 through affirmative actions and quota policies.

SiSU has been examined in academic research through various lenses, such as its reception on social media [Soares e Fernandes 2016], its effects on participants' well-being [Demenech et al. 2023], and reflections from educators [Luz e Veloso 2014]. Recently, some researchers have carried out studies seeking to relate university student dropout rates with the form of admission through SiSU [Cássia et al. 2024, Barbosa et al. 2024, Ribeiro e Morais 2020, Cabello et al. 2021, Alves e Brito 2021]. Other studies focus on the issue of admission by quotas promoted by SiSU [Pagaime e Prieto 2024, Pagaime 2022, Figueiredo 2024].

[6]https://sisu.mec.gov.br/static/pdf/Portal_Sisu%202025_Vagas%20ofertadas.xlsx
[7]https://www.instagram.com/p/DFXua-BRAfI

2.2.1. Admission to SISU under the Quota Law

The university seats offered by SiSU are distributed as determined by the Quota Law and, also, in accordance with the policies and affirmative actions that can be adopted by public higher education institutions, such as reserved places and the application of bonuses on the scores of the candidate who meets the profile indicated by the institution.

After more than ten years of the Quota Law being in force, many doubts still remain in society regarding the criteria that define quota holders. For example, it is common for people to believe that ethnic criteria alone authorize the application to compete for reserved places, when, in fact, the basic requirement to be a quota holder, that is, to compete for reserved places, is, firstly, to have completed high school entirely in public schools (Art. 1, Law No. 12,711).

When registering in SiSU, the candidate fills out a socioeconomic questionnaire for the Quota Law profile, through which SiSU will seek to obtain all information related to quota: whether the candidate completed high school in a public school; his/her declaration of color/ethnicity; whether they are *quilombola*[8]; whether the candidate is a person with a disability; and whether they wish to be classified and selected for all the reserves of the Quota Law according to his/her socioeconomic profile. Then, candidates will be able to select one of the reservations of the Quota Law for low income or reservations of the Quota Law for regardless of income, but only the quota modalities according to the registration made for the Socioeconomic Profile will be available.

With the information on the socioeconomic profile for the Quota Law combined with the choice of the Quota Law modality (if they choose "low-income" or "regardless income" reserves), which the candidate makes in the system, SiSU will know which candidates are eligible for the Quota Law and will then be able to classify them according to the order established by law.

For example, consider a candidate who opted for the "low-income public school" modality when registering for SiSU. If this person informed in the socioeconomic questionnaire that they would like to compete under the Quota Law and declared his/her race as brown, they will compete, according to MEC regulations, in the following modalities in order: 1. Broad Competition; 2. Candidates who, regardless of income, completed their entire high school education in public schools; 3. Candidates who self-declare as black, brown or indigenous, regardless of income, who completed their entire high school education in public schools; 4. Candidates with a gross family income per capita equal to or less than 1 minimum wage who completed their entire high school education in public schools; 5. Candidates who self-declare as black, brown or indigenous, with a gross family income per capita equal to or less than 1 minimum wage and who have completed their entire secondary education in public schools.

Therefore, it is essential that candidates understand the rules for filling vacancies as provided for in current legislation so that the process is considered fair and effective, for candidates and other social segments that follow the processes of access to public vacancies or those supported by public funds.

[8]A quilombola is an Afro-Brazilian resident of quilombo settlements first established by escaped slaves in Brazil (https://en.wikipedia.org/wiki/Quilombola).

3. Partnership project between MEC and university

In the 2024 edition of SiSU, there were many complaints from candidates who did not understand why they were classified in different categories than those chosen and indicated by them at the time of registration in SiSU. In addition, many students did not understand that the declaration in the socioeconomic profile at the time of registration was including new competition categories. For example, Higher Education Institutions (IES) frequently received complaints from students who chose the quota categories related to "person from public schools", but were classified as "black, brown and indigenous person". What happened was that, by declaring their race as Brown, Black or Indigenous in the socioeconomic profile declaration, the candidate also started to compete in the categories for black, brown and indigenous people.

Furthermore, The SiSU system faced major changes in its classification algorithm due to errors in the 2024 edition. Issues in publishing candidate rankings led to the suspension and republication of results. Multiple versions of the Waiting List caused confusion, requiring clarification notes, enrollment suspensions, and new calls to correct mistakes. These disruptions affected the entire process and undermined its credibility.

Although the short time to implement the changes to the Quota Law helps to justify the problems highlighted, it is necessary to improve SiSU's governance so that the risks in the process are mitigated.

Therefore, in October 2024, a partnership agreement was signed between the MEC's *Higher Education Secretariat* (SESU) and a Federal University of Ceará, Quixadá campus , through a five month *Decentralized Execution Agreement* (TED), in order to provide technical and scientific assistance for the improvement of SiSU. The TED is an instrument through which the decentralization of credits between bodies and entities that are part of the Federal Fiscal and Social Security Budgets is adjusted, with a view to executing programs, projects and activities, under the terms established in the Work Plan.

The project's main objective was to develop scientific and technological studies aimed at raising the level of maturity of the governance of SiSU. To this end, the scope of the project covered four lines of research and action: 1) Business Process Management, whose objective is designing the business processes and risk mapping of MEC programs and actions that deal with SiSU; 2) Educational Legislation, whose objective is analyzing and evaluate current legislation regarding MEC programs and actions that deal with SiSU; 3) Classification Verification Algorithms, whose objective is developing technological solutions to verify the correctness of classification algorithms for MEC programs and actions that deal with SiSU; 4) Human-Computer Interaction, whose objective is analyzing, in compliance with the national pact for plain language, how SiSU and related regulations and processes communicate with each other and with users. This paper presents part of the results obtained so far from the research carried out in the context of Research Line 4 (focused on HCI and UX), specifically a Usability Test performed with SiSU 2025 preliminar version.

4. Usability Test Methodology

Based on the Work Plan established for the partnership project, the following deliverables were planned for Line 4: 1) Initial Platform Exploration Report; 2) User experience

evaluation of the current version of SiSU; 3) Proposal for redesigning the Sisu system interfaces, with a high-fidelity interactive prototype; and 4) User experience evaluation of the high-fidelity interactive prototype.

In this paper, we report the results of the usability test carried out with the 2025 version of SiSU, as part of delivery 2; and the problems and suggestions for improvement, as part of delivery 3.

4.1. Logistics and Tasks

The usability test aims to evaluate the usability of an interactive system based on the user experiences of its target audience [Barbosa et al. 2021]. It consists of an evaluation in which a group of users performs a set of tasks using the system in a controlled environment, such as a laboratory. During these observed user experiences, various data points are recorded regarding participants' performance in completing the tasks, as well as their opinions and feelings about their experiences. The test phases follow the classic structure [Barbosa et al. 2021]: (1) Planning, (2) Pilot Testing, (3) Test Performing and (4) Result Analysis.

The tests were conducted on a underdevelopment version of the SiSU 2025. The tests were conducted on a version of SiSU 2025 still under development. As such, features like ranking updates and final results were not available. The tested steps included only the completion of socioeconomic data — used to determine quota eligibility — and course selection. Therefore, it was not possible to assess participants' experience regarding result tracking or the final outcome of the selection process. The tests took place in person at 10 high schools, with students in their second and third years of high school. Additional tests were also conducted in the usability lab of the Partner University, with freshmen university students. Some restrictions were imposed by MEC security team, which influenced certain choices in the testing process: only the Desktop version was tested, as it was the only system available for evaluation; the primary accessing machine needed to have a autorized fixed IP and MAC Address in the MEC central system; and mobile devices or any similar equipment capable of recording the system had to be collected from participants during the test. To address these restrictions, the necessary logistics were established (Figure 2, for tests conducted outside the university; Figure 1, inside the university). The testing process at schools required at least two team members: one physically present at high schools with the participant and another operating a computer with security clearance to access the system at university.

The tasks were organized so that participants would go through all the functionalities that had been developed so far. To support the test and maintain participant anonymity, the scenario also included fictional paper documents that participants used when asked to fill out sensitive personal information (all fictional). The tasks performed were: T1: Fill out the socioeconomic form; T2: Choose first course option; T3: Choose second course option; T4: Reverse course options; T5: Choose another course as second course option; T6: Look carefully at the final interface and answer: (a) Which are the the final first and second course options selected?; (b) Which admission modalities (general competition, quotas and bonuses) were selected in each of the chosen options? The questions used during testing aimed to understand users' perceptions of the information displayed in the interface after course selection, given that it was not possible to evaluate the stages related to final results.

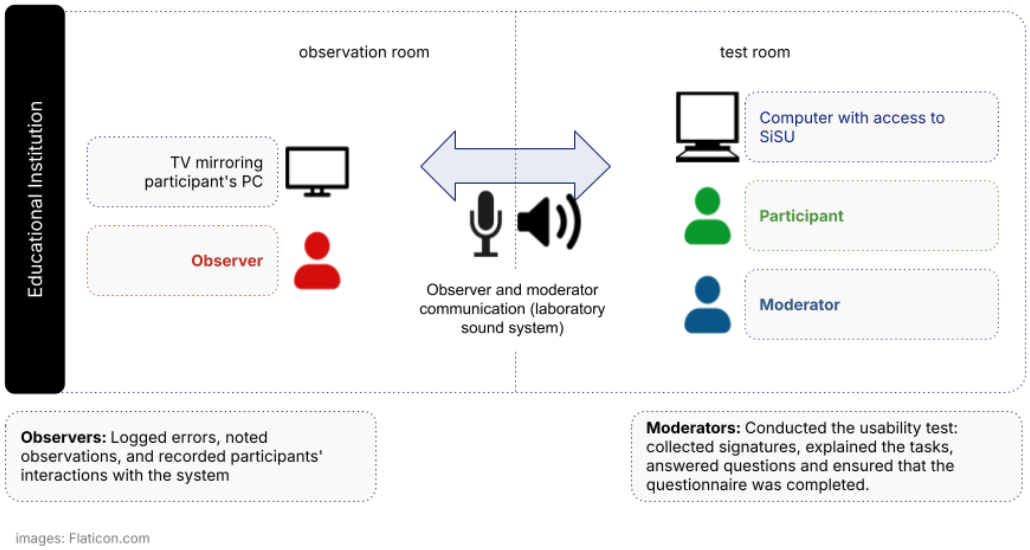


Figure 1. Test logistics: University

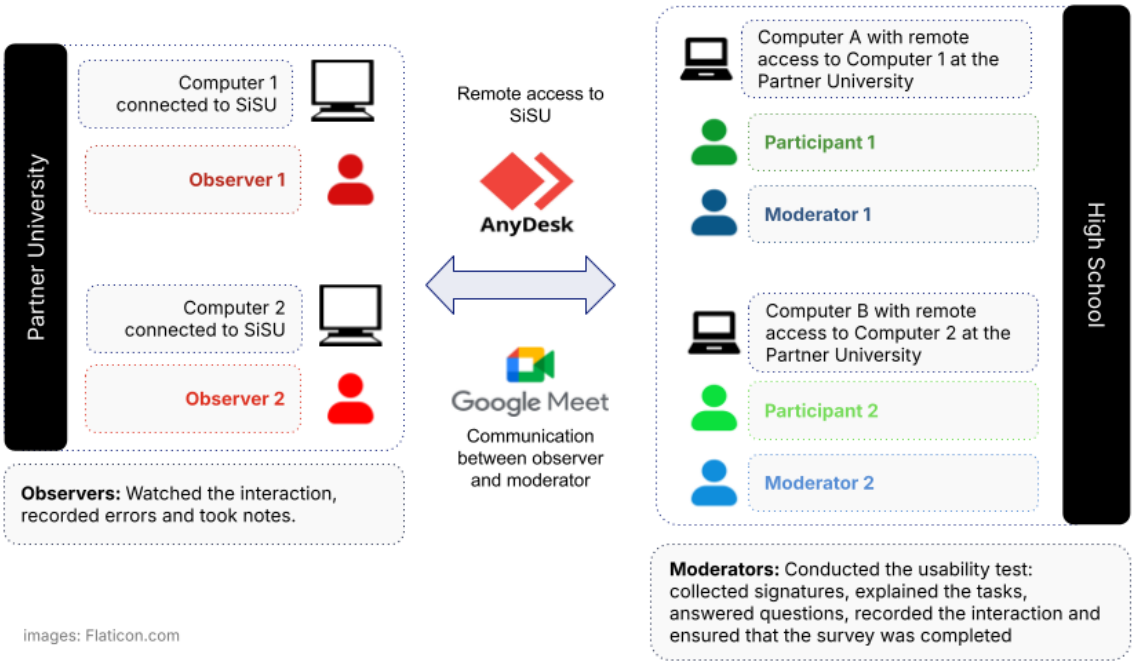


Figure 2. Test logistics: Schools

After completing the test tasks, participants were asked to fill out an online survey in which they shared their impressions of the system, as well as respond to the User Experience Questionnaire - Short Version (UEQ-S) [Schrepp et al. 2017], which is a shortened version of the original UEQ, containing only 8 items distributed across four main dimensions: attractiveness, clarity, efficiency, and dependability. It is useful for quick evaluations of the user experience, maintaining good statistical validity and being ideal for studies with time constraints.

The UEQ-S measures two fundamental aspects of the user experience: Pragmatic Quality (usability and efficiency of the system, evaluating how easy and intuitive it is for completing tasks) and Hedonic Quality (the emotional and subjective user experience, considering factors such as innovation and enjoyment of use). The UEQ-S data is processed from users' responses on a 7-point scale for each of the 8 items. The final score for each dimension is calculated by averaging the corresponding responses, ranging from -3 (very negative experience) to +3 (very positive experience). After data collection, the results can be compared to benchmarks to identify the strengths and weaknesses of the analyzed product.

4.2. Participants profile

As said before, two types of tests were conducted: one in the Partner University's Usability Lab, with participants who had already taken the ENEM and participated in SiSU in previous years; and another in high schools across several municipalities in two Brazilian states (Table 1). In total, 65 students participated, of which 51 (78.5%) were from public schools, 10 (15.4%) from private schools, and 4 (6.2%) from universities. All surveyed students were in their final year of high school, except for those from private schools, where 7 students were in their sophomore year.

The public schools were of three types: Public Vocational School (where students complete high school with a technical education diploma as well), Full-time Public School and Part-time Public School. The table shows two educational indexes (not all schools have this data available): the IDEB score[9] (0 to 10) and the ENEM (0 to 1000) scores average. Private schools have a higher ENEM average and part-time public schools have the lowest ENEM average and the lowest IDEB scores.

Table 1. Profile of participating high schools

ID	*HS1*	*HS7*	*HS5*	*HS6*	*HS2*	*HS9*	*HS10*	*HS4*	*HS3*	*HS8*
Type of School	PV	PV	FT	FT	VC	VC	VC	PT	PT	PT
Grade in IDEB (2023)	-	-	4,7	4	-	-	-	4,2	3,7	4
ENEM average (2019)	582	563	466	465	-	-	-	449	459	468
Participants	6	4	5	15	5	3	7	9	5	2
City	B	D	E	D	D	C	A	E	D	C
PV = private; FT = full-time public; VC = vocational public; PT = part-time public										

The cities of the schools have the socioeconomic characteristics found in Table 2. The cities' Human Development Index (HDI) ranged from medium (above 0.6), high

[9]The Basic Education Development Index (IDEB) is calculated based on data obtained from the Brazilian School Census, and average performance in the Basic Education Assessment System (SAEB) (both only avaliable to public schools).

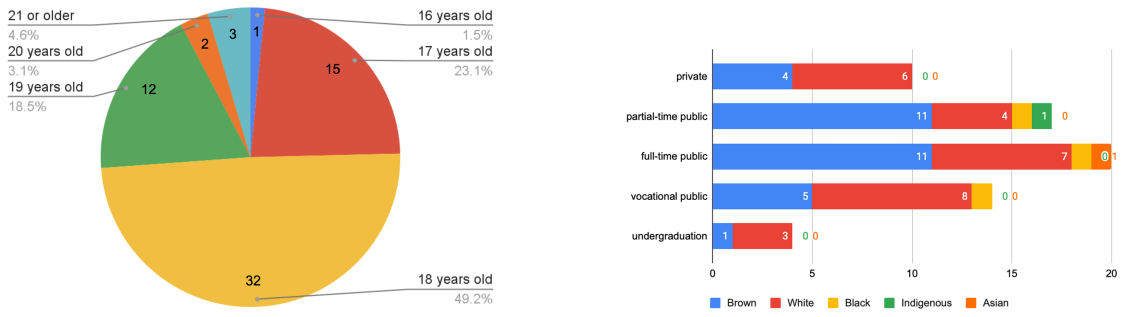
(above 0.7) and very high (above 0.8). Cities A and B are capitals with high population density. The others are small inland cities. The cities were chosen for convenience and availability of the researchers, as well as prior permission from the relevant authorities and institutions.

Table 2. Cities Data

	City				
Parameter	*A*	*B*	*C*	*D*	*E*
HDI	0.814	0.754	0.616	0.659	0.610
Population	2,817,381	2,428,708	21.433	84.168	61,443
Population density	489.06	7775.52	50.86	41.66	22.23
GDP per capita (R$)	92,732.27	27,164.45	20,364.73	12,484.60	20,731.68
City location	Capital	Capital	Inland	Inland	Inland

Regarding participants age (Figure 3a), nearly half (49.2%, 32) were exactly 18 years old, while 23.1% (15) were 17, 18.5% (12) were 19, 4.6% (3) were 21 or older, 1.5% (2) were 20, and 1.5% (1) was 16. Concerning gender identity , 33 participants (50.8%) identified as Cisgender Women, 29 (44.6%) as Cisgender Men, 1 (1.5%) as a Transgender Man, and 2 (1.5%) preferred not to disclose. Notably, all the four university student participants identified as Cisgender Women.

In terms of self-declared ethnicity (Figure 3b), there was a balanced distribution between mixed-race (32 participants, 49.2%) and White participants (28, 44.6%). White participants constituted the majority in private schools, vocational public schools, and university students. Mixed-race participants were predominant in other types of public schools. The sample also included 3 Black participants and 1 Indigenous participant. Regarding disability representation, 5 participants (7.7%) reported having disabilities: 2 with visual impairments, 1 with hearing impairment, and 2 with autism.



(a) Age **(b) Race**

Figure 3. Participants' age and income data

The income distribution (Figure 4) revealed several notable patterns. No participants from private schools reported incomes up to one minimum wage (R$ 1,412 in 2024). Most participants from regular and full-time public schools had household incomes up to two minimum wages. Participants from vocational public schools showed slightly higher income levels compared to other public school types. Only two participants reported household incomes exceeding eight minimum wages.

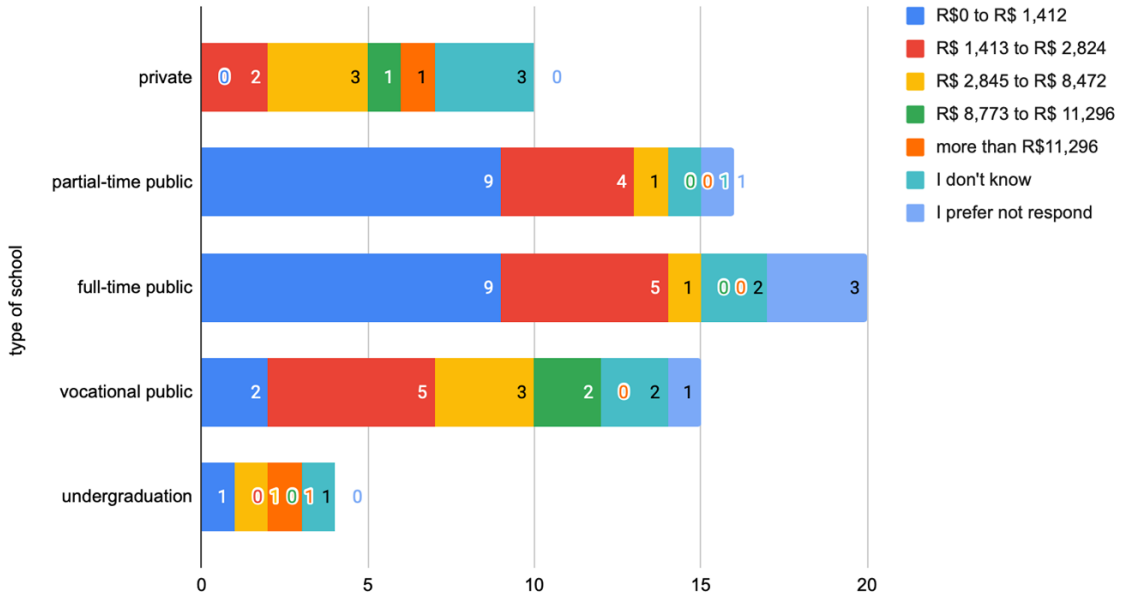


Figure 4. Income data

When asked about technology usage on a scale ranging from Never to Very frequent, smartphone use was reported as Very frequent by 40 participants (61.5%) and Frequent by 19 participants (29.3%), making it the unquestionably most used device. Desktop computers, on the other hand, were reported as Frequent or Very frequent by fewer than half of participants (28, 43.1%).

Regarding ENEM experience, nearly all participants had taken the ENEM at least once (95.4%, 62), with 47.7% (31) having taken it more than once. Only one participant - a university student - had taken the ENEM four or more times. Among private school students, most had taken the ENEM twice (6 out of 10). The frequency of ENEM participation was similar between regular and full-time public school students (with most taking it only once). One private school student, one vocational school student, and two university students had taken the ENEM three times.

When asked about their sources of information about ENEM (Figure 5), the three most consulted sources were social media, SISU and ENEM notices, and school environment. Only four participants reported not seeking information.

Regarding SISU usage, among high school participants, 77.0% (47) intended to use SISU in the future, while 6 (9.2%) did not plan to use it. Five (7.7%) school participants had previous experience with SISU. It should be noted that all four university participants had prior SISU experience, as this was a recruitment criterion.

4.3. Ethical Considerations

This study was conducted in compliance with the ethical principles established by Resolution No. 510/2016 of the Brazilian National Health Council, which regulates research involving human subjects in the Humanities and Social Sciences. Throughout the research process, strict measures were taken to protect participants, ensuring anonymity or confidentiality based on their preferences. Data was used exclusively for academic and

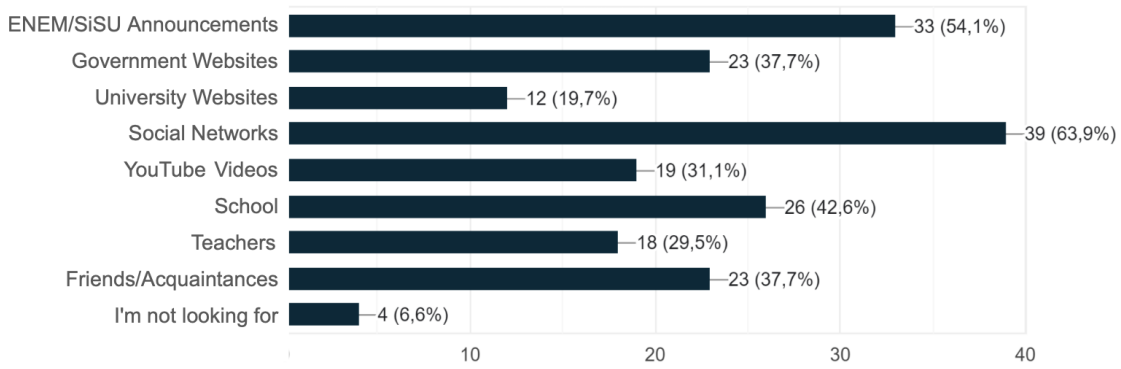


Figure 5. Sources of information about ENEM

scientific purposes, with no commercial intent.

All participants were fully informed about the study's objectives, procedures, potential risks, and benefits, and provided informed consent. Participation was entirely voluntary, free from coercion, and participants retained the right to withdraw at any time without penalty. The methodology was carefully designed to minimize physical, psychological, or social risks, with secure data storage in accordance with Brazil's General Data Protection Law (LGPD).

The participants aged 18 or more provided written informed consent, while minors submitted consent forms signed by their legal guardians (who also co-signed the minors' assent forms). Formal authorization was obtained from all participating schools prior to data collection. A preparatory visit was conducted at each school at least one day before testing to: Brief administrators on the study objectives; Invite eligible students; and Distribute consent/assent forms.

All completed forms were collected during the testing session. This research holds clear social relevance, contributing to scientific knowledge and potential improvements in public policies. We reaffirm our commitment to core ethical principles—justice, beneficence, and respect for participant autonomy—ensuring the integrity of the entire investigative process.

5. Results

5.1. Usability Test Metrics

Regarding the usability test activities (Table 3), more than 26 hours of video footage were recorded. The average task success rate was 81%. A total of 216 errors and 267 help requests were logged. Three out of 65 participants (4.6%) did not complete the usability test, so their metrics were excluded from the average time calculations.

When analyzing performance by school type, only 4 participants (6.2%) had success rates below 64%, with 3 from full-time public schools and 1 from a regular public school. No participants from regular public schools achieved a success rate above 86%. For Tasks duration (Figure 6), five participants took more than 40 minutes to complete all tasks — three of them are from a full-time public school and two are from regular public schools.

Table 3. Overall Results from Usability Test

	Success Rate	Errors	Assistance	Duration (min)
Average	81%	3	4,37	00:25:43
Maximum value	100%	12	14	00:49:54
Minmimum value	50%	0	0	00:08:13
Mode	86%	2	2	-
Standard variation	12%	3	2,68	00:09:21
Variance rate	1%	9	11,67	00:00:04
Total sum	-	213	266	26:08:26

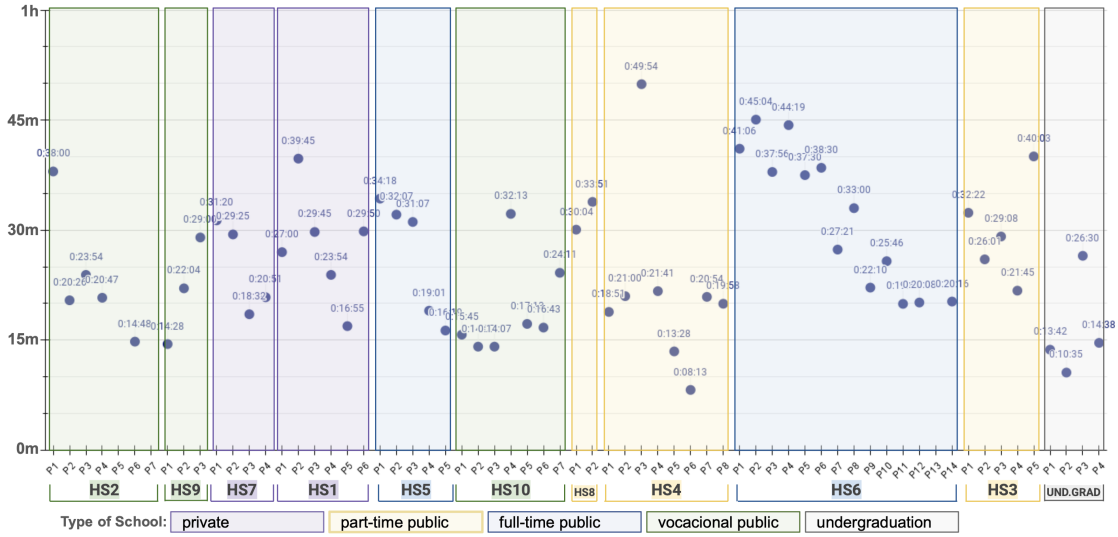


Figure 6. Test duration per participant and school

The highest number of errors was observed in a private school and a public vocational school. A total of 13 out of 65 participants (20.0%) made six or more errors. Help requests were evenly distributed across school types, with only three participants making ten or more requests — two of them are from a regular public school and one from a private school.

When analyzing results by task (Table 4), Task 1 had the lowest success rates across all school types. It also recorded the highest absolute number of errors. This underscored the significance of prioritizing the informational elements that need to be addressed during the socioeconomic form completion stage.

Table 4. Results per Task

	Task 1	Task 2	Task 3	Task 4	Task 5
Average Success Rate	76%	91%	94%	85%	93%
Average Time (in minutes)	14:18	4:33	2:32	1:30	2:41
Number of Errors	146	29	21	12	2
Requests for Help	164	65	21	26	7

The **Task 1**, which accounted for the highest number of errors, required

participants to complete the socioeconomic form. One of the main difficulties occurred in the section labeled "Economic Profile," where users were asked to provide information about all family members. The section title was perceived as unintuitive and generated uncertainty about its purpose. Terms such as "renda bruta" (a Portuguese term used to refer to total income before any taxes or deductions), "renda líquida" (a term used to refer to income after taxes and deductions have been applied) and the lack of clear instructions on how to proceed in cases of no income led to confusion, the lack of a logical information architecture, explanations about the section, orientation buttons explains the number of errors. A total of 27 error occurrences were recorded in this section alone. Many participants gave up at this point, left mandatory fields blank, or asked for help to understand the terminology presented by the interface.

Still within the socioeconomic form and same task, another common source of confusion was the "Social Profile" section, which required users to provide information regarding race, ethnicity, and self-identification. Participants reported difficulties understanding the terminology used and expressed confusion due to the excessive number of options displayed—many of which did not require interaction but still caused uncertainty. In several cases, users kept the default selections without understanding their meaning.

In addition to these sections, other terms such as "logradouro" (a Portuguese term for street/public place) and "nome social" (a term used in Brazil to refer to the chosen name by transgender or non-binary individuals, which may differ from their legal name) were also unclear to most participants, as they are not part of common vocabulary. During this stage, many participants requested assistance or explanations regarding the interface content.

The **Task 2** involved searching for the first course option. The main challenges in this task were related to the use of search filters, which required selecting a state, institution, course schedule (such as morning, afternoon, or full-time), and course modality (bachelor's, licentiate, or technological). Many participants reported not understanding terms like "full-time," "evening," "bachelor's degree," and "licentiate," which made the task more difficult to complete.

The **Task 3**, which required selecting a second course option, resulted in fewer errors. Since it repeated the same flow as the previous task, most users were already familiar with the process and completed it with ease.

The **Task 4** accounted for the second-highest number of errors. In this stage, participants were asked to switch the order of their selected course options, making the second choice the first and vice versa. Although a visual icon was available to perform this action, many users did not understand its meaning. As a result, some deleted both course options and repeated the entire search process, increasing cognitive load and requiring them to recall previously selected information. Others deleted only the first course option, which caused the system to automatically promote the second option to the first position, forcing them to perform a new search for a second option.

Finally, the **Task 5** involved replacing the second course option. As the flow was similar to previous tasks and participants were already familiar with the process, most completed the task without major difficulties. The only additional step required was to

delete the existing second option before searching for a new one, which was generally performed successfully.

The high number of errors in Task 1 is particularly concerning, as this step is crucial for the selection process and for increasing participants' chances of admission to public universities. It is through the accurate completion of the socioeconomic form that SiSU determines whether a candidate is eligible to compete for reserved quota positions. Furthermore, during the score ranking process, the system uses this information to determine the candidate's position and quota category, which can significantly impact their chances of securing a place at a public university. The data provided in this form is also used by institutions to establish contact with applicants when necessary. Discrepancies between the information submitted and the applicant's actual circumstances may compromise their eligibility for quotas, directly affecting their opportunities within the selection process.

Although the remaining tasks presented a lower number of errors compared to the first one, they still revealed important usability concerns. Participants continued to face challenges related to the presence of unfamiliar terms, lack of clarity in instructions, and interface elements that were poorly organized or unintuitive. While these issues were less critical in terms of volume, they are still relevant, as they can negatively impact the overall user experience and lead to confusion or hesitation in completing certain actions. These difficulties, although not as severe as those observed in Task 1, suggest that improvements are needed to enhance system clarity, reduce cognitive load, and better support users throughout all stages of the process.

The excessive use of technical terminology, lack of clear explanations, and an unintuitive interface design affect not only the user experience but also reflect a disregard for the social and educational backgrounds of the intended user base. By failing to consider participants' socioeconomic contexts, the system imposes additional barriers to accurately completing the form and may lead users to make misinformed decisions, ultimately undermining their right to fair access and equity within the higher education admission process.

5.2. UEQ Results

The UEQ-S results (Figure 7) indicate that the overall quality of SiSU was rated as Neutral, with an average score of 0.950 (values range from -3 to +3). The Pragmatic Quality received a score of 1.025, while the Hedonic Quality scored 0.875. Overall, the system was rated slightly above average and was considered efficient.

Overall (Figure 7), most items received neutral evaluations (between -1 and +1), with efficiency (1.7) and interest (1.3) being the only positively rated aspects. The results from university participants showed a significant divergence: pragmatic quality scored markedly higher (1.375) compared to hedonic quality (0.375), resulting in an overall neutral evaluation of SiSU (between -1 and +1) for this group.

The findings indicate that, on average, the system performs slightly above median quality levels. While most school profiles perceived the system as efficient, university participants - who had prior experience with SiSU - were particularly critical of its hedonic aspects, despite acknowledging its functional efficiency.

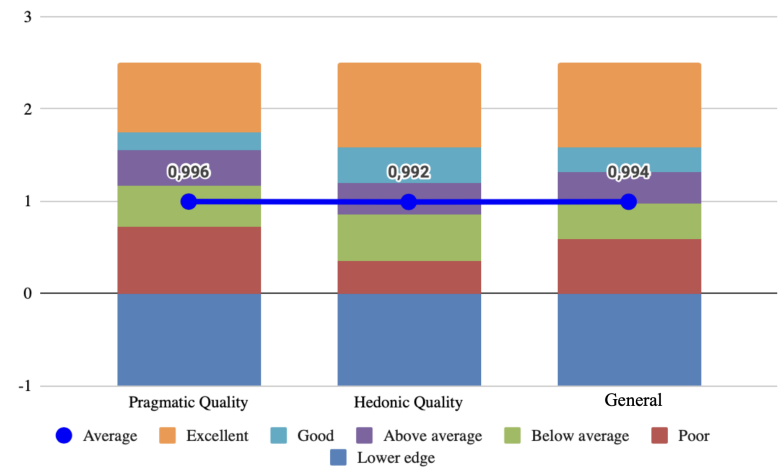


Figure 7. UEQ Overall result - All participants

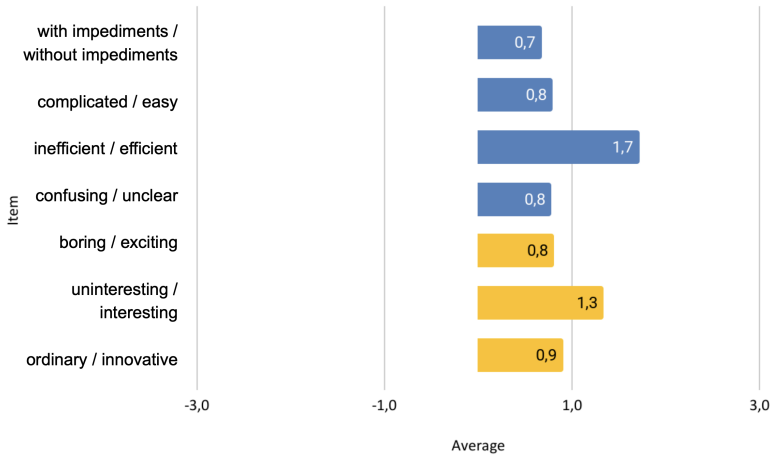


Figure 8. UEQ detailed results - All participants

5.3. SiSU Issues and Improvement Recommendations

A total of 25 points of improvement were identified. A significant portion of these problems were related to the language used in the interface.

The usability issues identified during testing were also recognized by the participants themselves (Figure 9). In the open-ended feedback section at the end of the evaluation, participants provided recommendations that, when categorized, can be seen with examples in Table 5.

The problems were categorized into four groups. The Language Used category included situations where the language in SiSU was not suitable for communicating with high school users, as it was either too technical or relied on uncommon vocabulary. For example, Usability test showed that expressions like "logradouro" (types of streets), "vespertino" (evening) and "renda bruta" (gross income) are often unknown to participants.

The Interface Inconsistencies category addressed issues related to the design of the interface. For example, buttons that were not recognizable as buttons or fields that

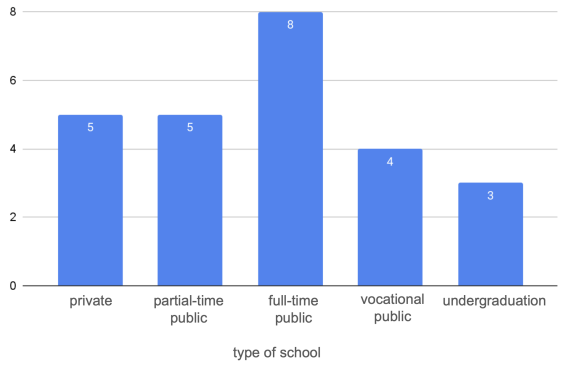


Figure 9. Recommendations by School Type

Table 5. User Feedback from Participants

Type	n	Example
Clarity of Information	6	They should simplify the information. There's too much for people who aren't used to computers or smartphones. It's a bit confusing.
Post-SiSU Documentation & Enrollment	6	Figuring out which documents were needed for enrollment was difficult.
Interface Improvements	3	The quota section's interface could be improved for better understanding (especially regarding financial aspects).
Functionality Changes	3	It would be helpful if cutoff scores were displayed when browsing the university list, so we don't have to open each one individually.
Session Duration	2	Increase the session timeout period and add a countdown timer so we know how much time is left before the system logs us out.
Bug Reports	2	Just the issue of the website freezing/crashing sometimes.
Requests for More Courses & Slots	2	They should open more university slots.
Accessibility for People with Disabilities	1	Conduct usability tests with PWDs (People with Disabilities) to make the interface easier to use and understand.
Positive Feedback	2	I thought the website was great—very clear.

appeared disabled when they were not. Problems related to Information Architecture involved the organization of information on the interface, which often did not follow standard market practices. For instance, during the Usability Test, participants expected to find information about their ENEM scores in a different location than where it was displayed. Lastly, Questions about the Quota Law were highlighted to emphasize the relevance of this issue.

An example of the SiSU interface is shown in Figure 10. Multiple issues can be observed. In (A), the "Delete" button fails to clearly communicate its function and lacks adequate contrast, compromising accessibility. In (B), the term "Renda bruta individual" (individual gross income) is used, which may not resonate with younger users due to its technical nature. In (C), the values are presented without proper information architecture, failing to highlight the necessary focus.

To reduce the impact of the identified issues, 53 interventions were proposed and categorized based on two criteria: effort to implement and impact to users. This preliminary classification was informed by the researchers' expertise and served as an

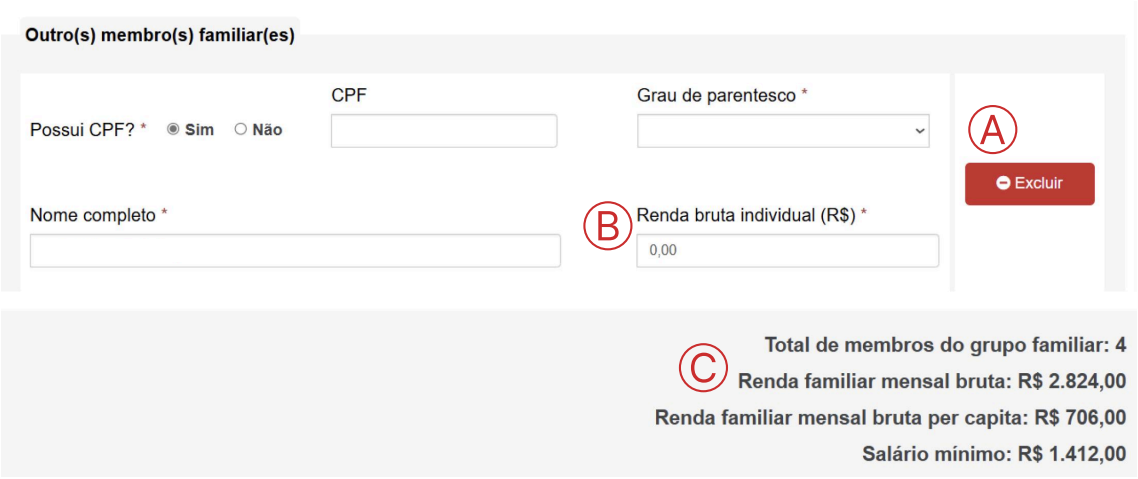


Figure 10. Examples of issues found in the SiSU interface

initial step before being shared with the SiSU development team. The outcome of this prioritization is as follows: 16 recommendations were classified as low effort and high impact; 16 recommendations were classified as low effort and medium impact; 14 were classified as medium effort and high impact; 3 as high effort and high impact; 2 as medium effort and medium impact; and 2 as low effort and low impact. Among these recommendations, 33 targeted the Socioeconomic Form page, 13 addressed the Chosen Courses page, 6 focused on the Course Selection page, and 1 was designed to be applied across all screens. Examples of the recommendations (Figure 11) for improving communication involve: (A) Adding labels to indicate the registration status for applicants eligible for low-income quota spots; (B) Adding a confirmation step to ensure candidate intent to participate in the economic low-income quota.

Figure 11. Interface changes suggested as recommendations

6. Challenges and Lessons Learned

Conducting this study in partnership with the Ministry of Education to evaluate the usability of the Unified Admission System (SiSU) presented significant challenges

that yielded valuable lessons for the development of digital public services. The process revealed the inherent complexity of assessing large-scale government systems, particularly when serving socioeconomically diverse populations.

From a logistical standpoint, the study faced the challenge of testing with 65 participants from different educational backgrounds (public schools, private schools, and university students) across 10 institutions in multiple municipalities and states. Security requirements imposed by the MEC, such as fixed IP and MAC address restrictions, added layers of complexity to data collection. These technical constraints were particularly relevant given that most participants reported using smartphones far more frequently than desktop computers [Cetic.br e NIC.br 2024].

The incomplete version of SiSU available for testing posed another major obstacle, limiting the evaluation of critical system functionalities (monitor progress, register for waitlist placement...). The complete version of SiSU involves filling in socioeconomic data, selecting preferred courses, and monitoring the candidate's ranking position in the selected options on a daily basis. At the end of the process, the system also allows candidates to verify whether they were admitted to any of their chosen courses and, if not, to express interest in joining the waiting list. However, since the system was still under development during the execution of this study, the tests conducted only covered the course selection stage. As a result, it was not possible to assess participants' perceptions and experiences regarding how the system displays their ranking position in the selected course or the final results of the selection process. This challenge was compounded by conducting tests in uncontrolled environments (schools), where factors like noise and interruptions affected assessment standardization. While productive, the partnership between academia and government highlighted the difficulties of reconciling tight deadlines (five months) with the institutional bureaucracy characteristic of the public sector.

The lessons learned from this process were multifaceted and invaluable. The experience unequivocally demonstrated the importance of including real users in evaluation processes—student testing identified many problems for them. This finding reinforces the value of qualitative research as a complement to technical analysis.

The study also underscored the feasibility and impact of relatively simple improvements. Of the 53 recommendations generated, 32 were classified as low- or medium-effort to implement yet with high potential for positive impact. Changes such as simplifying technical terms ("gross income") and redesigning interface elements emerged as accessible solutions to significant usability problems.

Issues identified in the 2025 edition of SiSU — particularly those related to ambiguity in quota classification rules — highlighted the need for greater transparency and more rigorous testing in development processes. This experience suggests the value of establishing permanent multidisciplinary committees, bringing together experts in human-computer interaction, educational policy, and information technology to oversee the system's lifecycle as a way to improve government systems focused on education.

As practical recommendations, the study suggests: Conducting usability testing earlier in the development cycle; Adopting iterative prototyping and validation processes; Investing in ongoing training for government teams on user experience principles and

digital accessibility.

In summary, the SiSU evaluation experience reinforces that the quality of digital public services fundamentally depends on collaboration between academia, public administrators, and—most critically—end users. While the challenges encountered do not diminish the transformative potential of such initiatives, they emphasize the need for rigorous, inclusive methodological approaches. The lessons from this project can guide not only the redesign of SiSU but also the development of other government systems crucial for promoting social equity.

6.1. Limitations

This experience report has several limitations that should be considered when interpreting the results and generalizing the conclusions. First, the study focused exclusively on the desktop version of SiSU, without evaluating the mobile experience - which is the primary access device for most users, as evidenced by participants' own usage patterns. This restriction was imposed by MEC's security requirements, but it represents a significant gap since usability issues may vary considerably across different platforms.

Another important limitation relates to the study's timeframe. The evaluation was conducted during a specific period (the five-month agreement between MEC and the university), which prevented monitoring the system throughout its entire operational cycle, including critical moments such as peak access periods during registrations. Additionally, the analysis was performed on a development version of SiSU 2025 that didn't include all final functionalities, limiting the scope of the assessment.

While the participant profile was diverse, it had some constraints. The sample predominantly included public school students (78.5%), with limited representation from certain relevant groups such as people with disabilities (7.7%) and Indigenous populations (only one participant). This composition may have missed specific challenges faced by these groups when using the system.

From a methodological perspective, the need to adapt tests for school environments rather than controlled laboratories might have affected data standardization.

Finally, the study primarily focused on usability and user experience aspects, without deeper analysis of other critical factors for SiSU's success - such as connectivity infrastructure quality across different regions of the country or language barriers for populations with lower digital literacy. These limitations suggest opportunities for future research to complement this study's findings with additional perspectives on system access challenges.

7. Discussions and Final Remarks

This study evaluated the usability of Brazil's Unified Admission System (SiSU), identifying key challenges and improvement opportunities that could positively impact user experience - particularly for students from diverse socioeconomic backgrounds. The results demonstrated that while the system is functional (showing an 81% success rate in evaluated tasks), significant barriers remain regarding technical terminology and navigation difficulties. These issues may compromise SiSU's fundamental principles of inclusion and equity.

The study's key contributions reveal that technical terms like "logradouro" (street types) and "renda bruta" (gross income) are poorly understood by users, indicating a need for linguistic simplification. Interface inconsistencies - such as non-intuitive buttons - were also identified as usability obstacles. Notably, 60.3% of the identified problems were classified as requiring low implementation effort while offering high potential impact.

The participation of 65 students across varied socioeconomic profiles reinforced the critical importance of engaging target users in evaluation processes.

While the research faced challenges including security constraints and underrepresentation of certain groups, the productive collaboration between MEC and academic partners yielded transformative insights for improving SiSU's user experience.

Ultimately, SiSU remains a crucial tool for democratizing access to higher education in Brazil. Its full potential can be realized by addressing the identified usability barriers. This study underscores the vital importance of integrating HCI and UX methodologies into digital public service development to ensure inclusive, efficient systems aligned with user needs. The lessons learned can inform not only SiSU's redesign but also the development of other government platforms promoting social equity.

Designing an interface that addresses the reality of affirmative action quotas engages with two key Grand Challenges for HCI (Human-Computer Interaction) in the 2025-2035 period. First, it requires developing HCI solutions through a sociocultural lens that acknowledges Brazil's complex racial and socioeconomic dynamics [Neris et al. 2024]. Second, it demands careful consideration of ethical-legal frameworks when implementing such interaction systems [Rodrigues et al. 2024].

By centering the Brazilian context – its challenges and progress – this approach fosters a decolonial perspective on university admissions. It moves beyond technical usability to fundamentally rethink how digital systems can [Oliveira et al. 2024]: Embed social justice principles in interface design; Challenge structural inequities through interaction paradigms; Amplify marginalized voices in the admissions process.

This aligns with emerging HCI priorities that treat technology not as neutral, but as an active participant in either reproducing or dismantling systemic barriers in education. The quota system implementation thus becomes a test case for decolonial HCI, where design must simultaneously address: Technical requirements (accessibility, clarity); Social imperatives (inclusion, representation); Decolonial praxis (centering local knowledge over imported frameworks). The work demonstrates how public sector HCI can evolve from merely "user-friendly" systems to justice-oriented infrastructures that acknowledge Brazil's specific historical context of educational exclusion.

Future work will present the results of other studies conducted within the scope of this project and met the deliverables outlined in the methodology. These studies employed diverse methods to broaden data collection and enable the triangulation of perspectives on the SiSU platform. This methodological diversity aimed to enrich the understanding of the system from multiple approaches.

Beyond the usability testing presented in this article, the MALTU [Mendes 2015] and SESMag [Agarwal et al. 2023] methods were utilized. Their comprehensive results will be discussed in subsequent publications. However, it is worth briefly highlighting

some relevant evidence already observed.

The MALTU [Mendes 2015] method allowed for the analysis of user experience based on spontaneous comments extracted from social media accounts of the Ministry of Education and Brazilian influencers who produce content about SiSU. The analysis of this data revealed recurrent difficulties faced by participants, as well as aspects related to their family and income contexts. Questions regarding the functioning of the selection process also emerged, in addition to the presence of offensive comments concerning SiSU's operation.

The SESMag [Agarwal et al. 2023] method, in turn, enabled a systematic inspection of the SiSU interface using two personas with contrasting socioeconomic profiles: one more privileged and another in a vulnerable situation. Although the method confirmed that users in less favored contexts may encounter additional obstacles, the results indicated that usability and experience issues were so significant that they similarly impacted both personas.

In addition to disseminating the results of these studies, future articles are expected to present a redesign proposal for the new SiSU interface, anticipated for 2026. It is important to note, however, that the current study has already identified practical problems that could be resolved in the system's current version, without needing to wait for the implementation of the new interface. This demonstrates that immediate improvements are not only viable but also highly beneficial for the system's users.

This study employed DeepSeek for English translation, optimizing the language for clarity while preserving its scientific rigor.

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