Strengthening Early Childhood Integral Care through a Collaborative Web-platform: The case of Plataforma-SAIID

Introduction

The global pandemic by COVID-19 promoted in countries and citizens the opening towards new systemic considerations about how to coexist in a globalized world panorama, with high computer, microbiological and commercial traffic (Baricco, 2020). All this, in full correspondence with the aspirations of public policies in recent decades, which emphasized the need for comprehensive approaches to the human being and their development, that set the desire to achieve better socioeconomic approaches associated with health and education, among other areas (Loyacano, 2018; Newell, Tan and Prout, 2021). These comprehensive approaches aimed biological-molecular, as well as historical-cultural, metabolic, and cognitive-behavioral levels of organization (Gottlieb, 2007). However, its translation from paper to practice (and more specifically to the practice of public care in health and education), faced us with important challenges regarding intersectoral articulations (Cunill-Grau, 2010), and the ecologies of knowledge (Santos, 2014) required for its materialization.

Currently, the approach to such challenges must also be understood in the context of a society that is going through great accelerations in digital development and knowledge mining, due to the intensive use of intelligent algorithms for information processing, as well as dynamic storage systems, and interconnectivity associated with the so-called Internet 4.0 (Nagao, 2020). Although these characteristics make more complex the potential relationships between the areas that would have to be articulated to move towards more comprehensive approaches, they also enable the use of new generation digital resources and tools that can encourage us to promote the materialization of such aspirations. Under this assumption, the present work systematizes the experience associated with the development of a collaborative web platform, designed, and implemented to support the execution of intersectoral work between professionals in the areas of health and education, which make up the RISA (*Integrated Networks of Care Services*, for its acronym in Spanish) (Cerdas, 2016). Said networks are made up of interdisciplinary teams that, throughout the national territory, are oriented towards promoting comprehensive and early developmental care of Costa Rican children.

SAIID System and RISA Networks: Intersectorality for the development and comprehensive care of early childhood

Costa Rica is a Central American nation of 51,179 km ^{2} that, at the beginning of the 21st century, already had outstanding social security and public education systems at the regional level for its almost universal coverage and quality (Fernández and Del Valle, 2013; Mesa-Lago, 1991). On this basis, by the end of the 2000s, a government intersectoral initiative sought to start from the strengths represented by both systems, as well as their broad presence throughout the national territory, to promote the development of Costa Rican children through a model of comprehensive care inspired by the *Integrated Health Services Networks* (RISS, for its acronym in Spanish) previously developed by the Pan American Health Organization (Cerdas, 2016).

As a result, in 2010, the *Integral and Intersectoral Care System for the Development of Children* (SAIID, for its acronym in Spanish) was established in Costa Rica, as an intersectoral effort between public ministries of health and education, universities and other entities related to childhood care. Its objective: to face the limitations inherent to the independent work that each entity used to carry out until then. Hence, part of the functions assumed by SAIID since then and to date, are related to seeking improvements in the linkage during development assessment processes at the national level, facilitating educational exchanges, organizing training among members of the system, and reorganizing primary care processes in a more efficient way. In this context, RISA networks constitute the arms that SAIID extends to address some of the specific needs of children in different locations of the country. Each RISA is made up of an interdisciplinary team of professionals in health and education. Each team meets monthly to receive, analyze, and follow up on approach strategies for children in need of assessment or treatment within the public systems, who have not yet been adequately referred due to lack of examination, inadequate previous evaluations, or recent manifestations associated with disability or developmental risks (SAIID, 2012).

After the first RISA was born, an interinstitutional agreement was signed that grants permission from the authorities that make up SAIID and provides support so that part of its personnel can carry out the activities associated with the network, as part of their regular duty hours. Thus, the first of these networks were established in 2011, while that by 2021 the constitution of network number 104, with which the national coverage was completed. On average, 8 people make up the

team of each network, so currently, this system has grown to involve a community made up of several hundred people distributed from border to border. Then, derived from this notable growth, the challenges have also grown and the needs are required to develop efficient communication and management through the network.

The great distances between the RISA networks distributed throughout the national territory have revealed the need to improve the communication and management processes that can favor the quality of their functions (Hernández and Chacón, 2021). In the early years, RISA used separate spreadsheets on team members' personal computers to systematize their actions. Likewise, an annual face-to-face conference for network coordinators, as well as communications through different email lists were characteristics of a way of management and socialization of information during the first years, which later became evident serious limitations in the face of the new challenges of a more numerous and mature system.

Plataforma-SAIID was born in response to the needs for improvement in training, communication, and management processes that, as has been exposed, were evidenced over the years in the context of growth and operation of RISA networks. The media ecology, typical of the second decade of the 21st century (Taffel, 2019), and the particular increase in the use of applications for synchronous and asynchronous collaborative work after the COVID-19 pandemic period (OECD, 2021), guided the design and development of this collaborative web tool. The platform was estimated as a possible timely solution to the needs mentioned above, as soon as it was able to incorporate learning management systems, mapping with geolocated references, wiki narrative databases, and real-time analytical visualizations. Everything, moreover, on a free software basis that facilitate the sustainability of the system in the long term.

More specifically, the initiative to create Platforma-SAIID originates in the context of the project named *Intersectoral Strengthening of Comprehensive Care for the Development of Children in Costa Rica* (FIAID, for its acronym in Spanish) of the Basic Education Division at the National University of Costa Rica (UNA, for its acronym is Spanish). From this project, starting on 2015, it was understood that some of the social transformations associated with digital innovation and the collective production of knowledge in virtual settings, characteristics of what has been called cognitive capitalism (Vercellone, 2004), required a key and corresponding shift in the politics of university extension work.

Due to its historical context, the UNA Organic Statute refers to university extension work (or extramural studies) as: “the task through which the University interrelates critically and creatively with the community”, as well as a means through which “the University must materialize the university-society link (UNA, 1993), without directly or indirectly mentioning elements associated with information and communication technologies. However, during the last 7 years, the FIAID project addresses online learning spaces, audiovisual production, and virtual networks, as natural resources from which to extend the impact of the substantive activities of the university, towards national areas related with health care and early childhood education.

Comentado [DHV1]: The current organic statute is from 2015 and I reviewed but those definitions / quotes do not come. I don't know if you want to keep that 1993 publication because it clarifies at the beginning of the paragraph that it refers to a historical context, or if you want to update to the 2015 version. I think the author is the National University and not UNA.

Comentado [DHV2]: It could confuse, I would leave it in resources.

With this orientation, the coordination of the FIAID project becomes a relevant institutional agent by being incorporated into the SAIID coordinating team, as an institutional academic representative. Then, it is thanks to this important associated role that the project first assumes support for SAIID through online courses and training, later adding the production of audiovisual material, until finally reaching sufficient previous experience that allows it to assume leadership when SAIID itself and its RISA networks needed. Plataforma-SAIID responds to the demand of a more complex support in terms of information and communication management.

Plataforma-SAIID: A collaborative web platform for the intersectoral strengthening of early childhood development care.

In 2021, as the closure of public spaces and other restrictions derived from the increase in the number of deaths because of the COVID-19 health emergency continued, groups of citizens in various countries self-managed initiatives and assumed responsible leadership, seeking to support from various flanks containment strategies generated from their respective governments (de Jong and van Reisen, 2021). Costa Rica was no exception, and thus, a small group of 5 professional citizens in different branches such as education, public policy, design, and law, joined the FIAID project in the task of designing and developing Plataforma-SAIID. The alliance is consolidated by understanding that strengthening the SAIID and the RISA would promote better opportunities in the immediate future for children affected by closures and difficulties in attending public health and education services because of the pandemic. This is how the coordinating team in charge of the development of the platform was formed.

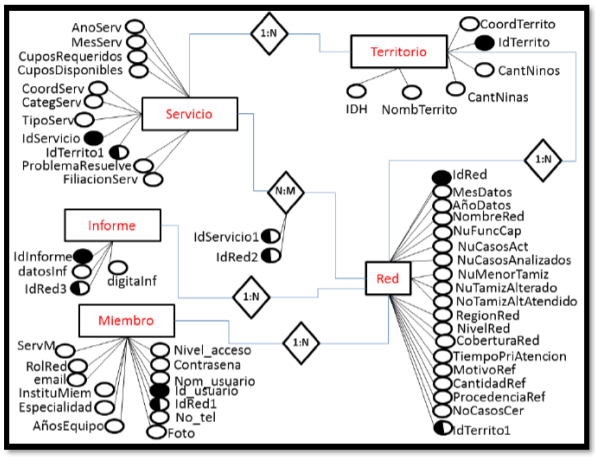
The first phase of the development process involved a series of consultations with more than 200 SAIID members at different levels (national, regional, and local), through interviews and

questionnaires. This with the aim of delving into the detail of the needs and aspirations already noted by an antecedent systematization experience (Hernández and Chacón, 2021). In this way, by explaining to the people consulted the purpose of creating a collaborative web platform to respond to the identified requirements, it was possible to jointly explore new angles that allowed specifying the basis of the required information architecture.

The product of this first phase consisted of a *Specifications and Requirements Guide.* In this document, the underlying database of Plataforma-SAIID was described as a relational system made up of 5 different entities, their variables, and their relationships (See Figure 1). Thus, for example, and following the diagram in Figure 1, within the informational system of the platform, each RISA network is represented as a Network entity, to which a Territory, a set of Members, a series of Services are associated, as well as a determined number of reports on monthly actions.

The information represented in the database is the foundation for the operation of the 5 main components that make up the published web version of Plataforma-SAIID, namely: An observatory of the RISA monthly actions on the national territory, a wiki space for the collective construction of knowledge relevant to early childhood care, a geolocated map of care services associated with each network, a learning management system to develop online courses, and a repository for the dissemination of various materials in multiple formats. The platform was developed using Django (Django Software Foundation, 2019), MaríaDB (MariaDB Project, 2018) and Moodle (Moodle Project, 2020) as suitable and corresponding systems with the requirement to incorporate free software for better sustainability. Below is a brief description of each component.

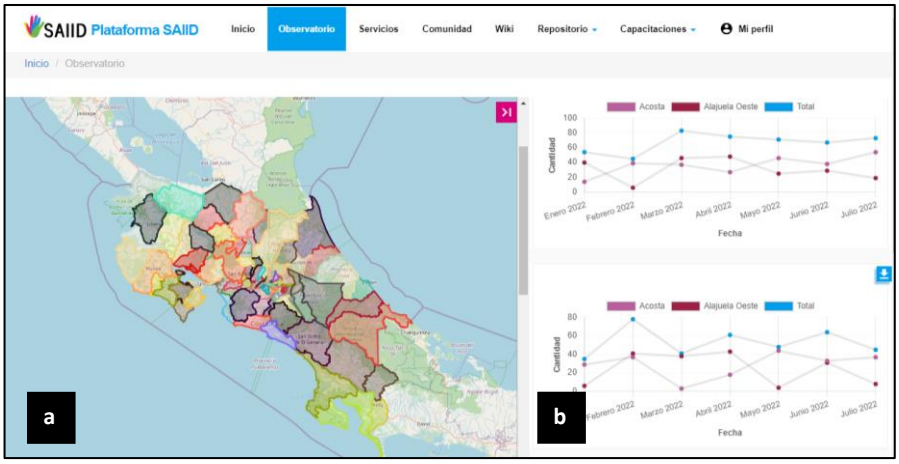
Figure 1. Diagram corresponding to the Database underlying SAIID Platform



Observatory

The observatory component consists of a divided screen where the section on the left allows selecting and viewing the geolocation of the territory associated with each of the 104 RISA networks, as well as some of its related basic data (number of active cases, number of members, etc.) (See Figure 2a). Then, the right section of the screen consists of a set of filters that allow selecting variables associated with the networks' monthly actions, from and to a certain month/year. In the same right section and after the consultation, the graphs are displayed with the values associated with the variables consulted within the time range of interest (See Figure 2b). All results can also be saved or printed as a report in formats such as png., pdf. among others.

Figure 2. Interface corresponding to the component Observatory within Plataforma-SAIID



Through the structure of its interface and functionality, the Observatory allows each network, and especially at the national and regional coordination levels, an accessible, regular, and comprehensive follow-up of some of the main actions of the networks throughout the national territory. This represents a significant improvement compared to the previous scenario, where each network knew little or nothing about the actions of other networks throughout the year, with the sole exception of an annual face-to-face conference, where people from different RISA listened and presented their annual management reports to others.

In addition, and no less important, the geolocalized visualization of the actions of each network through the same map, fulfills a mediation role by promoting an identity representation associated with SAIID and its RISA, as a broad and complex, but articulated system. Such visualization also allows the user to familiarize himself with the name and coverage of networks more or less distant from his own, which during the consultative phase were not frequently considered as references for management. Some of the aspects that can be consulted are…

WikiSAIID

Wiki structures are today recognized for their versatility as learning resources on various topics (Jatowt, Kawai, and Tanaka, 2018), as well as for their ability to promote collective and democratic

knowledge management (Kopf, 2020). As in the case of the well-known Wikipedia, Wikiart or Wikihow, Wiki structures are characterized by allowing user communities to create expository entries on different topics on websites, as well as edit entries generated by others and discuss the content of the same. For the above, it was determined that integrating a Wiki component in Plataforma-SAIID would favor addressing the requirements associated with the interdisciplinary and intersectoral nature of SAIID and the professional teams that make up the RISA networks. Among them, the challenge of establishing frameworks of reference and common vocabularies around topics related to the evaluation of development, management, and inter-institutional paperwork, as well as processes of intervention or diagnosis in health and education, etc. In the context of the platform, and as usual for users of other Wiki communities, users can generate their entries and propose their topics incorporating images, videos, audio, and including hyperlinks to other websites or online resources (See Figure 3).

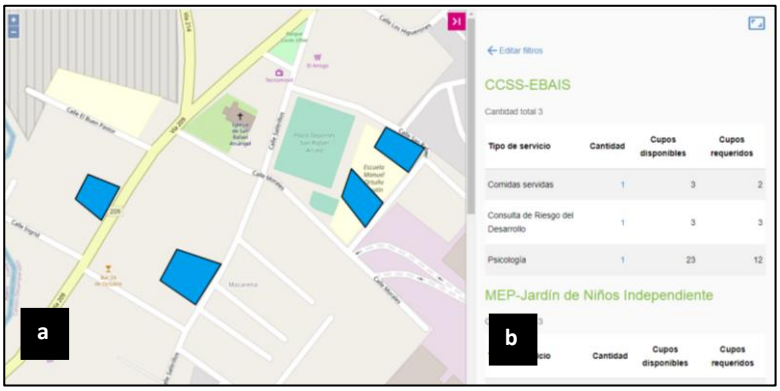
Among other functionalities, the exchanges during the collective edition of information associated with each entry, allow new types of interaction between members of different RISA that until then did not have a similar space for reflection and professional exchange. Given this, the WIKISAIID has also been promoted as a space for the exchange of good practices between networks.

Figure 3. Common example of a WIKISAIID entry created by user incorporating multimedia.

Services Map

The interface of the Services Map component has a divided screen structure like the Observatory component, insofar as it consists of a geolocated reference map on the left and a space to perform queries and view results on the right (See Figure 4). However, as illustrated in Figure 4a, the mapping in this component focuses on a very detailed local scale, where it is even possible to identify the local infrastructures of the buildings where each RISA refers children for their respective care. Thus, considering that each network can work in alliance with multiple services corresponding to any of the also multiple institutions that make up or collaborate with the SAIID, the complete mapping resulting from this component makes it possible to visualize another dimension of complexity inherent to the SAIID in its scope. and limitations. This because, as shown in the same Figure 4b, the data that the mapping enables includes the number of seats available and required for a certain service in a certain region. In this way, mapping not only allows team members to recognize the quantity and diversity of existing resources in their region, but also the degree of requirement, availability, or saturation in which the services are found (See Figure 4b).

Figure 4. Common example of a WIKISAIID entry created by user incorporating multimedia.



Training Classroom

Since its inception, SAIID has found in joint training processes one of the keys to strengthening intersectoral alliances and linkages within the local teams that make up RISA. Therefore, the approach of the *Learning Management System* (or LMS, for its acronym in English), was contemplated from the beginning as one of the possible requirements of Plataforma-SAIID. Given the purpose of constituting the platform through open-source components, and due to the good results of experiences, it was chosen to develop the Training Classroom of the platform through Moodle as LMS (Moodle Project, 2018) (See Figure 5). Currently, hundreds of members of the SAIID teams enroll each year in the variety of training courses that are offered free or at a very low cost in topics such as: neurodevelopment in early childhood, quality indicators in education, assessment and integral diagnosis of development, etc. The coexistence that many of these formative experiences imply, both face-to-face and online through workshops, forums, dialogues, and others, strengthen the learning community that also involves participating in SAIID.

Figure 5. Common example of Moodle's own interface as a Training Classroom in Plataforma-SAIID

Repository

Finally, the Repository component is made up of a wide gallery of textual and audiovisual materials, regularly produced by SAIID or by one of its constituent institutions, placed at the disposal of the members of the RISA networks due to their relevance for professional practice in

the various services. The materials can range from basic protocols associated with the procedures that RISA must carry out to comply with their efforts, to training videos on some of the techniques or scales that are introduced for the assessment or diagnosis of children. The Repository supports those formats that were identified as most frequent, among the material that was circulating within the system at the time of the consultation phase.

Prior to the establishment of this resource, the circulation of the required material was hardly homogeneous among the dozens of RISA. Fluid material traffic routes could commonly run into difficulties as they find themselves mediated and decentralized through various coordination filters at different levels of the system, and/or by various mailing lists associated with email or other digital messaging applications.

Conclusions and scope: challenges of university extension in the post-pandemic world

In Costa Rica, as in other countries in the region, one of the most recurring figures in the discourses on the why and for what of university extension, has been the idea of territory (Mosquera-Abadía and Carvajal-Ordoñez, 2021). Thus, the territory-action or territory-community dyads (Cerdas, 2018) have been commonplaces of a wide range among the arguments that promote the link between university and society. Today, however, and especially after the ruptures derived from the confrontation of the COVID-19 pandemic, it is essential to expand this discursive space so that it also includes virtual settings and their associated learning communities. The latter, perhaps because they lack determined territories in the traditional sense, have been less considered by substantive work of university extension within the general objectives of interest. Despite this, the effects of closures linked to the increase in mortality from COVID-19, lead to signs that invite us to reconsider a better balance between the territorial and virtual plans, within the actions of the extension.

For example, the increase in citizen participation in virtual training spaces has been highlighted since 2020 (Taffel, 2019). Likewise, the massive turnout of various age groups in video conferencing applications, and even the government authorization to hold community assemblies on platforms such as WhatsApp (Directorate Nacional Community Development, 2020), can be counted as other keys that confirm the need to balance the impact of university extension on both

planes. This, because the above shows that the so-called living forces, core partners for extension activity, have begun to move in the virtual plane with the same frequency and naturalness characteristic of their movements over the territories. Thus, the need for the corresponding adjustment in our visions of extension is confirmed. In the case of Plataforma-SAIID, and as has been exposed, the initial impulse depended to a large extent on this adjustment of vision within a Project such as FIAID, which had already begun to work strongly from these premises even before the pandemic.

On the other hand, it is worth noting that a university extension committed to comprehensive progress on both levels (territorial and virtual) , must assume other related challenges that require transdisciplinary approaches. In the immediate future of the tasks associated with Plataforma-SAIID, for example, the measurement of the impact, or the development of transmedia communication strategies; These are just two of the main challenges that make it necessary to keep in mind the need for this comprehensive, simultaneous and systematic approach. In the first case, the challenge involves monitoring the points and incidence routes through which a virtual interaction can lead to a transformation in the reality of those who inhabit a territory. This, which today constitutes a central problem to be solved for several disciplines (Uderberg and Zorn, 2013), will soon also be for extension, an arduous maturation process like any other paradigm shift. On the other hand, the aforementioned development of expertise for the improvement of communication and transmedia narratives, would serve to promote the flow of information in a timely manner intra-platforms and between-platforms, representing a significant challenge of future associations for the Plataforma-SAIID team, such as for other groups dedicated to extension.

Comentado [DHV3]: I keep thinking that the virtual can have the logic of the territorial (which predominates in certain approaches to university extension) or it can also have other logics. Space is lived differently from the virtual and precisely for this reason some barriers can be broken, particularly access, especially in a country like Costa Rica.

Then, the actuality of the socioeconomic and political situation of the region, leads to highlight the collaborative model between university and civil society that served as the basis for Plataforma-SAIID, as another of the important achievements associated with the initiative. In the case of Costa Rica, and despite the frequent calls to establish this type of collaboration as one of the ways to solve major problems that affect national development (Matamoros and Jean-Pierre, 2021), there are still few initiatives of this kind. nature that come to fruition. In this regard, the collaboration around Plataforma-SAIID managed to capitalize on two elements commonly associated with successful experiences in public-private partnerships. For example, the fact that the alliance was aimed at solving a problem with “social meaning by itself” (Vasallo, 2018, p. 216), promoted the

strengthening of group bonding, facilitating the interaction between extrinsic and intrinsic motivations. In the same way, the recognition of the "impact on society due to the delay in action" (Vasallo, 2018, p. 216), facilitated the link between the work team and other academic and intersectoral instances, whose support was key in consultation and production stages.

Finally, and in addition to successfully channeling the momentum of citizens willing to contribute to the context of the COVID-19 health emergency, collaborative dynamics such as distributed leadership and a respectful decision-making process were key to achieving the objectives. As the development of the platform demanded to deepen in different areas such as the legislation on sensitive data, or the process of reference and intersectoral counter-reference in health; the previous dynamics helped to cultivate a group management based on trust and respect. This paid off in favor of interdisciplinary understanding throughout the entire process and will serve as the seed for the important intersectoral transactions that the platform will continue to foster in the future.

References:

Barico, A. (2021). What we were looking for: of the pandemic as a mythical creature. Anagram.

Bristles (2016)

Cunill-Grau, N. (2014). The intersectoriality in the new social policies: An analytical-conceptual approach. *Management and Public Policy*, *23* (1), pp 5–46.

de Jong and Van Reisen (2021)

address _ _ N atio n al C ommunity D evelopment . _ _ _ (2020). Dinadeco authorizes the boards of directors of community organizations to use the WhatsApp platform for meetings. DINADECO.

Django Software Foundation. (2019). django. Retrieved from https://djangoproject.com

Fernandez and Del Valle (2013)

Gottlieb G. (2007). Probabilistic epigenesis. Developmental science, 10 (1), 1–11. https://doi.org/10.1111/j.1467-7687.2007.00556.x

Hernández, D. and Chacón, M. (2021). The network management model for comprehensive early childhood care in Costa Rica: A look from its actors. Educare Electronic Magazine, 25(3), 1-22. http://doi.org/10.15359/ree.25-3.12

Jatowt , A., Kawai, D., & Tanaka, K. (2019). Time-focused analysis of connectivity and popularity of historical persons in Wikipedia. International Journal of Digital Libraries, 20, 287–305. https://doi.org/10.1007/s00799-018-0231-4

Kopf, S. (2022). Participation and deliberative discourse on social media – Wikipedia talk pages as transnational public spheres? *critical Discourse study* , *19* (2), 196-211.

Loyacano, N. (2018) . Autism Spectrum Disorder: an integrative approach from the "art of the possible" to research put into practice. Global Editions .

Matamoros, G. and Jean-Pierre, D. (2021) State of public-private partnerships in Costa Rica . Foundation for Sustainability and Equity . _ _ _

Mesa-Largo (1991)

Mosquera-Abadía and Carvajal-Ordóñez (2021)

Nagaon (2020)

Newell, B., Tan, D. & Proust, K. (2021). Systems Thinking for Health Systems Improvement in Martins, J., Pathmanathan , I., Tan, D., Cheng, S., & Alotey , P. (Eds.). Systems Thinking Analyzes for Health Policy and Systems Development (pp. 17-32). Cambridge University Press.

OECD (2021)

Saints (2014)

Taffel (2019)

Uderberg , N. & Zorn, E. (2013). Digital ethnography: Anthropology, Narrative and New Media. University of Texas Press.

National University (1993). (or 2015).

Vasallo, J. (2018). Public - private partnership in Latin America : Facing the challenge of connecting and improving cities . coffee.

Vercellone (2004)