

# **How can ICT be Used to Improve Street Children's Plight: A Proposal for the City of Santa Fe, Argentina**

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**Abstract.** Children working, eating, sleeping and growing up on the streets a.k.a 'Street Children' is a problem that has long accompanied the history of development of big metropolitan centers. According to UNICEF it is almost impossible to determine the exact amount of street children but it is likely the numbers are increasing as the global population grows and urbanization continues at a rapid pace. As one way to cope with this crisis, the aim of this work is to study the utilization of Information and Communications Technologies (ICT) to reduce the number of street children. The idea is to evolve the concept of telecenters and telecottages, which has been largely reviewed in the literature, into Digital Knowledge Information Centers (DKICs) tailored to street children's need. The objective is to use ICT tools to offer content and activities that can capture their attention thus attracting them out of the streets while at the same time improve their literacy, e-literacy and provide useful skills to reduce their marginality and improve a future reinsertion in the society. In practice, every city in the world has some street children but, for the sake of this work, the city of Santa Fe in Argentina was chosen because it already has structures such as 'Centers for Family Action' scattered in the poorest neighborhoods that can be easily turned into successful DKICs.

**Keywords:** ICT4SD, street children, sustainable development, digital knowledge centers, Argentina.

## 1 Introduction

To begin it is important to define who street children are. The World Health Organization recognizes four categories of street children that are literally: “a *‘child of the streets’*, having no home but the streets. The family may have abandoned him or her or may have no family members left alive. Such a child has to struggle for survival and might move from friend to friend, or live in shelters such as abandoned buildings. A *child ‘on the street’*, visiting his or her family regularly. The child might even return every night to sleep at home, but spends most days and some nights on the street because of poverty, overcrowding, sexual or physical abuse at home. A *part of a street family*. Some children live on the sidewalks or city squares with the rest of their families. Families displaced due to poverty, natural disasters, or wars may be forced to live on the streets. They move their possessions from place to place when necessary. Often the children in these ‘street families’ work on the streets with other members of their families. *In institutionalized care*, having come from a situation of homelessness and at risk of returning to a homeless existence” [9].

In its ‘State of the World’s Children 2006’ report, UNICEF mentions that even though there are no exact numbers, some estimates place the number of street children all over the world as high as 100 million (50 million in Latin America alone and in some parts of Central America around 12% of all children under 18 live on the streets [28]); pointing out that the figure is likely to increase as the global population grows and as urbanization continues at a rapid pace. Moreover, it remarks that even if the street children are physically visible, they are frequently ignored, shunned and excluded [10]. Often murder, consistent abuse and inhumane treatment are common among these children, whose ages range generally from 6 to 18 years old. They are extremely vulnerable to sexually transmitted diseases including HIV/AIDS. An estimated 90% of them are addicted to inhalants such as shoe glue and paint thinner, which cause kidney failure, irreversible brain damage and, in some cases, death. [28]

Street children are not only concern of underdeveloped areas because in practice every city in the world has some street children, including the biggest and richest



**Fig. 1.** A representation of a common panorama seen in many big cities, particularly in underdeveloped countries, where street children clean the windshield of a car at the stoplight. Reproduced from [9].

cities of the industrialized world. In such a situation, every effort towards their reduction can substantially alleviate the problem.

## **1.2 Convention on the Rights of the Child**

Together with the reduction of the number of street children, the usage of ICT in this proposal is also granting their right to access to education and technology as envisioned by the ‘Convention on the Rights of the Child’ adopted by the United Nations by General Assembly resolution 44/25 of November 20<sup>th</sup>, 1989 and entered into force on September 2<sup>nd</sup>, 1990 [3]. The Convention, in particular, the article 28 part 3 mentions: *“States Parties shall promote and encourage international cooperation in matters relating to education, in particular with a view to contributing to the elimination of ignorance and illiteracy throughout the world and facilitating access to scientific and technical knowledge and modern teaching methods. In this regard, particular account shall be taken of the needs of developing countries”*. Article 29 continues stating that the education of a child shall be directed to: *“The development of the child’s personality, talents and mental and physical abilities to their fullest potential”*.

The implementation of Digital Knowledge Information Centers (DKICs) equipped with computers connected to the Internet collocated with ‘Centers of Family Action’ (CAFs) as will be explained later, directly guarantees part of the rights mentioned before. In developed countries, most often, there is no need of DKICs as conceived here, simply because, in general, each town has a library that has been computerized in recent years becoming already a DKIC by itself. In underdeveloped countries, the implementation of DKICs would fill some of the wholes left by the lack of a good network of traditional town libraries, especially if one takes into account the great amount of digital literature, encyclopedias, and newspapers that are available on-line. This trend will certainly become more in the near future when a great deal of good old books will be available digitized on-line, as projects like the one pursued by Google and others begin to reach their critical mass [11], [12].

## **1.3 Similar experiences around the world**

In a certain way, the idea behind DKICs is not at all new and has been applied with other names in many countries. In most cases they start as information kiosks as well as Telecenters or Telecottages, which are similar but not the same. In general a “Telecottage” is a community based facility implemented to develop e-literacy, provide access to technology, access to job offers on the web, etc.; for its local community [12]. Originally, the Telecottages movement started in Sweden but the idea has been spread widely both in developed and underdeveloped countries, like UK and India [14]. Telecottages tend to emphasize “social support” for their users, few of whom will work full time at the telecottage. In general most of them will come by just to use some facilities, book a training session, etc. On the other hand, a “Telecenter” suggests a facility which is more commercial, generally established for specific profitable purposes. In developed countries a Telecenter place considerably more

effort on providing a well managed, secure and uninterrupted working environment for those that need a place where they can continue working outside the office but keeping their connectivity with the employer, colleagues, customers, etc. In underdeveloped countries however this distinction tends to blur and sometimes Telecenter and Telecottage can be used interchangeably or be replaced by a more general term such as “community information center” [26]. Noticeable is how from quite a while rural India has become a laboratory for this kind of initiatives. For example, it is interesting to see how people can overcome the cultural barriers that divide them when integrated by the information age. Mbalan is a village in southern India where a century-old temple is used to house two solar-powered computers that let villagers query the price of rice, the day’s most auspicious hours, and other things of their interest [2]. The temple has two doors, through one lies tradition in the sense that people from lowest casts and women during menstrual periods cannot enter because inside religious people perform their daily pujas<sup>1</sup> offering prayers. The second door gives access to the computer room and anyone may enter. This is a rare social experiment in which the byproducts of the introduction of ICT somewhat helped to shorten social and cultural barriers between people.

Aside from the previous example there many others. The United Nations Information and Communications Technologies Task Force published in November 2003 a report on “Information Kiosks and Sustainability” which reviews several case studies from Africa, Asia, Eastern Europe, and Latin America. The objectives are varied and cover topics such as: poverty reduction [16]; increase in productivity and competitiveness [17]; IT skills development and training [18], [25]; fostering rural entrepreneurship [19], [21]; technology transfer [20]; and multipurpose Internet access [22], [23]. However, to the best of this author’s knowledge, there no initiatives involving street children.

## 2 Motivation

The growing quantity of street children is the first motivation towards a proposal to reduce their number. It is this author’s belief that blending the successful experience of the “community information centers” (Telecenters, Telecottages, etc.) in bringing technology close to the people, together with the benefits that ICTs provide in terms of education and knowledge, one can build a successful “Digital Knowledge Information Center” that can effectively attract and retain street children. Through the implementation of specific techniques tailored to street children problems, DKICs would give them the possibility to improve their literacy, general education and skills with the ultimate goal of providing an alternative way to leave the streets and continue to grow up normally increasing their changes to become fully inserted in the society.

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<sup>1</sup> Also spelled Pooja, or Poojah, Sanskrit Pūjā, in Hinduism, ceremonial worship, ranging from brief daily rites in the home to elaborate temple ritual. Source: "**puja.**" *Encyclopædia Britannica* 2006 Ultimate Reference Suite DVD.

## **2.1 Complementary lines of research**

Over the years, quite a lot of research has been accumulated around the problem of street children. However, since the objective of this proposal is to devise methods that can attract the children out of the streets using the benefits of ICT, there are two research lines that are particularly related and therefore deserve further attention.

### **2.1.1 Assistive Technologies for children with learning difficulties**

Many street children develop problems of substance and drug abuse such as glue sniffing to endure hunger, fear, and physical or emotional distress. Toluene is the preferred substance because it gives greater effects, produces less “hangover,” and does not leave marks on the face. Solvent and inhalant abuse has been linked to neurologic problems such as hearing loss, reduction on cognitive ability after brief exposures, brain damage after excessive exposure, and peripheral neuropathy amongst these children [29]. As a consequence a considerable percentage of street children usually present some degree of disability, generally classified as mild disabilities [27]. People with mild disabilities typically have small deficits on specific skills or deficits in a small number of areas, and can function without assistance in most normal daily activities. Persons with mild disabilities normally require part-time special education programs which are usually imparted by special resource teachers or in special classes for part of the school day. Studies such as [27] suggest that the fact that a disability is mild does not mean that it is trivial or that it magically disappears at age 18 or 21. Street children with specific learning disabilities (SLD<sup>2</sup>), for example, are seriously impaired in acquiring literacy skills and using them to master areas of knowledge which is a fundamental and probably the most important developmental task in a technologically complex society. Poor reading skills in particular constitute a barrier to academic progress very difficult to surmount which ends up significantly limiting adult career opportunities. In summary, in most cases street kids, because of their emotional, psychological and some times physical disturbances, can be regarded as “children with learning difficulties” and as such must be addressed from the point of view of instruction.

To cope with this issue a lot of research has been done on assistive technologies for students with mild disabilities and learning difficulties [31], [32], [33], [34], [35], many of them through the utilization of ICT. Of particular interest for this proposal are strategies designed to improve better reading and writing proficiency through the usage of Internet based technologies. The DKICs, as envisioned here, can provide the necessary infrastructure for the implementation of these strategies, such as those mentioned in [36], including prereading, picture walk, postreading as well as “Authentic Learning” programs that help to organize ideas, get through difficult

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<sup>2</sup> Specific learning disability (SLD) means “a severe learning problem due to a disorder in one or more of the basic psychological processes involved in acquiring, organizing or expressing information that manifests itself in school as an impaired ability to listen, reason, speak, read, write, spell or do mathematical calculations, despite appropriate instruction in the general education curriculum.” [30]

words, work with difficult text selection, summarizing and other areas in which street children may have problems.

### **2.1.2 Social reinsertion of street or post institutionalized children**

In general street children could potentially be reintegrated within their families, professionally or both. The social insertion of street children usually entails: The cooperation of local authorities; taking care of the street children and screening; developing listening and teaching skills for the facilitators; re-establishing relations between the child and his/her family through short visits; developing mediation to bring the families together; identifying host families for the orphans; cooperating with the communities in which the children will be reinserted and defining their role; defining the means of returning to families by assessing the degree of acceptance; and finally, in the case of a professional reinsertion, studying the viability and feasibility of the project of the child in his/her habitat, through the implementation of aid and the possibility of obtaining micro-credits [38]. The same reference [38] continues mentioning that the reinsertion plan should include two key elements: screening and the appointment of a tutor.

Regarding the provision of aid to revenue generating activities (RGAs), some organizations like the PKKO<sup>3</sup> proposed completing the return to the family with professional training adapted to the age and type of activities tailored to the child in his or her environment [38]. The program aim to develop the following skills: craftsmanship; traditional and modern music; repairing electrical material (watches, radios, televisions sets, video recorders, CD players, etc.); repairing small machines; dressmaking and weaving; hairdressing and make-up; etc. The reinsertion of the child always is accompanied by a mechanism of dialog to restore the communication with the family the build up his/her self-esteem [39]. Somebody like a “supervisor”, who already has gained the confidence of the child should be selected to this end. In the same way, other projects aiming at ensuring long-term social reinsertion and reintegration for street children support similar ideas [40], [41], [42].

Due to the variety of tasks involved there is plenty space for the utilization of ICTs to complement or increase the effectiveness of them. In particular, the role of tutor or advisor mentioned before, can be played up to some extend by a person working remotely and communicating with the child via email or chat as will be explain later.

## **2.2 Minimizing Internet self-exclusion**

Doherty et al. [5] discussed the role of informal support networks to reduce the digital divide. Their research reveals that even if at the beginning economic difficulties may limit the adoption and extensive usage of ICTs, in the long run other factors such as the lack of training and support networks in which individuals can learn about the use and potential of a particular technology, can intensify their social exclusion and protract self-exclusion. In line with this view it is clear that DKICs aside of its main objective of acting as a contention place to take children out of the streets, will train

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<sup>3</sup> PKKO - Ponleu Komar Kampuchea Organization. Cambodian local aid organization.

those kids on how to use the technology and in this way will enable them to use the instruments of the information society thus reducing the probabilities of exclusion. As with many other things people do, training and support is not always sufficient to have a favorable and enjoyable Internet experience.

In order to be effective, the training and support should be exercised in a context in which the children and young users can feel comfortable about using it. This proposal starts with the idea of attracting children first with ludic and playful activities (e.g. gaming) to continue then with other more educational activities. The utilization of ICTs complement well the idea depicted in [39] in which games and arts are useful to reconstruct self-esteem; values and the deconstruction<sup>4</sup> of the 'schemes of power' (e.g. let's don't forget that gaming was in fact the motivation that attracted many of today's most successful computers programmers and entrepreneurs [44]).

With this regard, the DKICs proposed here fulfill most of the items listed in [5] aiming to minimize Internet self-exclusion, because they will provide equipment (i.e. up-to-date computers and software) and resources (i.e. broadband access) to avoid feelings of being "second class" even for the people living in the poorest neighborhoods of the city. They will provide access to knowledge, skills and support, through the help of trained support and flexible and inclusive politics of usage. It changes the "not for me" paradigm, by bringing the latest technology to the more impoverished areas of the city so that their inhabitants can feel that they are being taking into account now and will not be excluded from the society of the future.

### 2.3 Knowledge Centers and Community Networks

Even if there is no absolute agreement on the term "Community Network", it is generally accepted that: "...a community network is a computer-based system that is intended to help support geographical communities by supporting, augmenting, and extending already existing social networks. Community networks often provide free web space, e-mail and other services for free without advertising. Community network organizations often engage in training and other services and sometimes are involved in policy work as well." [7]

Since this definition is somewhat broad, maybe is more interesting to find out what are the characteristic of community networks that could be in accordance with this proposal. The literature provides certain characteristics such as:

- Supply of information and Services. For example through a web site offering information for local people which may include local events, weather forecast, news, governmental offices, and in general any information that can be of particular interest for the local community. The website can use new emerging

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<sup>4</sup> Deconstruction is a technique developed by the French philosopher Jacques Derrida, different to structuralism, in which the world can be understood as a series of dichotomies (e.g. masculine vs. feminine; black vs. white; child vs. adult; what is written vs. what is spoken, etc.). Derrida found that this structure, in spite of being a strong simplification, represented the way in which many people conceived the world. He tried to create a way to overcome this structural way of thinking by means of methods to deconstruct such dichotomies [43]. From the point of view of this work the dichotomy is: ICT for regular children vs. no ICT for street children.

technologies wiki-like to allow people post personal advertisements. Regarding ownership, the web site can be owned by a local government but managed involving local people from the social community.

- Management and Main Objectives. The community network can be managed and used by many different groups with different objectives. In particular the people in charge of planning and operating the project may be: a local government office such as the Provincial Direction of Informatics; a local non-profit organization or a volunteer group. On the other hand, the main objectives of community networks which are described in the literature are much like the ones of the knowledge centers envisioned here, for example: shortening of the digital divide; offering easier access to information and services for local people (i.e. information that is probably already existing); promotion of local economic development and employment; increase the sense of local identity and reinforce the affection to the living place; renewal, encouragement and/or maintenance of local communal interrelationship.
- Area coverage: In general community networks are associated with a metropolitan area, or smaller place. The geographical area associated with a community network can be a town, city, county, and in some cases a region including parts of several provinces. For the sake of the knowledge center the community network generated by them would have its primitive cell in the neighborhood.

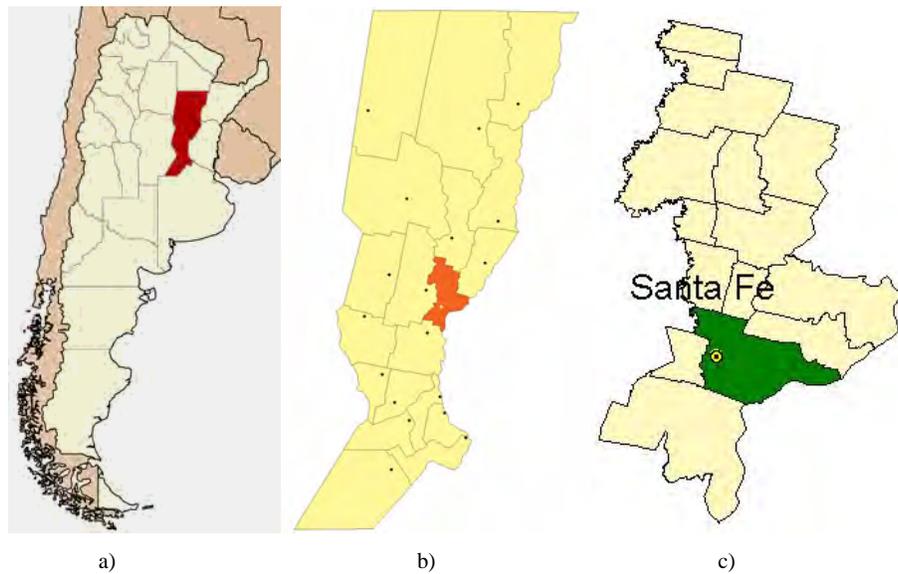
According to the definition and the characteristics given above the DKIC as conceived in this proposal could also become a building block of this community network becoming a node that will generate the content to be then distributed among the community. Therefore the implementation of the knowledge centers can be viewed as the first or foundational step towards the future development of a full scale community network that will eventually connect all the poorest neighborhoods of the city, enabling them to fully participate of the information society. Once in operation, the whole gamut of ideas described in [4] can be applied.

### **3 Suggested Implementation**

For the sake of this work the city of Santa Fe in Argentina is chosen to contextualize the ideas developed further in the proposal. There are several reasons that justify the choice: a) author's knowledge of the city and the country; b) the existence of Centers for Family Action (CAF) already operative on the poorest neighborhoods of the city useful to implement the DKICs; c) good number of non-profit organizations working in the city, useful to build the necessary partnerships; d) moderate number of street kids to cope with a manageable problem and be able to easily measure the results; e) good potentiality of the region in terms of social reinsertion; as well as other more subjective factors, such as, the composition of the population, natural resources and the inclination of the population to voluntarism that could increase the changes of success.

### 3.1 The chosen area

Fig. 2 shows the location of the city of Santa Fe in the country. Argentina is the 8<sup>th</sup> biggest country of the world by territory area. It is very unevenly developed, therefore it has cities with good development like Buenos Aires and extremely poor areas mainly in the far north and south. To assure the success of this proposal it is better to implement it in an average city where the poor and medium class neighborhoods balance each other, such that one can provide resources to the other. In this sense Santa Fe is an ideal city.



**Fig. 2.** a) Location of the Province of Santa Fe in Argentina. The province of Santa Fe is divided into 19 departments; b) shows the location of the department La Capital. The department La Capital is in turn divided into 15 municipalities and communes. Fig. c) shows the Municipality of Santa Fe. The Municipality of Santa Fe covers an area of 748 Km<sup>2</sup> with a population of approximately 370 thousand people, giving a population density of 493.37 inhabitants/Km<sup>2</sup>. Sources: [www.santafe.gov.ar](http://www.santafe.gov.ar); *Wikipedia: The free encyclopedia*. Wikipedia Foundation, Inc.

In Santa Fe, hundreds of young street children hit the streets of the city every day to beg for food; to do the squeegee merchant cleaning the windshield of the cars at the traffic lights; to steal; to scavenge on rubbish dumps; etc. It is a problem that is connected directly with the poor economical condition of the country that has been enormously exacerbated after the crisis of 2001 and reached dangerous levels over the recent years. During the morning and afternoon rush hours, at the traffic lights, street children run altogether like a human wave and hit the cars with their water squeegees. They contend for a piece of windshield to clean. Many of them suffer accidents when

cars and heavy trucks move again at green light, as a consequence most of the time they remain with some kind of physical disability. The fact that disables' family receive governmental funds and support, make street children with disabilities a desirable thing for their parents; this just one example to point out how the cultural values of the poorest classes have been degraded in these recent years.

### 3.2 Implementation Using CAFs

CAF is the acronym of Centers for Family Action that stands for "*Centros de Acción Familiar*" in Spanish. The CAF are institutional premises depending of the municipal government, which offers a physical space in economically poor urban areas, hardly served by public services, that collaborate with the complete and integral development of children, teenagers and their respective family groups [8]. They were created long ago by the Argentinean Ministry of Social Welfare, so they are now established institutions that are widely recognized for their positive contributions for the society well being. The main objectives of CAF are:

- Provide integral daytime care to children between 45 days old to 4 years old.
- Offer educational, recreational and sportive activities outside school hours to children between 5 and 12 years old.
- Propose community activities for teenagers and adults.

The CAF services are different and specific according to the following age ranges: 45 days old to 2 y.o.; 3 to 4 y.o.; 5 to 12 y.o. and 13 to 18 y.o.; and in terms of care, nutrition, educational inclusion, access to healthcare services, theoretical and/or occupational training. Also, they work jointly with other governmental and non-governmental entities to achieve insertion in the neighborhood and involve local social networks to optimize the available resources. In particular the services that are common in all centers are: infant assistance, nutritional assistance and scholar follow-up. The activities that are performed depending on the capabilities of each center are:

- Daytime nursing for babies and young children.
- Scholar support outside scholastic hours, library, alphabetization, and instruction.
- Cultural and self-expression workshops
- Reflectional programs.
- Recreational and sportive activities.
- Breakfast, lunch and afternoon snacks.
- Sanitary control and legal advice.

According to the above description the CAF seem to be the right place to host the DKIC envisioned here. Fig. 3 shows the location of the CAFs in the city of Santa Fe.

The usage of CAF would solve many of logistic and organizational problems regarding the establishment of the DKICs. The fact that the premises for the CAF are already in place and operative with electricity, alleviate a lot of problems concerning the initial set-up of the DKIC and let us concentrate specifically on the installation of the computers, the provision of broadband access, internal networks, application set-up, and which is most important: the development of the strategic plans aimed at attract, keep and them e-educate the children object of this proposal.



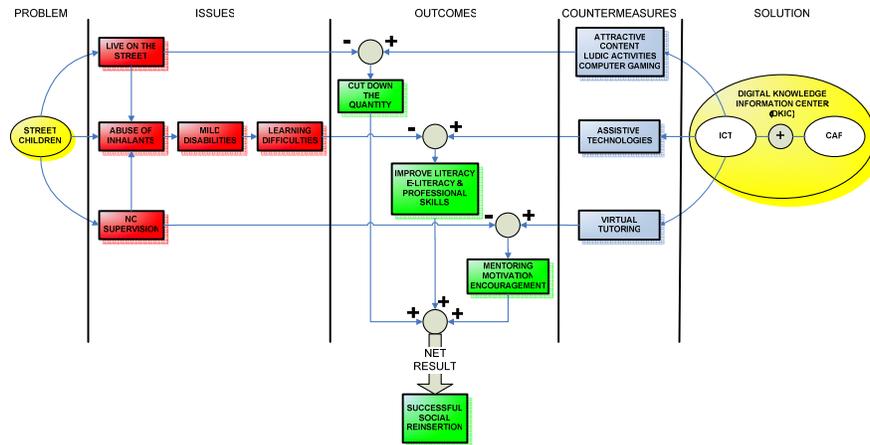
**Fig. 3.** City of Santa Fe. Red bullets indicate the location of the Centers for Family Action (CAFs) operative in the city. Note that the majority of them are positioned on the outskirts of the city where the poorest areas can be found [45].

### 3.3 DKIC functions and main objectives

A systemic overview of the whole idea is graphically represented in Fig 4. On one side lies the problem, on the other the proposed solution, and in the lower part the final objective which is the successful reinsertion of the street child in the society.

The conjunction of the CAF enabled with ICT is what is being called “Digital Knowledge Information Center” (DKIC). The CAF continues to provide basic services as mentioned in 3.2, whereas ICT supply supporting countermeasures to the three main issues depicted in red, which are, a life on the streets, cope with learning difficulties and complementary supervision.

The first countermeasure to reduce the number of street children is to provide adequate content to attract and interest them so that they spend more time in the DKIC than on the streets. It is not specifically necessary to walk the street searching for street children and trying to convince them to visit the DKIC. The street children are already visiting the CAF regularly for two reasons: one, because the CAFs are long established governmental centers that are well known by the neighbors; and



**Fig. 4.** Graphical representation of the proposed solution. A Center for Family Action (CAF) incorporates ICT to become a DKIC. As such, it can provide a new set of countermeasures to known problems which can increase the changes of a successful social reintegration of the street child.

second, because they usually serve some food (e.g. breakfast, lunch and afternoon snacks). Therefore, there is no need to publicize the existence of the center around. Once the children are in the center, the idea is to attract them with ludic activities such as computer gaming. It is well known how computer games generate a great deal of attraction –and sometimes addiction– over the player, which is generally greater among the younger [39], [47]. This is exactly the characteristic that a “replacement” must have to compete with the attraction that the streets generate. Aside from being a source of income the streets are a source of action and entertainment for the children, so if one likes to find something that can compete with the magnetism of the streets, it is imperative to find a substitute that can provide the same level of action and generate the same stimulation but without being so dangerous. One such thing could be computer games. Needless to say that the idea here is to exploit this “video game addiction” constructively, therefore any violent, aggressive or destructive game should be avoided [46]. The choice of offered games should be performed with the help and according to a detailed educational roadmap made by professionals in the subject like educators, physiologists, and social assistants.

The second countermeasure to achieve a successful social insertion is to improve the literacy of the children and cover the technological deficits of the regular school. Goldstein [47] and the references therein, illustrate how electronic games could be used to teach and reinforce skills in education, science and medicine. It refers how games are used support learning; memory; motivation; cognitive processes; and how they can improve attention deficits and other mild disabilities usually present in street children. Regarding the latter, the DKIC also provides a suitable infrastructure to implement the assistive technologies for children with learning difficulties mentioned in section 2.1.1. Aside from gaming, and little by little, the street children can be introduced to more traditional activities, like on-line book reading, as well as

exploiting all the encyclopedic material available on the web. An interesting byproduct derive from the usage of Internet, chatting and e-mailing is that the kids are forced to learn the alphabet, learn how to type, which indirectly and immediately improve their writing and reading skills<sup>5</sup>.

The third basic countermeasure is aimed towards street children having no supervision. The reinsertion of the street children in the society –understood as return to home or professional insertion– needs the creation of a strategic framework which requires the intervention of facilitators (i.e. social workers, monitors or animators). The UNESCO Guidelines on Getting Children off the Street, mentions that someone who already has the trust of the child should be appointed as supervisor [38]. This “tutor” should support the process by mentoring, encouraging and motivating the child, particularly by exploring the opportunities offered on a local level. To this end, the DKIC offers the opportunity to appoint “virtual tutors”. The virtual tutor engages into a relation with the child through Internet by means of chat, video chat (i.e. skype), email, shared board, etc. The virtual tutors are professionals and/or facilitators knowledgeable of street children’s problem that offer their participation on-line. They register and submit their offer online. Then the advising committee of the DKIC (i.e. the professionals, educators or facilitators that are already running the CAFs), evaluate the candidates and assign them to street children based on both profiles. After that, the street children and his/her assigned tutor can begin to communicate each other. This mechanism has multiples advantages, such as:

1. Avoid the costs of having tutors on site.
2. By opening the tutoring to Internet, the quantity and the quality of tutors would eventually increase.
3. Street children are somehow constrain to use Internet tools such as chat, email and video calling (e.g. skype) to communicate with the tutor, which indirectly force him/her to read and write on a daily basis thus improving his/her literacy and e-literacy on the process.
4. Isolates the children from the tutor protecting him from eventual mistreatment or harassment of any kind.
5. Allow the street children to manage the relationship at his/her own pace based on the desire, curiosity and attraction that the relation generates on him/her. If the relation is not satisfactory, the street children can cut it at any time, without any consequence or remorse, start another one with other tutor or re-start the previous relation if s/he changes her/his mind.

These are not at all marginal advantages but fundamental contributions towards a successful reinsertion of street children.

Another indirect consequence of the knowledge center is to provide, through the Internet, a kind of “window”, where the children can see that other world really exists. This is very important because what usually happens is that these kids grow up in an environment that does not show them choices, they cannot see other different alternatives for their lives. They born in a poor village, surrounded by poor people,

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<sup>5</sup> Many times street children finish many years of obligatory school instruction having severe difficulties to read and write fluently.

generally lack of culture; they see their elder brothers, sisters or relatives doing the same thing, that is, living in the streets, begging, stealing, consuming drugs, etc.; and it is impossible for them to imagine that there is another reality feasible. Through the usage of Internet in the DKIC, they could realize that there are other possibilities: see what other younger people are doing in other parts of the city, in other neighborhoods or even in other countries. They come back home revitalized knowing that what surrounds them it is not the only possible reality, developing a sense of hope that they can change their destiny if they want. This psychological byproduct is not negligible, every day its effects are cumulative during the growing phase, leaving a seed on their minds that will be beneficial in the future. One of the problems that the street children have during growth is the lack of stimulus, because the environment is not motivating, their families do not provide incentives and the society does not take care of them. The Internet present in the DKIC can fill this missing part providing the necessary stimulus enabling them to choose, which is what at the end will make them free.

### 3.4 Required partnerships and sustainability

In order to obtain most of the benefits mentioned before, the implementation of the DKICs should be carefully carried out between a balanced partnership among foreign and local institutions. Since this proposal is based upon the preexistence of CAFs already operative in the targeted areas (i.e. poorest neighborhoods in need, source of street children); its implementation effort is moderate and perfectly doable with reasonable costs if the right partnerships are instantiated.

Meetings and workshops with potential partners should determine the means of collaboration to be set up. However, the following partners can be mentioned a priori:

*Local organizations operative in the city of Santa Fe:*

- Public sector
  1. State Secretary of Communal Development. (*Secretaría de Estado de Promoción Comunitaria*) [48].
  2. Underscretaryship of childhood, adolescent and family. (*Subsecretaría de la Niñez, Adolescencia y Familia*).
  3. State Office for the Youth, Women and Family (*Dirección Provincial del Menor, la Mujer y la Familia*) [49].
- Private sector
  4. An Internet access provider operating in the city of Santa Fe.
  5. Local companies that can donate used computers (e.g. banks, industries, big retailers, etc).
- NGOs
  6. Educative Action (*Acción educativa*) [50]
  7. CAMCO. Center for the Minors and the Community. (*Centro de Acción del Menor y la Comunidad*).

8. Pastoral of the Childhood on Risk of the Archdiocese of Santa Fe (*Pastoral de la Infancia en Riesgo de la Arquidiócesis de Santa Fe*).

- Local consultancy from renowned experts in the field of street children
- 9. Uruguay School's María Crisalle [52]
- 10.EOL's Camila Candiotti [51]

*International Organizations:*

- Bilateral or multilateral and regional cooperation UN-Dependent bodies
- 11.UNESCO
- 12.UNICEF
  
- Technical Support Organizations
- 13.Engineers Without Borders.

The above list is just one possible network of partnership based on the author's knowledge of the city, its institutions and possible collaboration with foreign organizations.

Regarding local institutions, the public bodies 1, 2 and 3 manage the CAFs, therefore they should be contacted first to ask for authorization to use the premises. Since they depend directly from the government, they can also be asked to contribute financially to the project. As a reward they would have the possibility to publicize their contribution to the project, thus winning the consensus of the population and rising its popularity. The private sector is needed to contribute basically with hardware and Internet access. There are many Internet access providers (ISPs) in Santa Fe that would be willing to provide access in exchange for publicity given the altruist scope of the project. As for the computer hardware and network equipment, usually big organizations like banks, industrial and automotive companies frequently donate used equipment to schools when they renew their equipment, something that happen very often during the last years due to the dynamic of the computer and network market. The DKICs should target these donations to equip the center.

As mentioned in the previous sections Santa Fe is an ideal city because it has a good number of NGOs working on related topics. In particular, the ones mentioned are specifically working with street children. For example, the Pastoral of the Childhood on Risk of the Archdiocese of Santa Fe, was organized in 2004 to specifically take care of the problems of street children with help from Switzerland [53]. These institutions generally ask nothing in return but the possibility to see children out of the streets and effectively reinserted in the society. Also an initiative like this one should be done with the help of specialist on social reinsertion of street children. For this fact the proposal foresee the utilization of local consultancy from renowned experts in the field from the local University and the government.

Finally the proposal includes the participation of international organizations, typically from developed countries, to request founding and technical assistance. As for the founding UNESCO and UNICEF, are two big international institutions that could provide main chunks of financial support. However, one should not discount the funds that can be raised from smaller organizations that have a long tradition of

collaboration with Argentina and Santa Fe in particular, like Trentini and Piemontesi around the world [54], [55], [56]. As for the technical support, the city of Santa Fe has also a growing number of technicians with ICT knowledge that can be guided by an organization like Engineering Without Borders (EWB), that has accumulated many years of experience in similar problems [57].

## 7 Conclusion

The benefits of having Digital Knowledge Information Centers equipped with the latest ICT technology was demonstrated to be a successful experience in countries like India. With the right adaptation they could be successful too in Latin American countries. Among all the problems that can be tackled through the intelligent usage of ICT, this proposal focused on street children. The key factor of success is to link the ICT with the CAFs, and so avoid a lot of logistical problems. The CAF enabled with ICT is the genesis of the DKIC proposed here.

Argentina could be an interesting test field for this idea, because it is not an extremely poor country, thus the probabilities of success of the project are quite high. Argentina is also important in the context of the South-American region because it is one of the leading countries, second only to Brazil, but ahead in many aspects such as social inclusion. That means that if a project succeeds in Argentina, the experience will probably be tested in other neighbor countries like Paraguay, Bolivia or Peru which are certainly much poorer, and therefore the gains in terms of social contention are greater.

Finally, the author believes that, through the correct implementation of DKICs, multiple objectives can be accomplished at the same time, ranging from shortening the digital divide to reducing significantly the number of street children thus offering a solution to mitigate some of the problems that are afflicting the vast majority of third world countries.

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